GRADUATION REQUIREMENTS

Authorization Board Rule

The Board of Governors of the California Community Colleges has authorized the Los Angeles Community College District Board of Trustees to confer the degrees of Associate in Arts, Associate in Science, Associate Degrees for Transfer and Certificates of Achievement (Board Rule 6200).

Catalog Rights

(Board Rule 6202)

For these purposes, a catalog year is defined as beginning Fall semester and continuing through the subsequent summer. A student remaining in the College District may elect to satisfy the degree, certificate or graduation requirements in effect at the college from which the student will either earn his/her degree, certificate or graduate:

1. At the time the student began such attendance at the college, or
2. At the time of graduation.

For the purposes of implementing this policy, the college may develop a policy to:

1. Authorize or require substitutions for discontinued courses; or
2. Require a student changing his/her major to complete the major requirements in effect at the time of the change;
3. Allow students to select an intervening catalog in years between time student began continuous attendance and time of graduation.

a. LATTC adopted policy: Recommendation to augment student catalogue rights, so they may apply for degrees and certificates in any time frame during their academic career. (Academic Senate - 05/05/2015)

The college's policy shall be developed in consultation with the college Academic Senate in accordance with the provisions of Chapter XVIII of the Board Rules - ACADEMIC SENATE AND THE BOARD OF TRUSTEES SHARED GOVERNANCE POLICY, and published in all college catalogs under appropriate headings.

This policy does not apply to college programs which are governed or regulated by outside government agencies or which require licensure or certification through one of these agencies.

Continuous Attendance

(Board Rule 6204)

"Continuous attendance" means no more than one semester absence within a school year, excluding Summer Sessions and Winter Intersession.

Students granted a "military withdrawal" under the provisions of Board Rule 6701.10, will be considered to be in "continuous attendance" for their required period of military service.

ASSOCIATE DEGREES FOR TRANSFER (AA-T OR AS-T)

The Student Transfer Achievement Reform Act, Senate Bill 1440 codified in California Education Code sections 66746-66749, guarantees priority consideration for admission to a California State University (CSU) campus for any community college student who completes an "associate degree for transfer", a newly established variation of the associate degrees traditionally offered at a California community college. The Associate in Arts for Transfer (AA-T) or the Associate in Science for Transfer (AS-T) is intended for students who plan to complete a bachelor's degree in a similar major at a CSU campus. Students completing these degrees (AA-T or AS-T) are guaranteed admission to the CSU system, but not to a particular campus or major. In order to earn one of these degrees, students must complete a minimum of 60 required semester units of CSU-transferable coursework with a minimum GPA of 2.0. Students transferring to a CSU campus that does accept the AA-T or AS-T will be required to complete no more than 60 units after transfer to earn a bachelor's degree (unless the major is a designated "high-unit") major). This degree may not be the best option for students intending to transfer to a particular CSU campus or to a university or college that is not part of the CSU system. Students should consult with a counselor when planning to complete the degree for more information on university admission and transfer requirements.

The following is required for all AA-T or AS-T degrees:

- Minimum of 60 CSU-transferable semester units.
- Minimum grade point average (GPA) of at least 2.0 in all CSU-transferable coursework. While a minimum of 2.0 is required for admission, some majors may require a higher GPA. Please consult with a counselor for more information.
- Completion of a minimum of 18 semester units in an "AA-T" or "AS-T" major as detailed in the section of the catalog. All courses in the major must be completed with a grade of C or better or a "P" if the course is taken on a "pass/no pass" basis (Title 5 § 55063).
- Certified completion of the California State University General Education-Breadth pattern (CSU GE Breadth); or the Intersegmental General Education Transfer Curriculum (IGETCfor CSU) pattern. Students must complete Area 1C for CSU admission.
- Students must complete no fewer than 12 units at the college conferring the degree.

Additional Information

- LATTC offers the following Associate Degrees for Transfer: Administration of Justice, Early Childhood Education, English, Kinesiology, Mathematics, and Physics.
- To find out which CSU campuses accept each LATTC Associate Degree for Transfer (ADT), please go to http://www.calstate.edu/transfer/adt-search/search.shtml.
- Submit the completed AA-T/AS-T Verification form to the Admissions & Records office during the semester in which you will complete the ADT.
- Please meet with a counselor to discuss your educational and transfer goals.
ASSOCIATE DEGREE REQUIREMENTS (AA or AS)
(Title 5 section 55063)

Associate in Science (AS) and Associate in Arts (AA) degree programs are comprised of two parts: major program requirements (required and elective courses), and general education program requirements. An Associate Degree shall be granted by Los Angeles Trade - Technical College to any student who successfully completes a sequence of courses established by the department and approved by the college in certain designated programs. Associate Degrees have the following common requirements:

Unit Requirement
A minimum of 60 semester units of course credit in a selected curriculum with at least 18 semester units of study in a major or area of emphasis and at least 18 semester units of study in general education (Board Rule 6201.10).

Residency Requirement
(Board Rules 6201.11, 6201.14)

a. Students must complete no fewer than 12 units at the college conferring the degree.

b. When the same major is offered at multiple colleges in the LACCD, the degree shall be conferred by the college where the student has taken the majority (greater than 50.0%) of units in the major. When units are split equally among two or more colleges, the college where the student was last enrolled shall award the degree.

c. Exceptions may be made under special circumstances.

Scholarship Requirement
A “C” (2.0) grade average or better in all work attempted in the curriculum upon which the degree is based. Effective for all students admitted for the Fall 2009 term or any term thereafter, each course counted toward the major requirements must be completed with a grade of “C” or better or a “P” if the course is taken on a “pass-no pass” basis (Board Rule 6201.12).

Competency Requirement
(Board Rule 6201.13)

Students entering prior to Fall 2009 must demonstrate competence in reading, in written expression, and in mathematics. This requirement may be met by achieving a grade of “C” or better in appropriate courses, recommended by the District Academic Senate, and approved by the Chancellor or by achieving a passing score on an examination or examinations recommended by the District Academic Senate and approved by the Chancellor.

Effective for all students entering on or after the Fall 2009 semester, competence in written expression shall be demonstrated by obtaining a satisfactory grade in English 101, or another English course at the same level and with the same rigor as recommended by the District Academic Senate and approved by the Chancellor. Competence in mathematics shall be demonstrated by obtaining a satisfactory grade in Mathematics 125 (Intermediate Algebra), or another mathematics course at the same level and rigor, or higher, and with elementary algebra or higher as a prerequisite, as recommended by the District Academic Senate and approved by the Chancellor.

The competency requirements in written expression or mathematics may also be met by completing an assessment, conducted pursuant to Title 5, CCR, section 55500 and achieving a score determined to be comparable to satisfactory completion of English 101 or Mathematics 125 respectively. That is, students may either place into English or mathematics courses above level of English 101 or Mathematics 125.

The competency requirements may also be met by obtaining a satisfactory grade in courses with English and mathematics content (but taught in subjects other than English and mathematics), which require entrance skills at a level equivalent to those necessary for English 101 and Mathematics 125, respectively, and are taught at the same level and with the same rigor. The District Academic Senate shall recommend such courses to the Chancellor for approval.

General Education Requirement
(Board Rule 6201.15)

General Education is designed to introduce students to the variety of means through which people comprehend the modern world. For every major, students must complete a series of courses that make up the general education requirement of the degree.

While a course might satisfy more than one general education requirement, it may not be counted more than once for these purposes. A course may be used to satisfy both a general education requirement and a major requirement.

Policy on general education fulfillment for students with prior degree: Local Los Angeles Community College District associate degree general education requirements are fully satisfied by students who have an Associate, Baccalaureate or higher degree from a United States regionally accredited Institution.

Note: High Unit Programs of Study (42 or more major units) are eligible for a 3-unit waiver of the 21 LATTC General Education Requirements (applicable only at LATTC). More details about this policy and a complete listing of eligible programs are outlined in the section titled “Supplemental Information for High Unit Programs of Study/Majors”.

Additional and Concurrent Associate Degrees
(Board Rule 6205)

Additional Associate Degrees:
Students who have previously earned an associate degree from a United States regionally accredited institution will be granted an additional associate degree when the following requirements have been met:

• Pursuant to catalog rights, described in Board Rule 6202, completion of all current degree requirements – i.e., scholarship, residency, competency, general education and major requirements.

• For local associate degrees, completion of a minimum of six (6) units in the major at the college awarding the degree. For the Associate Degrees for Transfer (ADTs), there is no major unit minimum requirement that must be completed at the college awarding the degree.

• Major course requirements completed in previous degrees awarded can be used again for additional degrees.

• All courses that count towards the associate degree major or area of emphasis must be satisfactorily completed with a grade of “C” or higher or “P” (pass).

• There is no limit to the number of additional associate degrees that can be awarded provided that all the above requirements have been met.

• Completion of any additional requirements, including new units, as determined by the college through collegial consultation with the college Academic Senate in accordance with the provisions of Chapter XVII of the Board Rules – Academic Senate and the Board of Trustees Shared Governance Policy.
Concurrent degrees:
Concurrent degrees are degrees awarded in the same semester. Students may petition and be awarded concurrent associate degrees in different majors if the following criteria are met:

- Pursuant to catalog rights, described in Board Rule 6202, completion of all current degree requirements: scholarship, residency, competency, general education and major requirements.
- There is no maximum number of concurrent degrees that a student may be awarded.
- If a course is a major requirement for each concurrent degree, it may be applied toward satisfaction of each major degree requirement.
- Completion of the General Education requirements for one associate degree will fulfill the general education requirements for concurrent degrees, if the same general education pattern applies to the additional degree. If each degree requires the completion of different general education patterns, the general education pattern of each degree must be fulfilled. Courses may be applied toward the general education requirements for each concurrent degree.
- All courses that count towards the associate degree major or area of emphasis must be satisfactorily completed with a grade of “C” or higher or “P” (pass).
- The LACCD does not offer double majors.

Note: Students who have taken college courses elsewhere (outside the LACCD system) must have an official transcript sent from each of those colleges to LATTC’s office of Admissions and Records when they enroll at the college.

Double-Counting of Coursework
(Board Rule 6201.18)
A course may only be counted once for General Education purposes. However, a course may be used to simultaneously satisfy both a General Education requirement and a major/area of emphasis requirement. There is no limit on the number of courses that may be used simultaneously in this manner.

Students may also simultaneously apply the same course toward satisfaction of the LACCD General Education Plan, the CSU GE Breadth Certification requirements and the Intersegmental General Education Transfer Curriculum (IGETC) requirements.

CERTIFICATE OF ACHIEVEMENT REQUIREMENTS
A Certificate of Achievement is issued in State-approved programs designed for students who are looking for instruction with a high degree of specialization. Certificate programs vary in length, but must have 12 or more semester units, and may be pursued on a full-time or part-time basis. A Certificate program is specific, and no course substitution will be permitted unless approved by the department.

The Certificate of Achievement shall be granted by Los Angeles Trade-Technical College to any student who successfully completes a sequence of courses established by the department and approved by the college in certain designated programs. That sequence of courses shall include but not be limited to the essential occupational courses required in the major. All courses applied to a certificate program must be completed with a grade of “C” or better.

Residency Requirement (Board Rule 6202.10 and 6202.12)

a. Students must complete a minimum of one-fifth of the units required for a certificate at the college conferring the certificate.

b. When multiple colleges in the LACCD offer identical Certificates of Achievement, as defined by Top Code, the certificate shall be awarded by the college where the majority (greater than 50.0%) of the certificate units were taken. When units are split equally among two or more colleges, the college where the student was last enrolled shall award the certificate.

Scholarship Requirement
A “C” (2.0) grade average or better, or a “P” if the course is taken on a “pass-no pass” basis, in all work attempted in the curriculum upon which the certificate of achievement is based (Board Rule 6202.11).

Automatic Awarding of Certificates of Achievement
Students who have completed the degree requirements for which there is a paired Certificate of Achievement or other State approved and transcripted certificate(s), will be awarded the certificate(s) automatically (Board Rule 6202.13).

Important Information Regarding Gainful Employment Disclosure Requirements
To qualify for federal financial aid, the law requires that an educational program at a community college must lead to a degree (associate, bachelor’s, graduate, or professional) or prepare students for “gainful employment in a recognized occupation. Further, federal regulations [75 FR 66832] require community colleges that participate in the Federal student financial assistance programs to report certain information about students who are enrolled in Gainful Employment Programs. At Los Angeles Trade-Technical College, Gainful Employment programs are programs that prepare students for obtaining a Certificate of Achievement.

In accordance with the Gainful Employment disclosure regulations, a website has been developed to provide students with important information on each Certificate of Achievement program (e.g., Gainful Employment program) at the college including, but not limited to: program costs, employment projections and profiles related to the occupation(s) the program trains students for, and program completers. The Certificate of Achievement website is available at: http://college.lattc.edu/catalog/gainfulemployment. The information provided for each Certificate of Achievement program on this website fulfills the Gainful Employment federal reporting requirements described above.

APPRENTICESHIP PROGRAMS
Apprenticeship programs prepare students for any profession, trade, or craft that are learned through a combination of supervised, on-the-job training with off-the-job formal education. Los Angeles Trade-Technical College’s apprenticeship programs are intended for students who are indentured to learn a trade under agreement with the State of California Division of Apprenticeship Standards. As such these programs are restricted to indentured apprentices only.

NONCREDIT PROGRAMS
Noncredit Instruction is one of several educational options offered within the California Community College System. It offers students access to a variety no cost courses that can assist them in reaching their personal and professional goals. Noncredit courses are intended to provide students with lifelong learning, college transfer and career preparation opportunities. Although students may not need or desire unit credit, noncredit often serves as a first point of entry for many underserved students as well as a transition point to credit instruction.
GRADUATION INFORMATION
To graduate from LATTC you must:

• Complete all requirements for a certificate or degree as outlined in the General Catalog. Graduation requirements will be determined using the catalog year in effect when you were most recently admitted to the College. Please contact Pathway Counselor if you have questions about completion of program requirements.
• If necessary, submit any requests for course substitutions and waivers and receive approval from the department or dean prior to submitting a graduation application.
• Students with transfer credits must have former official college(s) transcript(s) on file in the Admissions and Records Office and see a counselor to have their credits evaluated prior to submitting a graduation application. Failure to provide transcripts may delay your graduation intent. Please note LATTC does not accept hand carried or unofficial transcripts.
• The Los Angeles Community College District:
  1. Accepts degree applicable coursework completed at other regionally accredited institutions for the purpose of fulfilling Associate Degree requirements (Please refer to LACCD Administrative Rule E-93)
  2. Grants Associate Degree credit for course work completed at institution higher education outside the United States (Please refer to LACCD Administrative Rule E-101)
  3. Accepts Upper-Division Coursework to Meet Associate Degree Requirements (Please refer to LACCD Administrative Rule E-119)
• Complete all incomplete (“I”) grades required by your program of study.
• Resolve financial obligations to LACCD. Transcripts and degrees will be held until outstanding financial obligation holds are cleared.

Graduation Application Process:
• Students should meet with a counselor to go over the degree and/or certificate requirements and to fill out the application.
• Application for degree/certificate should be completed online through the student information system (SIS), before the deadline (please check dates on the website). Late applications will be reviewed after evaluation is completed of those submitted on time.
• Applications are reviewed throughout the semester for accuracy and missing information; applicants may receive an email notification with application status during this phase.
• The degree audit is finalized at the end of the semester, once grades have been entered. During this phase, ineligible notices are emailed to students via their LACCD email.
• If requirements are successfully completed, degree and certificates will be posted on student’s permanent record approximately 2 to 14 weeks after the semester ends.
• All degree/certificates will be available for pick up once degree audit is completed and diplomas are printed and validated. Please allow approximately 4 to 6 months, from the end of the semester, for your degree/certificate to become available. Students will be notified to their LACCD email that their degree/certificate is ready for pick up.
• Resolve all financial obligations to LACCD. All transcripts and diplomas will be held until outstanding financial holds are cleared.

Graduation and Commencement
Los Angeles Trade Tech College’s Commencement ceremony is held once a year at the end of the spring semester as a celebration for students projected to successfully complete all their graduation requirements by the end of spring or previous semesters. Although students may have graduated at the end of the fall, winter or summer semesters, there is only one Commencement ceremony held at the end of the spring semester, so graduates are encouraged to attend.

During the commencement ceremony, students do not receive their actual degree or certificate at the ceremony. Confirmation of degrees/certificates will not take place until the end of the semester and grades are posted. Graduation indicates that all the requirements have been satisfied and verified by the Admissions and Records Evaluation Unit.

Distinguished Graduate Award
The Distinguished Graduate Award is one of the most significant and prestigious honors available to the students in the Los Angeles Community College District. This honor is bestowed on graduates during the College Commencement.

In order to be considered for the award, a candidate must:

1. Petition for the Associate Degree.
2. Achieve a grade point average point average of 3.70 or better in all college work completed at LACCD at the time of petition, and is in good standing.
3. Achieve a grade point average of 3.70 or better in all college work completed at LACCD at the end of Fall semester; if graduation requirements will not be competed until the end of the spring semester.
4. Students who have earned an Associate Degree or equivalent or advanced degree are not eligible for the award.

Commencement Inquiries:
Inquiries regarding the Commencement ceremony, regalia, and rehearsals should be directed to Office of Student Life.


**Supplemental Information for High Unit Programs of Study/Majors**

Attention LATTC Students: The standard Associate Degree General Education Plan in the Los Angeles Community College District (LACCD) requires 21 General Education Units spread across five (5) areas.

However, per LACCD Board 6201.15, effective July 1 2016, Los Angeles Trade Technical College (LATTC) adopted a policy in which students completing Programs of Study with **42 or more Major Units** may waive the number of General Education Unit requirement from **21 to 18 units**.

The following conditions **must** be met for this 3-unit reduction:

1. Take at least one course in each of the following areas:
   - A. Natural Sciences (3 semester/4 quarter units)
   - B. Social and Behavioral Sciences and American Institutions (3 semester/4 quarter units minimum)
   - C. Humanities (3 semester/4 quarter units minimum)
   - D. Language and Rationality
     - D1. English Composition (3 semester/4 quarter units minimum)
     - D2. Communication and Analytical Thinking (3 semester units/4 quarter units minimum)

2. Total of units required from Areas A-D is 18 units

**Note**: please consult with a counselor for more details.

<table>
<thead>
<tr>
<th>Award Title</th>
<th>Award Type</th>
<th>Major Elective Units</th>
<th>General Education Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accounting</td>
<td>AA</td>
<td>47</td>
<td>18</td>
</tr>
<tr>
<td>Architectural Technology</td>
<td>AA</td>
<td>47</td>
<td>18</td>
</tr>
<tr>
<td>Automotive Collision Repair</td>
<td>AS</td>
<td>46</td>
<td>18</td>
</tr>
<tr>
<td>Baking Professional</td>
<td>AA</td>
<td>48</td>
<td>18</td>
</tr>
<tr>
<td>CAOT: Administrative Assistant</td>
<td>AA</td>
<td>43</td>
<td>18</td>
</tr>
<tr>
<td>CAOT: Office Assistant-Clerical</td>
<td>AA</td>
<td>42</td>
<td>18</td>
</tr>
<tr>
<td>CAOT: Information Processing Specialist</td>
<td>AA</td>
<td>44</td>
<td>18</td>
</tr>
<tr>
<td>Carpentry</td>
<td>AS</td>
<td>48</td>
<td>18</td>
</tr>
<tr>
<td>Carpentry-Construction Technologies</td>
<td>AA</td>
<td>48</td>
<td>18</td>
</tr>
<tr>
<td>Chemical Technology</td>
<td>AS</td>
<td>47</td>
<td>18</td>
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<tr>
<td>Child Development: Plan B</td>
<td>AA</td>
<td>47</td>
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</tr>
<tr>
<td>Computer Information Systems</td>
<td>AS</td>
<td>45</td>
<td>18</td>
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<tr>
<td>Award Title</td>
<td>Award Type</td>
<td>Major Elective Units</td>
<td>General Education Units</td>
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</tr>
<tr>
<td>Cosmetology</td>
<td>AA</td>
<td>48</td>
<td>18</td>
</tr>
<tr>
<td>Culinary Arts</td>
<td>AA</td>
<td>48</td>
<td>18</td>
</tr>
<tr>
<td>Diesel and Related Technology</td>
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<td>45</td>
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<tr>
<td>Digital Media Mobile Application and Web Design</td>
<td>AS</td>
<td>45</td>
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<tr>
<td>Electrical Construction and Maintenance: Electrician</td>
<td>AS</td>
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<tr>
<td>Electrical Construction and Maintenance: Construction Technician</td>
<td>AA</td>
<td>48</td>
<td>18</td>
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<tr>
<td>Electronics Communications</td>
<td>AS</td>
<td>44</td>
<td>18</td>
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<tr>
<td>Fashion Design</td>
<td>AA</td>
<td>46</td>
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<td>Fashion Merchandising</td>
<td>AA</td>
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<tr>
<td>Interdisciplinary Studies: Arts and Sciences</td>
<td>AA</td>
<td>49</td>
<td>See Counselor</td>
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<tr>
<td>Machine Shop: CNC</td>
<td>AS</td>
<td>48</td>
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<tr>
<td>Marketing and Public Relations</td>
<td>AA</td>
<td>44</td>
<td>18</td>
</tr>
<tr>
<td>Management/Supervision</td>
<td>AA</td>
<td>47</td>
<td>18</td>
</tr>
<tr>
<td>Microcomputer Technician</td>
<td>AS</td>
<td>42</td>
<td>18</td>
</tr>
<tr>
<td>Nursing, Registered</td>
<td>AS</td>
<td>42</td>
<td>18</td>
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<tr>
<td>Paralegal Studies</td>
<td>AA</td>
<td>42</td>
<td>18</td>
</tr>
<tr>
<td>Plumbing</td>
<td>AS</td>
<td>48</td>
<td>18</td>
</tr>
<tr>
<td>Plumbing: Construction Tech</td>
<td>AA</td>
<td>45</td>
<td>18</td>
</tr>
<tr>
<td>Process Technology</td>
<td>AS</td>
<td>45</td>
<td>See Counselor</td>
</tr>
<tr>
<td>Restaurant Management</td>
<td>AA</td>
<td>42</td>
<td>18</td>
</tr>
<tr>
<td>Refrigeration and Air Conditioning Mechanics</td>
<td>AS</td>
<td>48</td>
<td>18</td>
</tr>
<tr>
<td>Renewable Energy Generation, Transmission &amp; Distribution: Powerline Mechanic</td>
<td>42</td>
<td>18</td>
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<tr>
<td>Renewable Energy Technician: Solar PV Installation and Maintenance</td>
<td>AS</td>
<td>42</td>
<td>18</td>
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<tr>
<td>Renewable Energy Technician: Solar Thermal</td>
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<td>42</td>
<td>18</td>
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<td>Retail Management</td>
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<td>47</td>
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<td>Real Estate</td>
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<td>45</td>
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</tr>
<tr>
<td>Sign Graphics</td>
<td>AA</td>
<td>44</td>
<td>18</td>
</tr>
<tr>
<td>Visual Communications</td>
<td>AA</td>
<td>48</td>
<td>18</td>
</tr>
<tr>
<td>Welding, Gas and Electric</td>
<td>AS</td>
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</tbody>
</table>
## General Education Requirements: Minimum of 21 semester / 28 quarter units.

**Major Requirements:** Minimum of 18 semester units in an approved area of emphasis. Effective for all students entering Fall 2009 or later, each course counted towards the major or area of emphasis requirements must be completed with a "C" (2.0 or equivalent) or better or a "P" if the course is taken on a pass-no-pass basis. Please see a counselor and check the college catalog or the LATTC homepage "Program Fact Sheets" for specific major requirements.

**NOTE:** **Courses can only be used in one GE category.**

### A. NATURAL SCIENCES
- ANATOMY 1;
- ANTHRO 101;
- ASTRON 1.5^;
- BIOLOGY 3, 5, 6, 7;
- CHEM 51, 70, 101, 102, 211, 212, 211;
- CHEM TECH 111, 121;
- ELECTRN 2;
- ENG GEN 151, 220, 231;
- ENV SCI 1;
- GEOG 1;
- GEOLOGY 1.6^;
- MICRO 1, 20;
- PHYSICS 1, 2, 3, 4, 6, 7, 11, 12, 14^;
- 101, 102, 103;
- PHYSIOL 1;
- PSYCH 2

### B. SOCIAL AND BEHAVIORAL SCIENCES
- ADM JUS 1, 4, 67;
- ANTHRO 102;
- BUSINESS 1, 5;
- CH DEV 1, 2, 10, 11, 42;
- EDUC 1;
- ECON 1, 2;
- GEOG 1;
- GENDER 101;
- GOVT 111, 121;
- HISTORY 52^*, 86, 87;
- LABR ST 2, 7;
- PSYCH 1, 14, 32, 41, 69;
- SOC 1, 2, 28

### C. HUMANITIES
- ASL 1, 2, 3, 4;
- ARC 130^*, 131^* (*only 2 sem. units);
- ART 101, 102, 103, 201, 300;
- ENGLISH 102^*, 127, 203, 205;
- ENGLISH 206, 207, 208, 212, 215, 240;
- FASHION 119A, 119B;
- FRENCH 1, 2;
- HIST 52^*, HUMAN 1, 2, 60;
- KIN MAJ 106, 108 (formerly PHY ED 762);
- LABR ST 21;
- MUSIC 101, 116, 141;
- PHILOS 1;
- SPANISH 1, 2, 35, 36;
- THEATER 100;
- VISCOM 106^*, 108^*, 120^*, 130^* (*only 2 sem. Units)

### D. LANGUAGE AND RATIONALITY
- D1. ENGLISH COMPOSITION ^
  - (3 semester / 4 quarter units minimum)
  - ENGLISH 28, 101

- D2. COMMUNICATION AND ANALYTICAL THINKING ^
  - (3 semester / 4 quarter units minimum)
  - COMM 101;
  - CON INFO 701;
  - EDG TKE 101;
  - ENG GEN 122, 131;
  - ENGLISH 102, 103;
  - MATH 114, 115, 120, 125, 215 or higher;
  - PHILOS 8

*Competency Requirements on page two for students entering prior to and after Fall 2009.

### E. HEALTH AND PHYSICAL EDUCATION *
- E1. HEALTH EDUCATION (2 semester / 3 quarter units minimum)
  - HEALTH 2^*, 6^*, 8, 11, 12, 21, 43
  - Note: Health 2 and 6 includes the physical education activity.

- E2. ONE PHYSICAL EDUCATION ACTIVITY (1 semester / 1.5 quarter unit minimum, unless exempt)
  - KIN 300 to 350-1 any level, 387, 500;
  - KIN ATH 504, 513, 516, 517, 552, 561

*Waiver may be requested for High Unit Programs of Study (42 sem. units or more)

### NOTE:
- **Students completing High Unit Programs of Study (42 sem. units or more) may reduce the General Education requirements to 18 semester units. (Title V. requirements) Please refer to Page 2 and consult a counselor for more details.**

**This form is subject to change each year.**

### Student ID

### Program of Study/Major

### 2018-19

### GENERAL EDUCATION REQUIREMENTS

### LACCD BR 6200

---

**Counselor’s Signature**

**Date**
ASSOCIATE DEGREE GRADUATION REQUIREMENTS

1. **Unit Requirement**: A minimum of 60 degree-applicable, semester units of course credit in a selected curriculum. (6201.10)

2. **Scholarship Requirement**: A “C” (2.0) grade average or better in all work attempted in the curriculum upon which the degree is based. (6201.12)

3. **Competency Requirements**: Beginning Fall 2009, students must demonstrate competency in Reading & Writing and Math by completion of the following with a grade of “C” or higher. Reading and Writing Competency (Administrative Regulation E-79):
   a. English 101
   b. Math Competency: Math 125 or higher

4. **Residency Requirement**: Completion of at least 12 units of work in residence and attendance at the college during the semester in which the requirements are completed. Exceptions may be made for injustice or undue hardship. (6201.11)

++ HIGH UNIT PROGRAMS OF STUDY INFORMATION

Per LACCD Board 6201.15, Los Angeles Trade Technical College has adopted a policy in which students completing Programs of Study with 42 or more Major Units may waive units of General Education units to meet the Title V requirement of 18 sem. / 20 qtr. units within Areas A through D.

Title V. GE requirements:

1. **Take at least one course in each of the following areas**:
   A. Natural Sciences (min. 3 semester/4 quarter units)
   B. Social and Behavioral Sciences and American Institutions (min. 3 semester/4 quarter units)
   C. Humanities (min. 3 semester/4 quarter units)
   D. Language and Rationality
      o D1. English Composition (min. 3 semester/4 quarter units)
      o D2. Communication and Analytical Thinking (min. 3 semester/4 quarter units)

2. **Total of units required from Areas A-D**: 18 units

For a list of Eligible Programs of Study/Majors, visit [http://college.lattc.edu/catalog/programs/](http://college.lattc.edu/catalog/programs/)
## GRADUATION REQUIREMENTS, PATHWAYS AND PROGRAMS OF STUDY

### AREA A  
**ENGLISH LANGUAGE COMMUNICATION & CRITICAL THINKING**
3 courses - Select ONE from each group: A1, A2 AND A3

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
<th>Progress</th>
<th>Hours</th>
<th>Certification</th>
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<tr>
<td>Oral Communication</td>
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<tr>
<td>Communication Studies (Informally Speech)</td>
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<tr>
<td>Written Communication</td>
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<tr>
<td>English</td>
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<tr>
<td>Critical Thinking</td>
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<tr>
<td>English 102™/103</td>
<td></td>
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<tr>
<td>Philosophy</td>
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</table>

### AREA B  
**SCIENTIFIC INQUIRY & QUANTITATIVE REASONING**
9-12 sem. or 12-15 qtr. units

**C1** PHYSICAL SCIENCE
- Astronomy 1, 5
- Chemistry 51*, 70*, 101*, 102*, 211*, 212*, 221*
- Environmental Science 1

**C2** HUMANITIES
- American Sign Language 1, 2, 3, 4
- English 102*, 127-230, 235, 236, 260, 261, 262, 263, 264, 265
- Humanities 1, 2, 60
- Music 101, 116, 141
- Art 101, 102, 103, 221
- Theater 100

**C3** LABORATORY REQUIREMENT
- Biology 3, 5*, 8*, 11*, 11H
- Chemistry 211*, 212*, 221*
- Physics 1*, 2*, 3*, 4*, 6*, 7*, 11*, 12*, 14*

**C4** LIFE SCIENCE
- Anatomy 1
- Anthropology 101
- Biology 3*, 5*, 8*, 11*
- Geology 1
- Kinesiology 1*, 20*
- Microbiology 1*, 20*
- Physiology 1*
- Psychology 2

**C5** SOCIAL SCIENCES
- Administration of Justice 1, 4
- Anthropology 102
- Child Development 1™
- Economics 1, 2
- Geography 2
- History 11*, 12*, 41*, 42*, 43*, 44*, 52*, 86, 87
- Labor Studies 1*, 4
- Political Science 1*, 2, 7
- Psychology 1, 2, 3, 69
- Sociology 1, 2, 28*

**C6** LIFELONG LEARNING & SELF-DEVELOPMENT
- Child Development 1™
- Counseling 20
- Health 2, 6, 8, 11, 21, 43
- Kinesiology (activity) 300-335 thru 334-4, 366-1 thru 500™
- Kinesiology Athletics 516, 563™
- Kinesiology Major 101
- Psychology 41
- Sociology 28™

### CSU Certification
- CSU Full Cert
- CSU Partial Cert
CSU GE Policy & Information

- This CSU GE Plan totals approximately 39 units. A minimum of 60 CSU transferrable semester units is required for admission. You will need to complete additional coursework for your major and maybe some elective courses. Please consult ASSIST.ORG for specific major prep coursework and see a counselor to develop an Educational Plan.
- CSU GE Plan courses must be completed with a passing grade. At LATT that is a grade of A, B, C, D, or P. However, areas A1, A2, A3 and B4, must be completed with a “C-“ or better.
- Courses may be used only once to satisfy one GE area, even if they are listed in the course agreement under more than one subject area. Courses may be used to satisfy both CSU GE and major requirements.
- This advising form may not be the best general education preparation pathway for ALL majors (such as Engineering, Computer Science and Liberal Studies-Teacher Prep). Please consult with a counselor to determine the best plan to meet your educational goals.

WARNING: Many students attend multiple California Community College campuses. If that’s you, be sure to follow the CSU GE at each college of attendance. CSU policy states that CSU coursework completed in a specific subject area will be used in the same area designated by the California Community College at which the course was completed. This is also the policy if you complete courses at more than one of the LACCD colleges.

Governed by CSU Executive Order 1100
Note: USE www.assist.org to check admission and selection for impacted majors and programs.

CSU Admission Requirements

- Golden Four: All courses must be completed with a grade of “C-“ or better.
  - A2. English 101
  - A3. Critical Thinking (one course) English 102 or English 103 or Philosophy 8
  - B4. Mathematics (one course)
    (Check your major requirements to make sure your math also satisfies this requirement)
- 60 transferrable units are required for admission to CSU as an upper division student.

The Admission and unit requirements must be completed prior to admission
  - Fall semester: completed by spring for following fall (September)
  - Winter quarter: completed by summer for following winter quarter (January)
  - Spring semester: completed by summer for following spring semester (January)
  - Spring quarter: completed by fall for following spring quarter (March)

Certification is not automatic:
  - You must meet with a counselor to review CSU GE completion.
  - Official transcripts must be on file in Admissions & Records for GE credit from other institutions attended outside of LACCD.
  - Counselor must sign this verification before submission to the Admissions & Records office.
  - CSU GE must be fully certified to earn an AA-T or AS-T degree for CSU.
## Graduation Requirements, Pathways and Programs of Study

**Los Angeles Trade-Technical College 2018 - 2020 GENERAL CATALOG**

**Disclaimer:** Every effort has been taken to ensure that the information below is accurate and timely. However, this information is unofficial and should be checked against the official information found on the ASSIST website: [www.assist.org](http://www.assist.org)

**Graduation Requirements, Pathways and Programs of Study**

### AREA 1: ENGLISH COMMUNICATION

- **6-9 sem. or 9-12 qtr. UNITS**
- **Units completed**
- **Units needed**
- **Units pass-along or exam**

<table>
<thead>
<tr>
<th>Group</th>
<th>Description</th>
<th>Units</th>
</tr>
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<tbody>
<tr>
<td>1A</td>
<td>English Composition&lt;br&gt; - English 101</td>
<td>3 units</td>
</tr>
<tr>
<td>1B</td>
<td>Critical Thinking - English Composition&lt;br&gt; - English 102*, 38</td>
<td>3 units</td>
</tr>
<tr>
<td>1C</td>
<td>Oral Communication (CSU admission and CSU ADT only)&lt;br&gt; - Communication Studies (formerly Speech) 101</td>
<td>3 units</td>
</tr>
</tbody>
</table>

### AREA 2: MATHEMATICAL CONCEPTS AND QUANTITATIVE REASONING

- **3-5 sem. or 4 qtr. UNITS**
- **C IP N**
- **Units pass-along or exam**

<table>
<thead>
<tr>
<th>Group</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>2A</td>
<td>Mathematics&lt;br&gt; - Math 235, 237, 238, 245, 260, 265, 266, 267, 270, 272</td>
</tr>
</tbody>
</table>

### AREA 3: ARTS & HUMANITIES

- **9 sem. or 12 qtr. UNITS**
- **C IP N**
- **Units pass-along or exam**

<table>
<thead>
<tr>
<th>Group</th>
<th>Description</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>3A</td>
<td>Arts&lt;br&gt; - Art 101, 102, 103&lt;br&gt; - Music 101, 116, 141</td>
<td>3 units</td>
</tr>
<tr>
<td>3B</td>
<td>Humanities&lt;br&gt; - American Sign Language 2*, 3*, 4*, 5^&lt;br&gt; - English 102*, 203, 206, 207, 208, 212, 215, 240&lt;br&gt; - French 2^&lt;br&gt; - Humanities 1, 2, 60</td>
<td>3 units</td>
</tr>
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</table>

### AREA 4: SOCIAL & BEHAVIORAL SCIENCES

- **9 sem. or 12 qtr. UNITS**
- **C IP N**
- **Units pass-along or exam**

<table>
<thead>
<tr>
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<th>Description</th>
<th>Units</th>
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<tbody>
<tr>
<td>4A</td>
<td>Administration of Justice 1, 2&lt;br&gt; - Anthropology 102&lt;br&gt; - Child Development 1&lt;br&gt; - Economics 1, 2&lt;br&gt; - Geography 2&lt;br&gt; - History 11*, 12*, 41*, 42*, 43*, 44*, 45*, 52*, 86, 97&lt;br&gt; - Labor Studies 11, 2&lt;br&gt; - Political Science 1*, 2, 7&lt;br&gt; - Psychology 1, 14, 52, 69&lt;br&gt; - Sociology 1, 2, 28</td>
<td>3 units</td>
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</table>

### AREA 5: PHYSICAL AND BIOLOGICAL SCIENCES

- **7-9 sem. or 10.5-12 qtr. units**
- **C IP N**
- **Units pass-along or exam**

<table>
<thead>
<tr>
<th>Group</th>
<th>Description</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>5A</td>
<td>Physical Science&lt;br&gt; - Astronomy 1, 5^&lt;br&gt; - Chemistry 51*, 70*, 101*, 102*, 211*, 212*, 221^&lt;br&gt; - Environmental Science 1</td>
<td>1 course</td>
</tr>
<tr>
<td>5B</td>
<td>Biological Science&lt;br&gt; - Anatomy 2^&lt;br&gt; - Anthropology 101&lt;br&gt; - Biology 3*, 5*, 9*, 7^&lt;br&gt; - Microbiology 1*, 20^&lt;br&gt; - Physiology 1^&lt;br&gt; - Psychology 2</td>
<td>1 course</td>
</tr>
</tbody>
</table>

### AREA 6: LANGUAGES OTHER THAN ENGLISH (UC Requirement Only)

- **(Proficiency equivalent to two years of high school study in the same language.)**
- **C IP N**
- **Units pass-along or exam**

<table>
<thead>
<tr>
<th>Description</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>American Sign Language 1, 2*, 3*, 4^&lt;br&gt; French 1, 2^&lt;br&gt; Spanish 1, 2*, 35, 36</td>
<td>2 years of the same language Foreign Language from high school with &quot;C&quot; or better (Need official HIS transcript).&lt;br&gt; Validation by completing level 2 or higher in AREA 3B&lt;br&gt; AP Exam Language with score of 3 or higher (Need official AP scores)</td>
</tr>
</tbody>
</table>

### CSU ADT

**CSU GRADUATION REQUIREMENTS IN AMERICAN INSTITUTIONS (CSU Only)**

- **Select ONE course from A AND B.**
- **C IP N**
- **Units pass-along or exam**

<table>
<thead>
<tr>
<th>Description</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Political Science 1^&lt;br&gt; B. History 11*, 12*, 14*, 41*, 42*, 43*, 44*, 52^</td>
<td>Full Certification UC&lt;br&gt; Partial Cert. UC&lt;br&gt; Full UC/CSU Cert. Area 1C completed</td>
</tr>
</tbody>
</table>
This IGETC Plan totals approximately 34-37 CSU / UC transferable semester units. A minimum of 60 transferable semester units is required for transfer. You will need to complete additional coursework in your major and maybe some elective courses. Transferring to highly selective UC campuses prioritizes major prep for admission selection. Please visit the ASSIST website www.assist.org and consult with a counselor to develop an Educational Plan so that you can reach your goals.

IGETC Standards

- Courses must be a minimum of 3 semester / 4 quarter units to meet the requirements for IGETC (except area 5C).
- A minimum of a "C" grade is required in each college course for IGETC
- A "C" is defined as a minimum of 2.0 grade points on a 4.0 scale

Governed by IGETC Standards: www.ccctransfer.org

IGETC Policy & Information

- To be certified, all courses must be completed with a grade of "C" or better. A grade of "P" (pass) may be used if the grading policy of the community college states that "P" is equivalent to a grade of "C" or better. The UC will allow no more than 14 semester units taken with "P" towards eligibility for IGETC.
- Courses may be used only once to satisfy one IGETC subject area, even if they are listed in the course agreement under more than one subject area. Courses may be used to satisfy both IGETC and major requirements.
- Which type of student should NOT follow IGETC:
  Certain students, however, will not be well served by following IGETC. Students who intend to transfer into majors that require extensive lower-division preparation, such as engineering or physical and natural sciences, should concentrate on completing the many prerequisites for the major that the college screens for to determine eligibility for admission.
  - UC AREA 6: Language other than English-IGETC Standards: Additional mechanisms to demonstrate competency: (1) Satisfactory completion, with "C" grade or better, of two years of formal schooling at the sixth grade level or higher in an institution where the language of instruction is not English; (2) AP exam with a score of 3 or higher; or IB exam with a 5 or higher. (3) SAT language scores (see counselor to review IGETC standards); (4) Validating proficiency by completing a higher level language course.
  - When combining quarter and semester unit values within an IGETC area, units shall be converted to either all quarter units or all semester units to best serve the student.

WARNING: Many students attend multiple California Community College campuses. If that’s you, be sure to follow the IGETC pattern at each college of attendance. IGETC policy states that coursework completed in a specific subject area will be used in the same area designated by the California Community College at which the course was completed. This is also the policy if you complete courses at more than one of the Los Angeles Community College District (LACCD) college.

Certification is not automatic:

- You must meet with a counselor to review IGETC completion.
- Official transcripts must be on file in Admissions & Records for GE credit from other institutions attended outside of LACCD.
- Counselor must sign this verification before submission to the Admissions & Records office.
- To be certified IGETC must be completed in FULL. All course grades must be posted and transcripts on file for certification.
- Students using IGETC for CSU AA-T or AS-T degrees must be fully certified for UC/CSU. Area 1C is a CSU admissions requirement.
- Students who do not complete IGETC before transferring will be required to satisfy the specific lower-division general education/breadth requirements of the UC’s college or school they attend. However, California community colleges may grant partial certification of IGETC to students who are missing no more than two requirements, other than Areas 1 and 2. Students submitting partial IGETC certification should complete the missing requirements at either UC or a California community college as designated by their department. Students who have been granted partial IGETC certification should not return to the community college for a full certification.
Outcomes are used to describe the anticipated or achieved results of programs, courses or the accomplishment of institutional objectives. Los Angeles Trade Technical College identified and assesses the following four different types of student-related outcomes:

Institutional Learning Outcomes (ILOs)
The ILOs represent the broad categories of competence that enable students to be successful in further education, in careers, as citizens, and in their personal lives. Upon completion of a degree, students will be able to:

Critical Thinking and Problem Solving
Students will be able to select and synthesize information to develop or support an argument, position, or solution based on evidence, sound reasoning, and/or creativity.

Creativity and Innovation
Students will be able to use visual, numerical/quantitative, verbal, written, computer, and emerging technological skills to create useful and original products.

Occupational Competence
 Students will be able to demonstrate technical skills that meet industry and/or employment standards.

Communication
Students will be able to express and exchange thoughts to persuade, inform, and/or convey ideas in academic, professional, informal, and community settings using a variety of means, including written, oral, numeric/quantitative, graphic, and visual modes of communication.

Diversity and Citizenship
Students will be respectful of differences in identities in order to live and work effectively in a culturally and socio-economically diverse environment.

General Education Learning Outcomes (GELOs)
LATTCs general education programs are distinctively unique, characteristically interdisciplinary, and a constant and integral component of an associate’s degree. General Education Learning Outcomes (GELOs) statements for each area are listed below:

Ethical and Effective Citizenship (ACCJC Standard II.A.11)
- Compare and contrast the values, attitudes, modes of creative expression, and/or dynamics of interpersonal interactions of people from diverse cultural and societal backgrounds.
- Demonstrate ethical reasoning and/or cultural, political, or social awareness in order to be effective citizens participating in a diverse world.

Humanities
- Articulate the human condition through language, reasoning, artistic and/or cultural creation.
- Explain and evaluate the importance and ways in which arts, literature, philosophy and/or foreign languages reflect historical, intellectual, and cultural contexts, as well as aesthetic tastes.

Language and Rationality
- Apply and construct written, verbal, numeric or non-verbal expression to convey logical thought, analyze arguments and self-express.
- Critically evaluate communication in a symbol system appropriate to the academic discipline.

Behavioral and Social Sciences
- Examine the perspectives, principles, theories, methods, and core concepts of the social and behavioral sciences within their contemporary, historical, cultural and geographical contexts.

Natural Sciences
- Apply scientific principles, theories, and/or models to explain or predict the behavior of natural physical phenomena.
- Apply scientific knowledge and reasoning to evaluate the human interaction with the natural world and identify major issues impacting society.

Health & Physical Education
- Illustrate attributes for healthy physical and psychological life styles.
- Practice proper techniques and skills as related to the designated physical activities.

Program Learning Outcomes (PLOs)
Program Learning Outcomes (PLOs) describe the measurable characteristics including knowledge, skills, abilities, and determining behaviors that students will be able to demonstrate by the time they complete a program. It allows students the opportunity to demonstrate what they know, what they can do and what they value, upon completion of a program of study.

Student Learning Outcomes (SLOs)
Student Learning Outcomes (SLOs) identify what the student will know and be able to do by the end of a course—the essential and enduring knowledge, abilities (skills) and attitudes (values, dispositions) that constitute the integrated learning needed by a graduate of a course.

LATTTC CERTIFICATE AND DEGREE PROGRAM BY DEFINITION
A description and requirements for each program offered at the college is provided in the following section. The College’s website also contains the following additional program-related information:

- Gainful Employment information: tuition and fees, books and supplies, program length and completers: http://college.lattc.edu/catalog/gainfulemployment/
- Employment projections and occupational profiles: https://lattc.emsicc.com/
- Standards for student achievement (ISS): http://college.lattc.edu/research/accountability/institution-set-standards/
Pathway Overview Information

What is a Pathway?
A collection of programs of study and support services that enable a student to satisfy graduation, transfer, and employment requirements as well as earn industry-recognized credentials.

What is a Program of Study?
A program of study is comprised of a structured sequence of course(s), within a specified field of study, that culminates in an industry-recognized credential, Certificate of Achievement, Associate of Art or Science (AA/AS) degree, transfer readiness, and/or IGETC/CSU Certification.

Common Pathway Characteristics:
- Pathway Team: A team of faculty and staff members located in each pathway that will work with students on their journey to academic and career success.
- Cohorts: A group of students working together through the same academic curriculum.
- Guided Choices: A group of recommended General Education courses that are relevant or add meaning to a program of study.
- Wraparound Services: Support services offered within each pathway to help students throughout their college experience and quickly attain a certificate, degree and/or prepare them for transfer.

LATTCC Pathways:
1. Advanced Transportation & Manufacturing (ATM)
2. Applied Sciences (AS)
3. Business & Civic Engagement (BCE)
4. Construction, Maintenance & Utilities (CMU)
5. Cosmetology (COS)*
6. Culinary Arts (CA)*
7. Design & Media Arts (DMA)
8. Health & Related Sciences (HRS)
9. Liberal Arts (LA)

The following pages provide detailed information about each pathway and their programs of study including program descriptions, required courses, and program learning outcomes. To find out more about pathways, please visit us on the web at: http://pathways.lattc.edu/.

*Pathway name under review.
### Graduation Requirements, Pathways and Programs of Study

#### Pathways and Programs of Study

- Advanced Transportation & Manufacturing Pathway (ATM)
- Applied Sciences Pathway (AS)
- Business & Civic Engagement Pathway (BCE)
- Construction, Maintenance & Utilities Pathway (CMU)
- Cosmetology (COS)*
- Culinary Arts (CA)*
- Design & Media Arts Pathway (DMA)
- Health & Related Sciences Pathway (HRS)
- Liberal Arts (LA) and Transfer Prep Pathway

*Pathway name under review.

<table>
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<tr>
<th>PROGRAM OF STUDY TITLE</th>
<th>ACADEMIC PLAN CODE</th>
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<td>Administration of Justice</td>
<td>T032100H</td>
<td>AST</td>
<td>Y 18</td>
<td>BSE</td>
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<tr>
<td>Advanced Manufacturing: Welding &amp; Fabrication</td>
<td>T008497D</td>
<td>C</td>
<td>Y 30</td>
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<td>American Sign Language</td>
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<td>LA</td>
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<td>Architectural Technology</td>
<td>T008467C</td>
<td>AA</td>
<td>Y 47</td>
<td>CMU</td>
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<td>Automotive and Related Technology</td>
<td>T002966C</td>
<td>C</td>
<td>Y 36</td>
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<td>Auto &amp; Related Technology: Transmission Repair</td>
<td>T010715D</td>
<td>C</td>
<td>Y 18</td>
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<td>Auto &amp; Related Technology: Tune-Up</td>
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<td>C</td>
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<td>Automotive Collision Repair</td>
<td>T002907C</td>
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<td>Baking Professional</td>
<td>T008503C</td>
<td>AA</td>
<td>Y 48</td>
<td>CA</td>
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<td>Barbering</td>
<td>T021868D</td>
<td>C</td>
<td>Y 48</td>
<td>COS</td>
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<td>Biotechnology</td>
<td>T033552C</td>
<td>AS</td>
<td>Y 33</td>
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<td>CAOT: Administrative Assistant</td>
<td>T008497C</td>
<td>AA</td>
<td>Y 43</td>
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<td>CAOT: Information Processing Specialist</td>
<td>T008472C</td>
<td>AA</td>
<td>Y 44</td>
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<td>CAOT: Office Assistant-Clerical</td>
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<td>Carpentry - Construction Technologies</td>
<td>T008498C</td>
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#### Program of Study Title

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FA = Program is Financial Aid Eligible

6/14/18
## Pathways and Programs of Study

- Advanced Transportation & Manufacturing Pathway (ATM)
- Applied Sciences Pathway (AS)
- Business & Civic Engagement Pathway (BCE)
- Construction, Maintenance & Utilities Pathway (CMU)
- Cosmetology (COS)*

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*Pathway name under review.

FA = Program is Financial Aid Eligible
## Pathways/Departments and Academic Subjects

### Advanced Transportation & Manufacturing Pathway

**Pathway Chair:** Jesus (Jess) Guerra ~ GuerraJ@lattc.edu ~ 213-763-7081 ~ Oak Hall/F - Room 225

<table>
<thead>
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<td>Automotive Mechanics Tech</td>
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### Applied Sciences Pathway

**Pathway Chair:** Dr. Miguel A Moreno ~ MorenoMA@lattc.edu ~ 213-763-7295 ~ Cedar Hall/K - Room 405

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### Business & Civic Engagement Pathway

**Pathway Chair:** Maryanne Galindo ~ GalindM@lattc.edu ~ 213-763-5554 ~ Cedar Hall/K - Room 203 D1

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<td>Community Planning/Economic Dev</td>
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### Construction Maintenance & Utilities Pathway

**Pathway Chair:** William (Bill) Elarton ~ cdm@lattc.edu ~ 213-763-3700 ~ Sequoia Hall/B - Room 122

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<td>Engineer-Operation/Maintenance</td>
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### Cosmetology*

**Pathway Chair:** Lina Chen ~ ChenLH@lattc.edu ~ 213-763-7133 ~ Magnolia Hall/A - Room 129

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### Counseling

**Department Chair:** Tom Dawkins ~ DawkinTL@lattc.edu ~ 213-763-7361 ~ Juniper Hall - Room 416

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* Pathway name under review
### Pathways/Departments and Academic Subjects

#### Culinary Arts/Professional Baking*

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<th>Pathway Chair: Stacy Damaso</th>
<th><a href="mailto:DamasoSD@lattc.edu">DamasoSD@lattc.edu</a></th>
<th>213-763-7331</th>
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#### Design & Media Arts Pathway

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<th>Pathway Chair: Joseph Guerrieri</th>
<th><a href="mailto:GuerriJ@lattc.edu">GuerriJ@lattc.edu</a></th>
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#### Nursing Department Chair: Dr. Carolyn Washington

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#### English Department Chair: Jennifer Ortiz

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<tbody>
<tr>
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</tr>
<tr>
<td>ACAD PR</td>
<td>Academic Preparation</td>
</tr>
</tbody>
</table>

#### Language Arts/Humanities Department Chair: Deidre McDermott

<table>
<thead>
<tr>
<th>Language Arts/Humanities</th>
<th><a href="mailto:woood@lattc.edu">woood@lattc.edu</a></th>
<th>213-763-3923</th>
<th>Aspen Hall/TE - Room 516</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASL</td>
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<tr>
<td>MATH</td>
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</table>

#### Math Department Chair: Taybeh Meftagh

<table>
<thead>
<tr>
<th>Math</th>
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#### Library

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<th>Library Science</th>
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<tr>
<td>LIB SCI</td>
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</table>

#### Academic Connections & Workforce

<table>
<thead>
<tr>
<th>Dean: Ramon Abrego</th>
<th><a href="mailto:Abregor@lattc.edu">Abregor@lattc.edu</a></th>
<th>213-763-7358</th>
<th>Magnolia Hall - Room 109</th>
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<td>ESLCIVCS</td>
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<td>Health &amp; Safety Education</td>
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<td>LRNSK</td>
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<td>TUTOR</td>
<td>Supervised Learning Assistance</td>
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<tr>
<td>VOC ED</td>
<td>Vocational Education</td>
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</tr>
</tbody>
</table>

*Pathway name under review.
Advanced Transportation & Manufacturing Pathway (ATM)

ABOUT THE PATHWAY
The Advanced Transportation & Manufacturing Pathway (ATM) offers programs of study that enable students to gain the competencies needed to build credentials for lifelong career success as they prepare to enter the workforce Transportation Technologies, Electronics and Microcomputer Systems and Manufacturing sectors. LATTC ATM programs host external accreditation from the National Automotive Technicians Education Foundation (NATEF), Cisco, California Air Resources Board and prepare our students to successfully attain Automotive Service Excellence (ASE), California Air Resources Board, Cummins, Cisco, Federal Communications Commission (FCC), I-CAR, Mitchell Repair Estimating, Mobile Air Condition Society, NIDA, Snap On, and Volvo/Mack certifications.

PATHWAY TEAM
Dean: Cynthia Morley-Mower ~ Email: morleycn@lattc.edu
Chair: Jess Guerra ~ Email: GuerraJ@lattc.edu
Counselor: Maurice Burnett ~ Email: BurnetML@lattc.edu
Navigator: Marvin DaCosta ~ Email: DacostMB@lattc.edu
Office Staff: Sharon Ellis ~ Email: EllisSR@lattc.edu

CONTACT US
Office Location: Oak Hall/F - Room 225
Email: ATMpathway@lattc.edu
Phone number: (213) 763-7081
Hours of operation: Monday – Thursday: 8:30am to 5:00pm; Friday: 8:30am to 3:00pm
Pathway website: http://pathways.lattc.edu/catalog-programs/atm1/

PATHWAY DEGREES AND CERTIFICATES

<table>
<thead>
<tr>
<th>PROGRAM OF STUDY</th>
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<th>PROGRAM OF STUDY</th>
<th>AWARD</th>
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<tbody>
<tr>
<td>Advanced Manufacturing: Welding &amp; Fabrication</td>
<td>C</td>
<td>Electronics Communications</td>
<td>AS/C</td>
</tr>
<tr>
<td>Automotive and Related Technology</td>
<td>AS/C</td>
<td>Hybrid &amp; Electric Plug-In Vehicle Technology</td>
<td>C</td>
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<tr>
<td>Auto &amp; Related Technology: Transmission Repair</td>
<td>C</td>
<td>Machine Shop: CNC</td>
<td>AS/C</td>
</tr>
<tr>
<td>Auto &amp; Related Technology: Tune-Up</td>
<td>C</td>
<td>Microcomputer Technician</td>
<td>AS/C</td>
</tr>
<tr>
<td>Automotive Collision Repair</td>
<td>AS/C</td>
<td>Motorcycle Repair Mechanics-Adjunct</td>
<td>C</td>
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<tr>
<td>Diesel and Collision Repair</td>
<td>AS/C</td>
<td>Rail Vehicle Maintenance</td>
<td>AS/C</td>
</tr>
</tbody>
</table>
ADVANCED MANUFACTURING: WELDING AND FABRICATION

PROGRAM OVERVIEW

The welding industry continues to be a critical component of manufacturing worldwide. Employment opportunities continue to thrive, and the demand for trained welding technicians in the field continues to increase. The Manufacturing Industrial Technology program trains students to work as professionals in this field using the Gas Metal Arc Welding (MIG), Gas Tungsten Arc Welding (TIG), and/or Flux-Cored Arc Welding (FCAW) processes.

By fulfilling the program requirements, students will have gained the skills necessary for certification thru the American Welding Society (AWS) Certified Welder Program and the Los Angeles Department of Building and Safety Certified Welder Examination using GMAW, GTAW, and FCAW. In addition to those conventional skills, the program will expose students to advanced automated welding techniques such as CNC plasma cutting, robotic welding, and friction stir welding.

PROGRAM LEARNING OUTCOMES (PLOs)

Upon completion of the Certificate program, students are able to:

- Demonstrate safe work habits that reflect concern and care for self, others, and the environment.
- Produce industry quality weldments on carbon steel plate in various joint and groove configurations using the plasma arc cutting, GMAW, FCAW, GTAW, and SAW processes.
- Produce industry-quality welds using GTAW on stainless steel and aluminum sheet.
- Demonstrate the qualifying knowledge and skills in the GMAW, FCAW, GTAW, and SAW processes necessary for acquiring the local and national industry certifications (such as American Welding Society, American Society of Mechanical Engineers, and the American Petroleum Institute) recognized by employers in advanced manufacturing industries.
- Interpret blueprints and verbal orders, including weld symbols, in order to fabricate using tools of the welding trade.

ADVANCED MANUFACTURING: WELDING & FABRICATION

<table>
<thead>
<tr>
<th>Award Title</th>
<th>Academic Plan</th>
<th>Award Type</th>
<th>GE Units</th>
<th>Required Course Units</th>
<th>Major Elective Units</th>
<th>Major Units</th>
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<tr>
<td>Advanced Manufacturing: Welding &amp; Fabrication</td>
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<td>C</td>
<td>30</td>
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This program is Financial Aid Eligible.

REQUIRED COURSES

SEMESTER I

<table>
<thead>
<tr>
<th>COURSE</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIT 221</td>
<td>Semi-Automatic Welding I (GMAW) in Adv Mfg</td>
</tr>
<tr>
<td>MIT 222</td>
<td>Gas Tungsten Arc Welding I Adv Manufacturing</td>
</tr>
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</table>

SEMESTER II

<table>
<thead>
<tr>
<th>COURSE</th>
<th>UNITS</th>
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<tbody>
<tr>
<td>MIT 223</td>
<td>Semi-Automatic Welding II (FCAW) In Advanced Mfg</td>
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<tr>
<td>MIT 224</td>
<td>Gas Tungsten Arc Welding II Adv Manufacturing</td>
</tr>
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</table>

SEMESTER III

<table>
<thead>
<tr>
<th>COURSE</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIT 225</td>
<td>Gas Tungsten Arc Welding III (PIPE) in Advanced Manufacturing</td>
</tr>
<tr>
<td>MIT 226</td>
<td>Introduction to Robotic Welding and Automation</td>
</tr>
<tr>
<td>MIT 220</td>
<td>Introduction to Robotics</td>
</tr>
</tbody>
</table>

NOTE: Students are required to provide basic hand tools, Transportation Technology uniform and personal safety equipment.

AUTOMOTIVE AND RELATED TECHNOLOGY

At least 60 degree applicable units are required to earn an Associate degree.

These programs are Financial Aid Eligible.
Las Vegas' long-time infatuation with the motorcar has made it a leading center in automotive design. Employment opportunities continue to thrive, and the demand for trained automotive technicians in the field continues to increase. The Automotive and Related Technology program trains students to work as professionals in this field, offering instruction in maintenance, diagnosis and overhaul procedures of electrical and fuel injection systems.

By fulfilling the program requirements, students will have gained the skills necessary to maintain, repair, and diagnose electrical, fuel injection systems, and overhaul procedures, as well as basic shop practices needed to meet industry standards.

### AUTOMOTIVE AND RELATED TECHNOLOGY

#### Associate in Science Degree

Major Units: 36

Requirements for the Associate in Science degree in Automotive and Related Technology may be met by completing 36 units of Required Courses with a “C” or better along with General Education units. Information on the General Education unit requirements may be found in the catalog under Graduation Requirements.

Students who complete this degree will be able to perform jobs as a diagnostics, to troubleshoot and repair problems occurring in automotive anti-lock braking systems (ABS), electrical/electronic systems, engine performance, drivability, suspension and steering, automatic and manual transmissions, transaxles, engine repair, heating and air conditioning.

### PROGRAM LEARNING OUTCOMES (PLOs)

Upon completion of the Degree/Certificate program, students are able to:

- Diagnose and repair various types of vehicles using tools and equipment in accordance with industry standards and NATEF safety.
- Students will demonstrate problem solving skills and technical skills in the automotive industry.
- Write vehicle repair estimates in accordance with NATEF standards.

Students should take the 6 basic courses during Semester I and Semester II:

<table>
<thead>
<tr>
<th>SEMESTER I &amp; II</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUTORTK 100</td>
<td>Heating and Air Conditioning Systems Theory, Inspection, &amp; RPR (Repair)</td>
</tr>
<tr>
<td>AUTORTK 113</td>
<td>Drive Train Components Principles &amp; Practices</td>
</tr>
<tr>
<td>AUTORTK 114</td>
<td>Steering, Suspension, Brakes, Principles &amp; Practices</td>
</tr>
<tr>
<td>AUTORTK 121</td>
<td>Basic Engine Theory, Inspection &amp; Repair</td>
</tr>
<tr>
<td>AUTORTK 122</td>
<td>Electrical/Electronic Systems Theory, Inspection &amp; Repair</td>
</tr>
<tr>
<td>AUTORTK 123</td>
<td>Fuel &amp; Emissions Systems Theory, Inspection &amp; Repair</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SEMESTER III</th>
<th>UNITS</th>
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<tbody>
<tr>
<td>AUTORTK 130</td>
<td>Advanced Automotive Diagnosis and Repair I</td>
</tr>
<tr>
<td>AUTORTK 131</td>
<td>Automotive Theory and Repair II</td>
</tr>
<tr>
<td>AUTORTK 135</td>
<td>Computer Control and Fuel Injection</td>
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</table>

<table>
<thead>
<tr>
<th>SEMESTER IV</th>
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<tbody>
<tr>
<td>AUTORTK 140</td>
<td>Advanced Automotive Diagnosis and Repair IV</td>
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<tr>
<td>AUTORTK 141</td>
<td>Advanced Automotive Diagnosis and Repair V</td>
</tr>
<tr>
<td>AUTORTK 142</td>
<td>Advanced Automotive Diagnosis and Repair VI</td>
</tr>
</tbody>
</table>

**NOTE:** Students are required to provide basic hand tools, Transportation Technology uniform and personal safety equipment.

### AUTOMOTIVE AND RELATED TECHNOLOGY

#### Certificate of Achievement

Major Units: 36

A Certificate of Achievement in Automotive and Related Technology may be earned by completing 36 units of Required Courses listed under the Associate degree in Automotive and Related Technology with a “C” or better in each course.

### AUTO & RELATED TECHNOLOGY: TRANSMISSION REPAIR

#### Certificate of Achievement

Major Units: 18

A Certificate of Achievement in Auto & Related Technology: Transmission Repair may be earned by completing 18 units of Required Courses with a “C” or better in each course.

### PROGRAM LEARNING OUTCOMES (PLOs)

Upon completion of the Certificate program, students are able to:

- Diagnose and repair various types of vehicles using tools and equipment in accordance with industry standards and NATEF safety.
- Students will demonstrate problem solving skills and technical skills in the automotive industry.
- Demonstrate transmission vehicle diagnosis and repair skills accordance with NATEF and industry standards.

<table>
<thead>
<tr>
<th>REQUIRED COURSES</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUTORTK 100</td>
<td>Heating and Air Conditioning Systems Theory, Inspection, &amp; RPR (Repair)</td>
</tr>
<tr>
<td>AUTORTK 113</td>
<td>Drive Train Components Principles &amp; Practices</td>
</tr>
<tr>
<td>AUTORTK 114</td>
<td>Steering, Suspension, Brakes, Principles &amp; Practices</td>
</tr>
<tr>
<td>AUTORTK 121</td>
<td>Basic Engine Theory, Inspection &amp; Repair</td>
</tr>
<tr>
<td>AUTORTK 122</td>
<td>Electrical/Electronic Systems Theory, Inspection &amp; Repair</td>
</tr>
<tr>
<td>AUTORTK 123</td>
<td>Fuel &amp; Emissions Systems Theory, Inspection &amp; Repair</td>
</tr>
</tbody>
</table>

### AUTO & RELATED TECHNOLOGY: TUNE-UP

#### Certificate of Achievement

Major Units: 18

A Certificate of Achievement in Auto & Related Technology: Tune-Up may be earned by completing 18 units of Required Courses with a “C” or better in each course.
PROGRAM LEARNING OUTCOMES (PLOs)

Upon completion of the Certificate program, students are able to:

- Diagnose and repair various types of vehicles using tools and equipment in accordance with industry standards and NATEF safety.
- Students will demonstrate problem solving skills and technical skills in the automotive industry.
- Demonstrate tune-up vehicle repair skills accordance with NATEF and industry standards.

REQUIRED COURSES

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
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<tr>
<td>AUTORTK 100</td>
<td>Heating and Air Conditioning Systems Theory, Inspection, &amp; RPR (Repair)</td>
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<tr>
<td>AUTORTK 121</td>
<td>Basic Engine Theory Inspection and Repair</td>
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<tr>
<td>AUTORTK 122</td>
<td>Electrical/Electronic Systems Theory, Inspection &amp; Repair</td>
<td>3</td>
</tr>
<tr>
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<td>Fuel &amp; Emissions Systems Theory, Inspection &amp; Repair</td>
<td>3</td>
</tr>
<tr>
<td>AUTORTK 131</td>
<td>Automotive Theory and Repair II</td>
<td>3</td>
</tr>
<tr>
<td>AUTORTK 135</td>
<td>Computer Control and Fuel Injection</td>
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</tbody>
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NOTE: Students are required to provide basic hand tools, Transportation Technology uniform and personal safety equipment.

AUTOMOTIVE COLLISION REPAIR

Award Title | Academic Plan | Award Type | GE Units | Required Course Units | Major Elective Units | Major Units |
<table>
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<tr>
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<tbody>
<tr>
<td>Automotive Collision Repair*</td>
<td>T002907C</td>
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<td>C</td>
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</table>

At least 60 degree applicable units are required to earn an Associate degree.

*This Associate Degree is eligible for a reduction of General Education requirements from 21 to 18 units; please consult with a counselor for more details.

These programs are Financial Aid Eligible.

PROGRAM OVERVIEW

Los Angeles is a leading collision capital center in the automotive design world. Insurance companies are increasingly demanding Auto Collision Technicians trained in damage cost estimations. The demand for fully trained Automotive Repair Technicians is very high where skilled technicians are readily employable and command excellent incomes. These technicians use highly sophisticated devices, such as laser for straightening frames, computer for mixing paint, and dust control contamination vacuum tools for smoothing paint.
PROGRAM OVERVIEW

If you live in the United States, almost every single thing you eat, wear or use has been transported by diesel powered vehicles and alternative/green power plants.

If you live in the United States, almost every single thing you eat, wear or use was delivered by a diesel-powered vehicle.

New EPA/CARB regulations have impacted the fuel technology and energy source/design used. Trucks, trains, buses and many other medium and heavy duty vehicles have evolved to match today’s more stringent clean air emission standards. Graduates of the Diesel Technology program are well paid and have a diverse choice of areas in which to specialize. In recent years, the demand from local employers has exceeded our supply of qualified graduates as the program continues to grow.

After successful completion of the program requirements, students will become proficient in all aspects of diesel engine fundamentals, electrical components, fuel systems, overhaul procedures, air brake system and the construction and operation of diesel engines.

PROGRAM LEARNING OUTCOMES (PLOs)

Upon completion of the Degree/Certificate program, students are able to:

- Identify and explain the operation of diesel vehicle systems (such as engine, transmissions, brakes, electrical and suspension) along with their related subsystems and related industry standards.
- Diagnose and repair diesel powered vehicles and systems using various manufacturer diagnostic software, tools, and shop equipment in accordance with industry standards.

DIESEL AND RELATED TECHNOLOGY

Requirements for the Associate in Science degree in Diesel and Related Technology may be met by completing 45 units of Required Courses with a “C” or better along with General Education units. Information on the General Education unit requirements may be found in the catalog under Graduation Requirements.

REQUIRED COURSES

<table>
<thead>
<tr>
<th>Semester I</th>
<th>Units</th>
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<tbody>
<tr>
<td>DIESLTK 112</td>
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<tr>
<td>DIESLTK 112A</td>
<td>Diesel Engine Fundamentals (5.5)</td>
</tr>
<tr>
<td>DIESLTK 112B</td>
<td>Electrical Fundamentals (5.5)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester II</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIESLTK 122</td>
<td>Diesel Fuel Injection Systems &amp; Basic Hydraulics and Air Conditioning</td>
</tr>
<tr>
<td>DIESLTK 122A</td>
<td>Diesel Fuel Injection Systems (5.5)</td>
</tr>
<tr>
<td>DIESLTK 122B</td>
<td>Basic Hydraulics and Air Conditioning Systems (5.5)</td>
</tr>
</tbody>
</table>

WELDGE 201A | Welding-Gas and Electric IA (may be taken in either 1st or 2nd semester) |

- or DIESLTK 185 | Directed Study – Diesel and Related Technology (1)
Admission to third semester courses is limited to those who have received a grade of "C" or better in all first year Diesel courses.

### SEMESTER III

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIESLTK 132</td>
<td>Heavy Duty Drive Train &amp; Air Brake Systems</td>
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</tr>
<tr>
<td>DIESLTK 132A</td>
<td>Heavy Duty Drive Train (5.5)</td>
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<tr>
<td>DIESLTK 132B</td>
<td>Air Brake Systems (5.5)</td>
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**SEMESTER IV**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>DIESLTK 142</td>
<td>Diesel Engine Overhaul &amp; Electronic Engine Controls</td>
<td>11</td>
</tr>
<tr>
<td>DIESLTK 142A</td>
<td>Diesel Engine Overhaul (5.5)</td>
<td></td>
</tr>
<tr>
<td>DIESLTK 142B</td>
<td>Electronic Engine Controls (5.5)</td>
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</tr>
</tbody>
</table>

**NOTE:** Students are required to provide basic hand tools, Transportation Technology uniform and personal safety equipment.

### ELECTRONICS COMMUNICATIONS

<table>
<thead>
<tr>
<th>Award Title</th>
<th>Academic Plan</th>
<th>Award Type</th>
<th>GE Units</th>
<th>Required Course Units</th>
<th>Major Elective Units</th>
<th>Major Units</th>
</tr>
</thead>
<tbody>
<tr>
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<td>T002902C A.S.</td>
<td>21*</td>
<td>44</td>
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<tr>
<td>Electronics Communications</td>
<td>T021841D C</td>
<td>44</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>44</td>
</tr>
</tbody>
</table>

At least 60 degree applicable units are required to earn an Associate degree.

*This Associate Degree is eligible for a reduction of General Education requirements from 21 to 18 units; please consult with a counselor for more details.

These programs are Financial Aid Eligible.

### PROGRAM OVERVIEW

This program covers, circuit analysis of several complete FM systems. By completing the certificate and/or degree, students will be able to pass the Federal Communications Commission (FCC) Examination. In addition, by fulfilling the program requirements, students are proficient in the operation of AM/FM Transmitters and can trouble shoot AM/FM Receivers as well as install C Band, K/U Band, and digital satellites systems (DSS). Students will also have an understating of cordless phones, microwave receivers/transmitters, and cell phone systems.

### PROGRAM LEARNING OUTCOMES (PLOs)

Upon completion of the Degree/Certificate program, students are able to:

- Read electronic symbols and schematic diagrams.
- Perform mathematical calculations and measurements related to electronics circuit analysis.
- Troubleshoot and construct electronics communication devices, such as semiconductors devices and digital circuits, utilizing electronics communications, microcomputer, and/or cabling theory.
**ELECTRONICS COMMUNICATIONS**  
**Associate in Science Degree**  
**Major Units: 44**

Requirements for the Associate in Science degree in Electronics Communications may be met by completing 44 units of Required Courses with a “C” or better along with General Education units. Information on the General Education unit requirements may be found in the catalog under Graduation Requirements.

**REQUIRED COURSES**

<table>
<thead>
<tr>
<th>SEMESTER I</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>ETNTLGY 150 Soldering Surface Mount Technology</td>
<td>3</td>
</tr>
<tr>
<td>ETNTLGY 151 DC Theory and Circuit Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>ETNTLGY 152 DC Theory and Circuit Fundamentals Lab</td>
<td>2</td>
</tr>
<tr>
<td>ETNTLGY 153 Applied DC Calculations</td>
<td>1</td>
</tr>
<tr>
<td>ETNTLGY 254 Computer Applications for Electronics Technology</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SEMESTER II</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>ETNTLGY 154 AC Theory and Circuit Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>ETNTLGY 155 AC Theory and Circuit Fundamentals Lab</td>
<td>2</td>
</tr>
<tr>
<td>ETNTLGY 156 Applied AC Calculations</td>
<td>1</td>
</tr>
<tr>
<td>ETNTLGY 255 Computer-Based Electronics I</td>
<td>1</td>
</tr>
<tr>
<td>PHYSICS 011 Introductory Physics</td>
<td>4</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>SEMESTER III</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>ETNTLGY 157 Semiconductors Devices and Applications</td>
<td>3</td>
</tr>
<tr>
<td>ETNTLGY 158 Semiconductors Devices and Electronics Laboratory</td>
<td>3</td>
</tr>
<tr>
<td>ETNTLGY 159 Digital Circuits and Applications</td>
<td>3</td>
</tr>
<tr>
<td>ETNTLGY 160 Digital Circuits and Applications Lab</td>
<td>2</td>
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<table>
<thead>
<tr>
<th>SEMESTER IV</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>ETNTLGY 161 F.C.C. Radio Operator License</td>
<td>3</td>
</tr>
<tr>
<td>ETNTLGY 162 Introduction to Electronics Communications</td>
<td>3</td>
</tr>
<tr>
<td>ETNTLGY 163 Introduction to Electronics Communications Lab</td>
<td>3</td>
</tr>
<tr>
<td>ECONMT 142 Basic Programmable Logic Controls (PLC)</td>
<td>1</td>
</tr>
</tbody>
</table>

**SUPPLEMENTARY ELECTIVES**

<table>
<thead>
<tr>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>ETNTLGY 252 Networking Cabling Specialist</td>
</tr>
<tr>
<td>ETNTLGY 253 Fiber Optics</td>
</tr>
<tr>
<td>MICROTK 077 Cisco Networking Academy-Semester I</td>
</tr>
<tr>
<td>MICROTK 160 I.T. Essentials Application Software Fundamentals</td>
</tr>
<tr>
<td>MICROTK 162 I.T. Essentials Networking Personal Computers</td>
</tr>
<tr>
<td>MICROTK 164 I.T. Essentials Microcomputer Theory and Servicing</td>
</tr>
</tbody>
</table>

**ELECTRONICS COMMUNICATIONS**  
**Certificate of Achievement**  
**Major Units: 44**

A Certificate of Achievement in Electronics Communications may be earned by completing 44 units of Required Courses listed under the Associate degree in Electronics Communications with a “C” or better in each course.

**NOTE:** Students are required to provide basic hand tools, Transportation Technology uniform and personal safety equipment.
HYBRID & ELECTRIC PLUG-IN VEHICLE TECHNOLOGY

**Certificate of Achievement**

A Certificate of Achievement in Hybrid and Electric Plug-in Vehicle Technology may be earned by completing 12 units of Required Courses with a "C" or better in each course.

**REQUIRED COURSES**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIESLTK 301</td>
<td>Introduction to Alternative Fuels &amp; Hybrid Vehicle Technology</td>
<td>1</td>
</tr>
<tr>
<td>DIESLTK 302</td>
<td>Hybrid and Plug-in Electric Vehicle</td>
<td>6</td>
</tr>
<tr>
<td>DIESLTK 303</td>
<td>Advanced Hybrid and Plug-in Electric Vehicles</td>
<td>5</td>
</tr>
</tbody>
</table>

**NOTE:** Students are required to provide basic hand tools, Transportation Technology uniform and personal safety equipment.

**PROGRAM OVERVIEW**

The courses listed in this certificate compile a comprehensive list of job related skills needed to acquire hybrid and electric plug-in vehicle maintenance and repair technical skills. They cover basic, intermediate and advanced level training of these vehicles including the different configurations used in the automotive, transit and trucking industries. These skills will prepare an individual for entry-level employment or career advancement in the maintenance and repair of hybrid vehicles in all sectors of the transportation industry.

**PROGRAM LEARNING OUTCOMES (PLOs)**

Upon completion of the Certificate program, students are able to:

- Identify and explain the operations of alternative fuel and hybrid electric vehicles and related safety standards.
- Diagnose and repair alternative fuel and hybrid electric vehicles using specialty tools and equipment in accordance with industry standards.

MACHINE SHOP: CNC

**Associate in Science Degree**

Major Units: 48 units

Requirements for the Associate in Science degree in Machine Shop CNC may be met by completing 48 units of Required Courses with a grade of "C" or better along with General Education units. Information on the General Education unit requirements may be found in the catalog under Graduation Requirements.

**PROGRAM OVERVIEW**

LATTC offers an Associate in Science degree in Machine Shop CNC as well as a Certificate of Achievement.

The Associate in Science degree and Certificate of Achievement, is designed for individuals seeking entry level positions in the field. Students enrolling in this program should be able to commit to full-time student status, which is approximately 21 hours per week. This time commitment is necessary to allow for hands-on training in the lab applications used during the course of instruction.

By fulfilling the program requirements, students will have the necessary knowledge and skills for a career in the Machining Industry. Students will properly use related terminology, safely set-up and operate numerous conventional and computer numerically controlled (CNC) machine tools, use computers to program various CNC machines directly or with Computer Assisted Machinery (CAM), and interpret most related parts and assembly drawings. The general education component classes will give the student a well rounded education and provide knowledge and skills to assist in successful participation in all aspects of society.

**PROGRAM LEARNING OUTCOMES (PLOs)**

Upon completion of the Degree/Certificate program, students are able to:

- Demonstrate the correct use of machine tools, such as lathes, milling machines, and machining centers, to produce machined products that meet precise specifications.
- Demonstrate knowledge of the working properties of metals in the production of precision metal parts.
- Program computer numerically controlled (CNC) machines to perform all of the necessary cuts to create a part.
REQUIRED COURSES

SEMMESTER I

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSCNC 111</td>
<td>Principles of Machine Tools I</td>
<td>2</td>
</tr>
<tr>
<td>MSCNC 112A</td>
<td>Technology and Application of Machining IA</td>
<td>3</td>
</tr>
<tr>
<td>MSCNC 112B</td>
<td>Technology and Application of Machining (CAD) IB</td>
<td>1</td>
</tr>
<tr>
<td>MSCNC 114</td>
<td>Print Interpretation and Sketching (Blueprint I)</td>
<td>3</td>
</tr>
<tr>
<td>MSCNC 115</td>
<td>Basic Applied Mathematical Calculations</td>
<td>3</td>
</tr>
</tbody>
</table>

SEMMESTER II

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSCNC 121</td>
<td>Principles of Machine Tools II</td>
<td>2</td>
</tr>
<tr>
<td>MSCNC 122A</td>
<td>Technology and Application of Machining IIA</td>
<td>3</td>
</tr>
<tr>
<td>MSCNC 122B</td>
<td>Technology and Application of Machining IIIB</td>
<td>1</td>
</tr>
<tr>
<td>MSCNC 124</td>
<td>Print Interpretation and Inspection (Blueprint II)</td>
<td>3</td>
</tr>
<tr>
<td>MSCNC 125</td>
<td>Intermediate Applied Mathematical Calculations</td>
<td>3</td>
</tr>
</tbody>
</table>

SEMMESTER III

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSCNC 131A</td>
<td>Principles of Machine Tools IIIA</td>
<td>2</td>
</tr>
<tr>
<td>MSCNC 131B</td>
<td>Principles of Machine Tools (CNC) IIIIB</td>
<td>3</td>
</tr>
<tr>
<td>MSCNC 132A</td>
<td>Technology and Application of Machining IIIA</td>
<td>3</td>
</tr>
<tr>
<td>MSCNC 132B</td>
<td>Technology and Application of Machining (CAM) IIIB</td>
<td>1</td>
</tr>
<tr>
<td>MSCNC 135</td>
<td>Advanced Applied Mathematical Calculations</td>
<td>3</td>
</tr>
</tbody>
</table>

SEMMESTER IV

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSCNC 141</td>
<td>Principles of Machine Tools (CNC) IV</td>
<td>2</td>
</tr>
<tr>
<td>MSCNC 142A</td>
<td>Technology and Application of Machining IVA</td>
<td>3</td>
</tr>
<tr>
<td>MSCNC 142B</td>
<td>Technology and Application of Machining IVB</td>
<td>1</td>
</tr>
<tr>
<td>MSCNC 161A</td>
<td>Computer Assisted Machine Programming (CAM) IA</td>
<td>3</td>
</tr>
<tr>
<td>MSCNC 161B</td>
<td>Computer Assisted Machine Programming (CAM) IB</td>
<td>3</td>
</tr>
</tbody>
</table>

MACHINE SHOP: CNC

Certificate of Achievement

Major Units: 48

A Certificate of Achievement in Machine Shop CNC may be earned by completing 48 units of Required Courses listed under the Associate degree in Machine Shop CNC with a “C” or better in each course.

NOTE: Students are required to provide basic hand tools, Transportation Technology uniform and personal safety equipment.

MICROCOMPUTER TECHNICIAN

At least 60 degree applicable units are required to earn an Associate degree.

*This Associate Degree is eligible for a reduction of General Education requirements from 21 to 18 units; please consult with a counselor for more details.

These programs are Financial Aid Eligible.

PROGRAM OVERVIEW

The Microcomputer Technician program is designed to prepare a technician to install, configure, and add auxiliary equipment for a microcomputer. The technician is also able to load software and suggest programs to answer the needs of individuals and companies. Microcomputer Technicians must be above average in knowledge of mechanical systems. They must also have interest and ability in mathematics to successfully apply the training presented in this program.

The computer industry is expanding due to the continuing drop in the price of computers and the introduction of new models with greater power. The fastest growing segment of this field is the microcomputer segment. The power and speed of these units continue to increase and, at the same time, the price continues to decrease. This has placed the computer within financial reach of many small businesses and individuals. With more systems being manufactured and installed, more technicians are needed. Students can acquire the basic skills and knowledge to earn the Microcomputer Technician Associate in Science Degree / Certificate of Achievement, in the Electronics Department. This program will not only prepare students for an award, but will also prepare them for the A+ Certification exam, and help them prepare for the Cisco Certified Networking Associate (CCNA).

By fulfilling the program requirements, students are able to format a computer, install the operating system, and install all the necessary drivers. Students will be able to successfully configure and create a network system consisting of a number of computers all for employment in a field related to microcomputer technician.

PROGRAM LEARNING OUTCOMES (PLOs)

Upon completion of the Degree/Certificate program, students are able to:
- Install, configure, and add auxiliary equipment for microcomputers.
- Set up computers to certain specifications.
- Configure and create network systems consisting of a number of computers.

MICROCOMPUTER TECHNICIAN

Associate in Science Degree

Major Units: 42

Requirements for the Associate in Science degree in Microcomputer Technician may be met by completing 42 units of Required Courses with a “C” or better along with General Education units. Information on the General Education unit requirements may be found in the catalog under Graduation Requirements.
REQUIRED COURSES

SEMESTER I

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>MICROTK 160</td>
<td>I.T. Essentials Application Software Fundamentals</td>
<td>2</td>
</tr>
<tr>
<td>MICROTK 162</td>
<td>I.T. Essentials Networking Personal Computers</td>
<td>4</td>
</tr>
<tr>
<td>MICROTK 164</td>
<td>I.T. Essentials Microcomputer Theory and Servicing</td>
<td>5</td>
</tr>
</tbody>
</table>

SEMESTER II

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>MICROTK 077</td>
<td>Cisco Networking Academy-Semester I</td>
<td>3</td>
</tr>
<tr>
<td>ETNTLGY 252</td>
<td>Networking Cabling Specialist</td>
<td>3</td>
</tr>
<tr>
<td>ETNTLGY 253</td>
<td>Fiber Optics</td>
<td>3</td>
</tr>
<tr>
<td>ETNTLGY 254</td>
<td>Computer Applications for Electronics Technology</td>
<td>3</td>
</tr>
</tbody>
</table>

SEMESTER III

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELECTRN 002</td>
<td>Introduction to Electronics</td>
<td>3</td>
</tr>
<tr>
<td>MICROTK 078</td>
<td>Cisco Networking Academy - Semester II</td>
<td>3</td>
</tr>
<tr>
<td>PHYSICS 011</td>
<td>Introductory Physics</td>
<td>4</td>
</tr>
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</table>

SEMESTER IV

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>MICROTK 079</td>
<td>Cisco Networking Academy - Semester III</td>
<td>3</td>
</tr>
<tr>
<td>MICROTK 080</td>
<td>Cisco Networking Academy - Semester IV</td>
<td>3</td>
</tr>
<tr>
<td>MICROTK 165</td>
<td>Linux Survival Course</td>
<td>3</td>
</tr>
</tbody>
</table>

MICROCOMPUTER TECHNICIAN Certificate of Achievement

Major Units: 42

A Certificate of Achievement in Microcomputer Technician may be earned by completing 42 units of Required Courses listed under the Associate degree in Microcomputer Technician with a grade of “C” or better in each course.

This Certificate is designed for students who wish to train for employment as a microcomputer technician, but do not wish to transfer to a four year university.

NOTE: Students are required to provide basic hand tools, Transportation Technology uniform and personal safety equipment.

MOTORCYCLE REPAIR MECHANICS

PROGRAM OVERVIEW

The Certificate of Achievement in Motorcycle Repair is designed for both new students as well as industry professionals who want to upgrade their skills and show validation of technology training.

Courses leading to the Certificate are offered during evenings and on weekends. Upon completion of the program, students will have the skills necessary to maintain, repair, and diagnose electrical and fuel induction systems, and will be proficient in tune-up overhaul procedures and basic shop practices.

PROGRAM LEARNING OUTCOMES (PLOs)

Upon completion of the Certificate program, students are able to:

- Diagnose and repair various models of motorcycles according to industry standards.
- Demonstrate shop safety practices when performing vehicle repairs in accordance with industry standards.

MOTORCYCLE REPAIR MECHANICS: ADJUNCT

Certificate of Achievement

Major Units: 23

A Certificate of Achievement in Motorcycle Repair Mechanics: Adjunct may be earned by completing 16 units of Required Courses and 7 units of Major Electives with a “C” or better in each course.

REQUIRED COURSES

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCYCMEK 210</td>
<td>Motorcycle Fuel Induction and Pollution Control</td>
<td>4</td>
</tr>
<tr>
<td>MCYCMEK 212</td>
<td>Motorcycle Tune-up and Chassis Maintenance</td>
<td>4</td>
</tr>
<tr>
<td>MCYCMEK 214</td>
<td>Motorcycle Electrical Principles and Repair</td>
<td>4</td>
</tr>
<tr>
<td>MCYCMEK 216</td>
<td>Motorcycle Engine Overhaul and Diagnosis</td>
<td>4</td>
</tr>
</tbody>
</table>
MAJOR ELECTIVES

Select at least 7 units from the courses below

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUTORTK 122</td>
<td>Electrical/Electronic Systems Theory, Inspection &amp; Repair</td>
<td>3</td>
</tr>
<tr>
<td>AUTORTK 123</td>
<td>Fuel &amp; Emissions Systems Theory, Inspection &amp; Repair</td>
<td>3</td>
</tr>
<tr>
<td>AUTORTK 135</td>
<td>Computer Control and Fuel Injection</td>
<td>3</td>
</tr>
</tbody>
</table>

NOTE(S): Students are required to provide basic hand tools, Transportation Technology uniform and personal safety equipment.

RAIL VEHICLE MAINTENANCE

PROGRAM OVERVIEW

For many of us, it is obvious how the US transportation system affects our daily lives as we move from one place to another and rely on the system to transport items we purchase and use on a daily basis—particularly through rail transportation. In the Los Angeles region, rail transportation supports the largest container port complex in the U.S., 9th largest in the world, and the 3rd largest transit agency in the U.S. where nearly 1/5th of transit trips in the region are by commuter, light, or heavy rail. A career in rail transportation, as a rail mechanic, provides an opportunity to work within large rail companies and transportation agencies providing competitive wages, health and retirement benefits, and opportunities for career advancement. Employment at these companies/agencies often requires starting within entry positions and advancing through promotional opportunities. Because nearly half of the workforce will be eligible to retire within the next 10 years, employment outlook and career advance opportunities are promising. Program completers will also have the requisite competencies to be employed as Installation, Maintenance, and Repair Worker Helpers and Machinery Maintenance Workers that also provide many employment opportunities.

PROGRAM LEARNING OUTCOMES (PLOs)

Upon completion of the Degree/Certificate program, students are able to:

• Identify and explain the operation of rail vehicles and systems along with related subsystems and related industry standards.

• Diagnose and repair rail vehicles and systems using various manufacturer diagnostic software, tools, and shop equipment in accordance with industry standards.

RAIL VEHICLE MAINTENANCE

Associate in Science Degree

Major Units: 40

Requirements for the Associate of Science degree in Rail Vehicle Maintenance may be met by completing 40 units of Required Courses with a “C” or better along with General Education units. Information on the General Education unit requirements may be found in the catalog under Graduation Requirements.

REQUIRED COURSES

<table>
<thead>
<tr>
<th>Semester</th>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEMESTER I</td>
<td>DIESLTK 401</td>
<td>Rail System Overview, Safety, Tools, and Mechanical Principles</td>
<td>10</td>
</tr>
<tr>
<td>SEMESTER II</td>
<td>DIESLTK 402</td>
<td>Rail Electrical and Electronic Principles</td>
<td>10</td>
</tr>
<tr>
<td>SEMESTER III</td>
<td>DIESLTK 403</td>
<td>Rail Vehicle Pneumatic &amp; Hydraulic Controls, HVAC &amp; Car Body</td>
<td>10</td>
</tr>
<tr>
<td>SEMESTER IV</td>
<td>DIESLTK 404</td>
<td>Rail Diesel Engine Fundamentals and Rail Accessory/Support Systems</td>
<td>10</td>
</tr>
</tbody>
</table>

RAIL VEHICLE MAINTENANCE

Certificate of Achievement

Major Units: 40

A Certificate of Achievement in Rail Vehicle Maintenance may be earned by completing 40 units of Required Courses listed under the Associate degree in Rail Vehicle Maintenance with a “C” or better in each course.

NOTE: Students are required to provide basic hand tools, Transportation Technology uniform and personal safety equipment.
**Applied Sciences Pathway (AS)**

ABOUT THE PATHWAY

The Applied Sciences Pathway (AS) offers programs of study that enable students to gain the competencies needed to build credentials for lifelong career success as they prepare to enter the workforce and/or continue their education in fields such as chemistry, chemical technology, physics, pharmaceuticals, and sustainable energy, among others.

PATHWAY TEAM:

**Dean:** Dr. Arineh Arzoumanian ~ Email: arzouma@lattc.edu

**Chair:** Dr. Miguel Moreno ~ Email: MorenoMA@lattc.edu

**Office Staff:** Mary-Ann Neal-Bernard ~ Email: NealbeMA@lattc.edu

CONTACT US:

**Office Location:** Cedar Hall/K - Room 405

**Email:** Science@lattc.edu

**Hours of Operation:** Monday - Friday 7:00 AM to 3:30 PM

**Phone number:** (213) 763-7295

**Pathway Website:** http://pathways.lattc.edu/catalog-programs/as/

PATHWAY CERTIFICATES AND DEGREES

<table>
<thead>
<tr>
<th>PROGRAM OF STUDY</th>
<th>AWARD</th>
<th>PROGRAM OF STUDY</th>
<th>AWARD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biotechnology</td>
<td>AS/C</td>
<td>Liberal Arts and Sciences: Natural Sciences</td>
<td>AA</td>
</tr>
<tr>
<td>Chemical Technology</td>
<td>AS/C</td>
<td>Physics</td>
<td>AST</td>
</tr>
<tr>
<td>Chemistry</td>
<td>AS</td>
<td>Process Technology</td>
<td>AS/C</td>
</tr>
</tbody>
</table>
BIOTECHNOLOGY
(BIOMANUFACTURING)

<table>
<thead>
<tr>
<th>Award Title</th>
<th>Academic Plan</th>
<th>Award Type</th>
<th>GE Units</th>
<th>Required Course Units</th>
<th>Major Elective Units</th>
<th>Major Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biotechnology</td>
<td>T033682C</td>
<td>A.S.</td>
<td>21</td>
<td>33</td>
<td>-</td>
<td>33</td>
</tr>
<tr>
<td>Biotechnology</td>
<td>T033225D</td>
<td>C</td>
<td></td>
<td>33</td>
<td>-</td>
<td>33</td>
</tr>
</tbody>
</table>

At least 60 degree applicable units are required to earn an Associate degree. These programs are Financial Aid Eligible.

PROGRAM OVERVIEW

The LATTC Biotechnology Certificate/AS Degree Program is designed to meet the needs of students who wish to acquire the necessary skills in a biotechnology career with an emphasis in biomanufacturing. This program also suits the needs of transfer students who wish to complete their first two years of education in a community college.

Biotechnology is a changing industry that applies science and technologies to living organisms through the process of discovering, developing, manufacturing, and regulating quality of new products. Biotechnology applies to agriculture, human health and medicine, energy and environment. Biotechnology workers are employed in many industries, including, pharmaceutical and medical manufacturing; instrument, equipment and supplies manufacturing; scientific and technical consulting services; scientific and research development services; education; laboratories and government.

Our Biotechnology AS Degree Program focuses on biomanufacturing which directly serves pharmaceutical and medical manufacturing, but also other sectors such as food and agricultural sciences, green technology, and various science-related industries.

The Biotechnology program prepares students to find employment as entry-level lab technicians in fields that may include:

- Biomanufacturing
- Biotechnology
- Environmental Sciences
- Food Science Technicians
- Pharmaceuticals

PROGRAM LEARNING OUTCOMES (PLOs)

Upon completion of the Degree/Certificate program, students are able to:

- Apply basic biological principles to biomanufacturing.
- Explain and apply the processes in the biomanufacturing industry.
- Recognize and perform industrial regulatory processes.

BIOTECHNOLOGY

Associate in Science Degree
Major Units: 33

Requirements for the Associate in Science degree in Biotechnology may be met by completing 33 units of Required Courses with a "C" or better along with General Education units. Information on the General Education unit requirements may be found in the catalog under Graduation Requirements.

REQUIRED COURSES

<table>
<thead>
<tr>
<th>SEMESTER I</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOLOGY 003 Introduction to Biology</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 051 Fundamentals of Chemistry I</td>
<td>5</td>
</tr>
<tr>
<td>or CHEM T 111 Applied Chemistry I (5)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SEMESTER II</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>MICRO 020 General Microbiology</td>
<td>4</td>
</tr>
<tr>
<td>PRPLTEK 104 Introduction to Applied Sciences</td>
<td>4</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>SEMESTER III</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOTECH 010 Introduction to Biomanufacturing I</td>
<td>4</td>
</tr>
<tr>
<td>PRPLTEK 103 Process Plant Equipment</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SEMESTER IV</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOTECH 012 Introduction to Biomanufacturing II</td>
<td>4</td>
</tr>
<tr>
<td>PRPLTEK 102 Process Measurement and Control Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>PRPLTEK 214 Industry Trends: Employment and Regulations</td>
<td>3</td>
</tr>
</tbody>
</table>

BIOENGINEERING

Certificate of Achievement
Major Units: 33

A Certificate of Achievement in Biotechnology may be earned by completing 33 units of Required Courses listed under the Associate degree in Biotechnology with a grade of "C" or better in each course.

CHEMICAL TECHNOLOGY

<table>
<thead>
<tr>
<th>Award Title</th>
<th>Academic Plan</th>
<th>Award Type</th>
<th>GE Units</th>
<th>Required Course Units</th>
<th>Major Elective Units</th>
<th>Major Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical Technology</td>
<td>T002913C</td>
<td>A.S.</td>
<td>21*</td>
<td>47</td>
<td>-</td>
<td>47</td>
</tr>
<tr>
<td>Chemical Technology</td>
<td>T021859D</td>
<td>C</td>
<td></td>
<td>47</td>
<td>-</td>
<td>47</td>
</tr>
</tbody>
</table>

At least 60 degree applicable units are required to earn an Associate degree.

*This Associate Degree is eligible for a reduction of General Education requirements from 21 to 18 units; please consult with a counselor for more details.

These programs are Financial Aid Eligible.
PROGRAM OVERVIEW

The Chemical Technician (CT) or science technician occupations are becoming the fastest growing occupational category in the United States. The chemical technician generally performs laboratory analysis or testing in a wide variety of biological and physical science settings such as: environmental, drinking water, wastewater treatment, pharmaceutical, cosmetics and petroleum refineries; grading studies of materials, and quality control of industrial chemicals. Training is provided in applied chemistry, physics and mathematics as well as instrumentation, biotechnology, industrial processes, computerized analysis and quality control. The CT program is also designed to help students prepare for a smooth transition into other science related BA/BS degree programs at LATTC.

At the conclusion of this program, students will have the skills necessary for:
- Working in the chemical process industry, including treatment plants
- Monitoring safety/health and environmental regulations
- Sampling and handling chemical materials
- Measuring physical properties
- Performing chemical analysis
- Performing instrumental analysis
- Planning, designing and conducting experiments, and
- Synthesizing compounds

PROGRAM LEARNING OUTCOMES (PLOs)

Upon completion of the Degree/Certificate program, students are able to:
- Perform laboratory processes consistent with industrial practice.
- Explain principles and applications of chemical instrumentation.
- Recognize and apply industrial regulatory processes.

CHEMICAL TECHNOLOGY

Associate in Science Degree
Major Units: 47

Requirements for the Associate in Science degree in Chemical Technology may be met by completing 47 units of Required Courses with a grade of “C” or better along with General Education units. Information on the General Education unit requirements may be found in the catalog under Graduation Requirements.

REQUIRED COURSES

<table>
<thead>
<tr>
<th>SEMESTER I</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM T 111</td>
<td>Applied Chemistry I</td>
</tr>
<tr>
<td>CHEM T 113</td>
<td>Applied Chemistry Mathematics I</td>
</tr>
<tr>
<td>CHEM T 140</td>
<td>Microbiology Laboratory Techniques For Technicians</td>
</tr>
<tr>
<td>PHYSICS 011</td>
<td>Introductory Physics</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SEMESTER II</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM T 121</td>
<td>Applied Chemistry II</td>
</tr>
<tr>
<td>CHEM T 123</td>
<td>Applied Chemistry Mathematics II</td>
</tr>
<tr>
<td>PHYSICS 029 †</td>
<td>Basic Physics for Technicians</td>
</tr>
</tbody>
</table>

CHEMISTRY

<table>
<thead>
<tr>
<th>Award Title</th>
<th>Academic</th>
<th>Award</th>
<th>GE</th>
<th>Required Course</th>
<th>Major Elective</th>
<th>Major Units</th>
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</thead>
<tbody>
<tr>
<td>Chemistry</td>
<td>T031207C</td>
<td>A.S.</td>
<td>21</td>
<td>38</td>
<td>-</td>
<td>38</td>
</tr>
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</table>

At least 60 degree applicable units are required to earn an Associate degree.

This program is Financial Aid Eligible.

PROGRAM OVERVIEW

The Associate of Science Degree in Chemistry provides students interested in the physical, health, and biological sciences with a strong academic background in chemistry and the coursework required to transfer to four year institutions or professional schools. This degree certifies a students' ability to analyze and solve problems in the field of chemistry and other fields where expertise in chemistry is required.

Chemistry related fields include the pharmaceutical sciences, food sciences, biotechnology, biomanufacturing, nanotechnology, environmental sciences, engineering and many others. Our students pursue careers in chemistry, pharmacy, medicine, dentistry, physician assistant, laboratory technician and other health or physical science related careers. The degree presents curriculum in two major concentrations; one in Chemistry and the other in Biochemistry. Thus students can select the concentration appropriate to their majors.

PROGRAM LEARNING OUTCOMES (PLOs)

Upon completion of the Degree program, students are able to:
- Apply scientific principles to explain observations.
- Perform precise, quantitative measurements using proper techniques, methods and instrumentation.
- Demonstrate problem-solving, analytical, and critical thinking skills.
CHEMISTRY

Associate in Science Degree
Major Units: 38

Requirements for the Associate in Science degree in Chemistry may be met by completing 38 units of Required Courses with a grade of "C" or better along with General Education units. Information on the General Education unit requirements may be found in the catalog under Graduation Requirements.

REQUIRED COURSES

CHEMISTRY CONCENTRATION

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 101</td>
<td>General Chemistry I</td>
<td>5</td>
</tr>
<tr>
<td>CHEM 102</td>
<td>General Chemistry II</td>
<td>5</td>
</tr>
<tr>
<td>CHEM 211</td>
<td>Organic Chemistry for Science Majors I</td>
<td>5</td>
</tr>
<tr>
<td>CHEM 212</td>
<td>Organic Chemistry for Science Majors II</td>
<td>5</td>
</tr>
<tr>
<td>MATH 265</td>
<td>Calculus with analytical geometry I</td>
<td>5</td>
</tr>
<tr>
<td>MATH 266</td>
<td>Calculus with analytical geometry II</td>
<td>5</td>
</tr>
<tr>
<td>PHYSICS 001</td>
<td>Mechanics of Solids</td>
<td>4</td>
</tr>
<tr>
<td>PHYSICS 002</td>
<td>Mechanics of Fluids, Heat and Sound</td>
<td>4</td>
</tr>
</tbody>
</table>

-or- PHYSICS 003 | Electricity and Magnetism | 4 |

BIOCHEMISTRY CONCENTRATION

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 101</td>
<td>General Chemistry I</td>
<td>5</td>
</tr>
<tr>
<td>CHEM 102</td>
<td>General Chemistry II</td>
<td>5</td>
</tr>
<tr>
<td>CHEM 211</td>
<td>Organic Chemistry for Science Majors I</td>
<td>5</td>
</tr>
<tr>
<td>CHEM 221</td>
<td>Biochemistry for Science Majors</td>
<td>5</td>
</tr>
<tr>
<td>-or- CHEM 221H</td>
<td>Biochemistry for Science Majors - Honors</td>
<td>5</td>
</tr>
<tr>
<td>MATH 265</td>
<td>Calculus with analytical geometry I</td>
<td>5</td>
</tr>
<tr>
<td>MATH 266</td>
<td>Calculus with analytical geometry II</td>
<td>5</td>
</tr>
<tr>
<td>PHYSICS 006</td>
<td>General Physics I</td>
<td>4</td>
</tr>
<tr>
<td>PHYSICS 007</td>
<td>General Physics II</td>
<td>4</td>
</tr>
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</table>

TRANSFER: Students interested in transferring to a four-year college or university should visit the University Transfer Center or meet with a counselor to select appropriate transferable courses.

LIBERAL ARTS AND SCIENCES:
NATURAL SCIENCES

<table>
<thead>
<tr>
<th>Award Title</th>
<th>Academic Plan</th>
<th>Award Type</th>
<th>GE Units</th>
<th>Required Course Units</th>
<th>Major Elective Units</th>
<th>Major Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liberal Arts and Sciences: Natural Sciences</td>
<td>T018857C</td>
<td>A.A.</td>
<td>21</td>
<td>18</td>
<td>-</td>
<td>18</td>
</tr>
</tbody>
</table>

At least 60 degree applicable units are required to earn an Associate degree.

This program is Financial Aid Eligible.

PROGRAM OVERVIEW

This area of emphasis examines the physical universe, its life forms, and its natural phenomena. Emphasis is placed on students using the methodologies of science as an investigative tool. The Natural Sciences area of emphasis allows students to take courses that may satisfy lower-division requirements with the fields of science including Biology, Chemistry, Allied Health fields, Nursing preparation, Health Science and related fields, Kinesiology, Pre-Med, Dental Hygiene and more.

Students planning for transfer are cautioned that this curriculum may not provide for the completion of lower division requirements for transfer. Students should consult with a counselor for specific information regarding an intended major if transferring to a four-year university is a goal.

PROGRAM LEARNING OUTCOMES (PLOs)

Upon completion of the Degree program, students are able to:

- Apply scientific principles, theories, and/or models to explain or predict the behavior of natural physical phenomena.
- Apply scientific knowledge and reasoning to evaluate the human interaction with the natural world and identify major issues impacting society.

LIBERAL ARTS AND SCIENCES: NATURAL SCIENCES

Associate in Arts Degree
Major Units: 18

Requirements for the Associate in Arts degree in Liberal Arts and Sciences: Natural Sciences may be met by completing 18 units of Required Courses with a grade of "C" or better along with General Education units. Information on the General Education unit requirements may be found in the catalog under Graduation Requirements.

Degree Requirements in Natural Sciences:

- Complete 18 units of coursework from courses listed below.
- At least one science course have a lab.
REQUIRED COURSES

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANAT 101</td>
<td>Introduction to Human Anatomy</td>
<td>4</td>
</tr>
<tr>
<td>ANTH 101</td>
<td>Human Biological Evolution</td>
<td>3</td>
</tr>
<tr>
<td>ASTR 101</td>
<td>Astronomy</td>
<td>3</td>
</tr>
<tr>
<td>ASTR 102†</td>
<td>Elementary Astronomy Lab</td>
<td>1</td>
</tr>
<tr>
<td>ASTR 105†</td>
<td>Fundamentals of Astronomy Lab</td>
<td>1</td>
</tr>
<tr>
<td>BIO 103</td>
<td>Introduction to Biology</td>
<td>4</td>
</tr>
<tr>
<td>BIO 106</td>
<td>General Biology I</td>
<td>5</td>
</tr>
<tr>
<td>BIO 107</td>
<td>General Biology II</td>
<td>5</td>
</tr>
<tr>
<td>BIO 108†</td>
<td>Bioscience for Health Occupations</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 101</td>
<td>Fundamentals of Chemistry I</td>
<td>5</td>
</tr>
<tr>
<td>CHEM 102</td>
<td>Introductory General Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 103</td>
<td>Introductory Organic and Biochemistry</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 104</td>
<td>General Chemistry I</td>
<td>5</td>
</tr>
<tr>
<td>CHEM 105</td>
<td>General Chemistry II</td>
<td>5</td>
</tr>
<tr>
<td>CHEM 106‡</td>
<td>Organic Chemistry for Science Majors</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 107‡</td>
<td>Organic Chemistry for Science Majors</td>
<td>5</td>
</tr>
<tr>
<td>CHEM 108‡</td>
<td>Biochemistry for Science Majors</td>
<td>5</td>
</tr>
<tr>
<td>CHEM 109‡</td>
<td>Applied Chemistry I</td>
<td>5</td>
</tr>
<tr>
<td>CHEM 110‡</td>
<td>Applied Chemistry II</td>
<td>5</td>
</tr>
<tr>
<td>ENVS 100</td>
<td>The Human Environment: Physical Processes</td>
<td>3</td>
</tr>
<tr>
<td>GEO 101</td>
<td>Physical Geography</td>
<td>3</td>
</tr>
<tr>
<td>GEOG 101</td>
<td>Physical Geology</td>
<td>3</td>
</tr>
<tr>
<td>GEOG 102</td>
<td>Physical Geology Laboratory</td>
<td>2</td>
</tr>
<tr>
<td>MICRO 101</td>
<td>Introductory Microbiology</td>
<td>5</td>
</tr>
<tr>
<td>MICRO 102</td>
<td>General Microbiology</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 101</td>
<td>Introduction to Human Physiology</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 102‡</td>
<td>Mechanics of Solids</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 103‡</td>
<td>Mechanics of Fluids, Heat, and Sound</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 104‡</td>
<td>Electricity and magnetism</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 105‡</td>
<td>Optics and Modern Physics</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 106‡</td>
<td>General Physics I</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 107‡</td>
<td>General Physics II</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 108‡</td>
<td>Physics Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 109‡</td>
<td>Physics Fundamentals Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>PSYCH 102</td>
<td>Biological Psychology</td>
<td>3</td>
</tr>
</tbody>
</table>

NOTE: Lab courses for ASTR 5 and GEOG 6 cannot apply in this area unless the lecture courses that are prerequisite or co-requisite to the lab courses are also taken.

TRANSFER—Students interested in transferring to a four-year college or university should visit the University Transfer Center or meet with a counselor to select appropriate transferable courses.

PHYSICS

<table>
<thead>
<tr>
<th>Award Title</th>
<th>Academic Plan</th>
<th>Award Type</th>
<th>GE Area</th>
<th>Required Course Units</th>
<th>Major Elective Units</th>
<th>Major Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physics</td>
<td>T036300H</td>
<td>A.S.T.</td>
<td>IGETC</td>
<td>30</td>
<td>-</td>
<td>30</td>
</tr>
</tbody>
</table>

This program is Financial Aid Eligible.

PROGRAM OVERVIEW

The Associate in Science Transfer Degree in Physics provides students with a core curriculum that will prepare them with the knowledge and skills required to transfer and earn a Baccalaureate degree in Physics (or a similar major) at a California State University (CSU). Students will develop strong mathematical, analytical, and laboratory skills, and a solid understanding of the fundamental physical laws that govern the universe. This degree certifies a students’ ability to analyze and solve problems in the field of physics and other fields where expertise in physics is required. The coursework to complete this degree will also satisfy the lower division requirements for a variety of Baccalaureate degrees including, Engineering, Chemistry, Mathematics, and Computer Science.

The Associate in Science in Physics for Transfer will be awarded upon completion of 60 transferable semester units to the California State University, including the following:

- Completion of the Intersegmental General Education Transfer Curriculum (IGETC) or the California State University General Education – Breadth Requirements.
- A minimum of 18 semester units required for the major.
- All courses in the major must be completed with a grade of “C” or better, or a “P” if the course is taken on a “Pass-No Pass” basis (Title 5 § 55063).

PROGRAM LEARNING OUTCOMES (PLOs)

Upon completion of the Degree program, students are able to:

- Collect data accurately and safely by performing precise, quantitative measurements using proper techniques and modern instrumentation.
- Use data obtained from lab equipment to construct graphs, and judge the accuracy and precision of results.
- Apply basic physics laws such as Newton’s three laws of motion and the three laws of thermodynamics in problem solving. Use algebra through multivariable calculus to set up and solve equations related to mechanics, electromagnetism, waves, optics and modern physics, demonstrating analytical and critical thinking skills.
**PROCESS TECHNOLOGY**

**PROGRAM OVERVIEW**

The Chemical Process Industries (CPI) are a major part of U.S. business and represent a diverse industries ranging from pharmaceuticals to large-scale processing of gasoline and waste water treatment and food and beverage. Working in the CPI represents a particular challenge with regard to handling materials, which range from small quantities of specialized products to large quantities of potentially hazardous materials.

Process Technicians (PTs) team with engineers and other technicians with specialties such as instrumentation, electronics, or maintenance to adjust and optimize conditions for the production of large quantities of products. The quality of the production is dependent on the skill and knowledge of the Process Technician in carrying out the operations of the plant. PTs must be concerned with issues such as personal and co-worker safety, impact of materials on the environment, and process skills that deal with all aspects of controlling processes and maintaining equipment.

CPI is the fourth largest manufacturing industry in the United States. It encompasses plants manufacturing an almost endless range of products, such as chemicals, (both organic and inorganic), food and beverages, cleaning preparations, plastics, agricultural chemicals, paints, pharmaceuticals, cosmetics, power generation, pulp and paper, petroleum refining and wastewater treatment, to name just a few.

The LATTC Process Technology program is a member of the California Chemical and Process Technology Alliance (CCPTA) and the Pacific Technology Career Alliance, an education/industry consortia of major chemical industries both public and private. The CCPTA was founded for the purpose of ensuring that Process Technology instructors and students are on the receiving end of current industry analytical methods, techniques, equipment, and standards. The Alliance is also committed to providing a well skilled employee pool for chemical industry employment opportunities.

The Alliance is also committed to providing a well skilled employee pool for chemical industry employment opportunities. At the conclusion of this program, students will have the skills necessary for:

- Working in the refinery, biomanufacturing, petrochemical and other process industry, including treatment plants
- Monitoring safety/health and environmental regulations
- Sampling and handling chemical materials
- Measuring physical properties
- Operating and maintaining process instruments and equipment
- Understanding process operations using P&IDs and associated documents
- Troubleshooting process operations.

**PROGRAM LEARNING OUTCOMES (PLOs)**

Upon completion of the Degree/Certificate program, students are able to:

- Explain industrial operations and processes.
- Recognize and perform industrial regulatory processes.

**PROCESS TECHNOLOGY**

**Associate in Science Degree**

Major Units: 45

Requirements for the Associate in Science degree in Process Technology may be met by completing 45 units of Required Courses with a grade of "C" or better along with General Education units. Information on the General Education unit requirements may be found in the catalog under Graduation Requirements.
### REQUIRED COURSES

**SEMESTER I**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRPLTEK 100</td>
<td>Introduction to Industrial Process</td>
<td>3</td>
</tr>
<tr>
<td>PRPLTEK 103</td>
<td>Process Plant Equipment</td>
<td>3</td>
</tr>
<tr>
<td>PHYSICS 011</td>
<td>Introductory Physics</td>
<td>4</td>
</tr>
<tr>
<td>CHEM T 111</td>
<td>Applied Chemistry I</td>
<td>5</td>
</tr>
</tbody>
</table>

**SEMESTER II**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRPLTEK 102</td>
<td>Process Measurement and Control Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>PRPLTEK 200</td>
<td>Process Plant Systems</td>
<td>3</td>
</tr>
<tr>
<td>PRPLTEK 204</td>
<td>PTech Instrumentation - Computer Applications</td>
<td>2</td>
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</table>

**SEMESTER III**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRPLTEK 206</td>
<td>PTech-Advanced Instrumentation II</td>
<td>3</td>
</tr>
<tr>
<td>PRPLTEK 210</td>
<td>Applied Instrumentation Analysis I</td>
<td>4</td>
</tr>
<tr>
<td>-or- CHEM T 132</td>
<td>Quantitative and Instrumental Analysis I (5)</td>
<td></td>
</tr>
<tr>
<td>PRPLTEK 104</td>
<td>Introduction to Applied Sciences</td>
<td>4</td>
</tr>
</tbody>
</table>

**SEMESTER IV**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRPLTEK 202</td>
<td>Introduction to Process Plant Troubleshooting</td>
<td>3</td>
</tr>
<tr>
<td>PHYSICS 029A/B</td>
<td>Basic Physics for Technicians</td>
<td>4</td>
</tr>
<tr>
<td>MATH 125</td>
<td>Intermediate Algebra</td>
<td>5</td>
</tr>
</tbody>
</table>

**PROCESS TECHNOLOGY**

#### Certificate of Achievement

Major Units: 45

A Certificate of Achievement in Process Technology may be earned by completing 45 units of Required Courses listed under the Associate degree in Process Technology with a “C” or better in each course.
ABOUT THE PATHWAY
The Business & Civic Engagement (BCE) pathway offers programs that intersect and overlap, demonstrating the interdependent nature inherent in working toward the collective good of communities and local economies. They prepare students to enter the workforce in Business & Corporate Social Responsibility, Business Technology, Early Childhood Education and Social Justice, Community Organizing and Activism. The programs of study in this pathway aim to enhance communities through civic engagement, service learning and project-based learning options that result in measurable community impact and provide solutions to real-world problems.

PATHWAY TEAM:
Dean: Cynthia Morley Mower ~ Email: MorleyCN@lattc.edu
Chair: Maryanne Galindo ~ Email: GalindM@lattc.edu
Email: BCE@lattc.edu
Pathway Website: http://pathways.lattc.edu/catalog-programs/bce/

CONTACT US:
Office Location: Cedar Hall/K - Room 203 D1
Phone number: (213) 763-7252

PATHWAY CERTIFICATES AND DEGREES

<table>
<thead>
<tr>
<th>PROGRAM OF STUDY</th>
<th>AWARD</th>
<th>PROGRAM OF STUDY</th>
<th>AWARD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accounting</td>
<td>AA</td>
<td>Computer App &amp; Office Tech: Administrative Assistant</td>
<td>AA/C</td>
</tr>
<tr>
<td>Accounting Clerk</td>
<td>C</td>
<td>Computer App &amp; Office Tech: Information Processing Specialist</td>
<td>AA/C</td>
</tr>
<tr>
<td>Administration of Justice</td>
<td>AST</td>
<td>Computer App &amp; Office Tech: Office Assistant-Clerical</td>
<td>AA/C</td>
</tr>
<tr>
<td>Child Development Degrees &amp; Certificates</td>
<td></td>
<td>Computer Information Systems</td>
<td>AS/C</td>
</tr>
<tr>
<td>Child Development: Plan B</td>
<td>AA</td>
<td>Correctional Science</td>
<td>AS/C</td>
</tr>
<tr>
<td>Early Childhood Education</td>
<td>AST</td>
<td>Labor Studies</td>
<td>AA/C</td>
</tr>
<tr>
<td>Infant/Toddler Teacher</td>
<td>C</td>
<td>Management/Supervision</td>
<td>AA/C</td>
</tr>
<tr>
<td>Preschool Associate Teacher</td>
<td>C</td>
<td>Marketing and Public Relations</td>
<td>AA/C</td>
</tr>
<tr>
<td>Preschool Teacher</td>
<td>C</td>
<td>Medical Office Assistant</td>
<td>C</td>
</tr>
<tr>
<td>School Age Program Teacher</td>
<td>C</td>
<td>Paralegal Studies</td>
<td>AA/C</td>
</tr>
<tr>
<td>Site Supervisor</td>
<td>C</td>
<td>Real Estate</td>
<td>AA/C</td>
</tr>
<tr>
<td>Teacher with Special Needs</td>
<td>C</td>
<td>Retail Management</td>
<td>AA/C</td>
</tr>
<tr>
<td>Community Planning &amp; Economic Development</td>
<td>AA/C</td>
<td>Small Business Entrepreneurship</td>
<td>AA/C</td>
</tr>
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</table>
Graduation Requirements, Pathways and Programs of Study  

ACCOUNTING

<table>
<thead>
<tr>
<th>Award Title</th>
<th>Academic Plan</th>
<th>Award Type</th>
<th>GE Units</th>
<th>Required Course Units</th>
<th>Major Elective Units</th>
<th>Major Units</th>
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<td>A.A.</td>
<td>21*</td>
<td>47</td>
<td>-</td>
<td>47</td>
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<td>C</td>
<td>30</td>
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</tbody>
</table>

At least 60 degree applicable units are required to earn an Associate degree.

*This Associate Degree is eligible for a reduction of General Education requirements from 21 to 18 units; please consult with a counselor for more details.

These programs are Financial Aid Eligible.

PROGRAM OVERVIEW

The Accounting program offers occupational training to students who plan to work in general and corporate accounting. Instruction is provided in financial and managerial accounting theory and in various practical aspects of the accounting field. General accountants record transactions involving receivables, payables, payroll, and property into a general ledger and examine the financial records for compliance with accounting standards and applicable laws. Corporate accountants record financial transactions, analyze and evaluate financial records, apply tax law and finance techniques, and may design and implement accounting/bookkeeping systems and procedures.

By fulfilling the program requirements, students are proficient in the application of basic financial and managerial accounting principles and techniques. Students will be adept at analyzing and recording economic transactions using Generally Accepted Accounting Principles (GAAP) and relevant computer applications. Students will understand the application of accounting principles and techniques to service, merchandising, and manufacturing businesses.

Typical positions are bookkeeper, accounting clerk, junior accountant and tax preparer. Courses required for the Accounting Clerk Certificate are designed to prepare students for entry level positions in specialized occupational areas after 2 to 3 semesters of study.

ACCOUNTING

Associate in Arts Degree
Major Units: 47

Requirements for the Associate in Arts degree in Accounting may be met by completing 47 units of Required Courses with a “C” or better along with General Education units. Information on the General Education unit requirements may be found in the catalog under Graduation Requirements.

PROGRAM LEARNING OUTCOMES (PLOs)

Upon completion of the Degree program, students are able to:

- Utilize specialized ledgers and software to record and process expenditures.
- Prepare and process payroll records and reports in compliance with state and federal requirements.
- Analyze and prepare financial statements in accordance with accounting principles.
- Use the Internal Revenue Code as it relates to individual, partnership, and corporation income taxes.
- Demonstrate effective business communication skills.

REQUISITE COURSES

<table>
<thead>
<tr>
<th>SEMESTER I</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 001</td>
<td>Introduction to Business</td>
</tr>
<tr>
<td>BUS 032</td>
<td>Business Communications</td>
</tr>
<tr>
<td>ACCTG 001</td>
<td>Introductory Accounting I</td>
</tr>
<tr>
<td>ACCTG 025</td>
<td>Computerized Accounting Methods and Procedures (Spring only)</td>
</tr>
<tr>
<td>ECON 002</td>
<td>Principle of Economics II</td>
</tr>
<tr>
<td>OFF MCH 002</td>
<td>Adding and Calculating Machines</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SEMESTER II</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCTG 002</td>
<td>Introductory Accounting II</td>
</tr>
<tr>
<td>BUS 005</td>
<td>Business Law I</td>
</tr>
<tr>
<td>CAOT 085</td>
<td>Microcomputer Office Applications: Spreadsheet</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SEMESTER III</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCTG 003</td>
<td>Intermediate Accounting I</td>
</tr>
<tr>
<td>ACCTG 011</td>
<td>Cost Accounting</td>
</tr>
<tr>
<td>ACCTG 015</td>
<td>Tax Accounting I</td>
</tr>
</tbody>
</table>

ACCOUNTING CLERK

Certificate of Achievement
Major Units: 30

A Certificate of Achievement in Accounting Clerk may be earned by completing 30 units of Required Courses with a “C” or better in each course.

Courses required for the Accounting Clerk Certificate are designed to prepare students for entry level positions in specialized occupational areas. Students will understand the application of the accounting principles and techniques to service, merchandising, and manufacturing businesses. Typical positions are bookkeeper, accounting clerk, junior accountant and tax preparer.
PROGRAM LEARNING OUTCOMES (PLOs)

Upon completion of the Certificate program, students are able to:

- Apply math knowledge, attention to detail, and familiarity with basic accounting procedures to provide clerical and accounting support for an accounting department.
- Demonstrate effective business communication skills.
- Utilize specialized ledgers and software, such as Quickbooks, to record and process expenditures, receipts, payroll, and other financial transactions for a business or organization.

REQUIRED COURSES

<table>
<thead>
<tr>
<th>SEMESTER I</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACMCTG 001</td>
<td>Introductory Accounting I</td>
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<tr>
<td>BUS 001</td>
<td>Introduction to Business</td>
</tr>
<tr>
<td>BUS 038</td>
<td>Business Communications</td>
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<tr>
<td>CAOT 082</td>
<td>Microcomputer Software Survey in the Office</td>
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<tr>
<td>OFF MCH 002</td>
<td>Adding and Calculating Machines</td>
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</table>

<table>
<thead>
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<th>SEMESTER II</th>
<th>UNITS</th>
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<tbody>
<tr>
<td>ACMCTG 015</td>
<td>Tax Accounting I</td>
</tr>
<tr>
<td>ACMCTG 018</td>
<td>Computerized Payroll Accounting</td>
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<tr>
<td>ACMCTG 025</td>
<td>Computerized Accounting Methods and Procedures</td>
</tr>
<tr>
<td>ECON 002</td>
<td>Principles of Economics II</td>
</tr>
<tr>
<td>CAOT 085</td>
<td>Microcomputer Office Applications: Spreadsheet</td>
</tr>
<tr>
<td>SUPV 011</td>
<td>Oral Communications</td>
</tr>
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</table>

ADMINISTRATION OF JUSTICE

The Associate in Science in Administration of Justice for Transfer (AS-T) degree will be awarded upon completion of the following:

- Completion of 60 transferable semester units to the California State University.
- Obtainment of a minimum grade point average of 2.0 in all transferable coursework.

PROGRAM LEARNING OUTCOMES (PLOs)

Upon completion of the Degree program, students are able to:

- Identify and describe the structure and functions of the main components of the criminal justice system: Law Enforcement, Courts, Corrections and Juvenile justice.
- Recognize the importance of, and practice of ethical behavior in the criminal justice work environment, both in the agency and the community.

ADMINISTRATION OF JUSTICE (AS-T)

Associate in Science for Transfer
Major Units: 18

Requirements for the Associate in Science Transfer degree in Administration of Justice may be met by completing 16 units of Required Courses with a “C” or better along with general education courses meeting IGETC or CSU Requirements.

REQUIRED COURSES

<table>
<thead>
<tr>
<th>SEMESTER I</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADM JUS 001</td>
<td>Introduction to Administration of Justice</td>
</tr>
<tr>
<td>ADM JUS 002</td>
<td>Concepts of Criminal Law</td>
</tr>
</tbody>
</table>

LIST A: SELECT 2 COURSES FROM BELOW (6 UNITS)

| ADM JUS 003 | Legal Aspects of Evidence | 3 |
| ADM JUS 005 | Criminal Investigation | 3 |
| ADM JUS 067 | Community Relations I | 3 |
| ADM JUS 004 | Principals & Procedures of the Justice System | 3 |
| ADM JUS 008 | Juvenile Procedures | 3 |
| ADM JUS 075 | Introduction to Corrections | 3 |

LIST B: SELECT 2 COURSES FROM BELOW (6 UNITS)

Any course NOT used in List A or:

- MATH 225 Introductory Statistics | 3 |
- PSYCH 001 General Psychology I | 3 |
- SOC 001 Introduction to Sociology | 3 |
- MAJOR REQUIRED SUBTOTAL | 18 units
- CSU or IGETC for CSU GE Pattern | 37-39 units
- CSU Transferable Elective units (as needed to reach 60 units) | 60 units

TOTAL CSU transferrable units | 60 units
CHILD DEVELOPMENT DEGREES

<table>
<thead>
<tr>
<th>Award Title</th>
<th>Academic Plan</th>
<th>Award Type</th>
<th>GE Units</th>
<th>Required Course Units</th>
<th>Major Elective Units</th>
<th>Major Units</th>
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</thead>
<tbody>
<tr>
<td>Child Development: Plan B</td>
<td>T010403C</td>
<td>A.A.</td>
<td>21</td>
<td>38</td>
<td>9</td>
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<td>Early Childhood Education (Transfer)</td>
<td>T031018H</td>
<td>AT</td>
<td>IGETC/CSU</td>
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</table>

At least 60 degree applicable units are required to earn an Associate degree.

*This Associate Degree is eligible for a reduction of General Education requirements from 21 to 18 units; please consult with a counselor for more details.

These programs are Financial Aid Eligible.

PROGRAM OVERVIEW

The LATTC Child Development Program is designed to meet the needs of those students who wish to prepare themselves for employment or who are currently employed in the Early Childhood Education (ECE) or Elementary Education field. This curriculum prepares student to teach in programs for children including: private facilities, parent cooperatives, Head Start programs, Children’s centers and infant/toddler or school age programs. In addition, this program also prepares students to transfer to four year universities in either Child Development or Teacher Education majors.

Completion of each program leads to a certificate, transfer option and/or an Associate in Arts degree. With additional general education units and required experience, students will be eligible for the Child Development Permit as defined under Title 5. Meeting this requirement will enable the student to teach in Federal and State preschool programs.

The Child Development courses provide training in infant and toddler care; working with school age children; supervising and administering childcare programs, as well as working with special needs children. Students who complete this degree program will be proficient in the methodology of working with young children through the extensive overview of theories and application of child development, the development of curriculum and lesson planning techniques, ways to observe and record child behavior, and classroom management techniques.

PLANNING AHEAD

MANTOUX TEST (TB TEST): Some Child Development courses may require you to obtain a Mantoux test for Tuberculosis. The college Health Center provides this service. Please call ahead for days and times the Health Center provides this service.

VACCINATION LAW: As of September 1, 2016 under SB 792, day care centers, family day care homes and preschools as part of their licensure requirements, will have to maintain vaccination records for their employees and volunteers for influenza, pertussis, and measles. Obtaining verification of vaccination records is required for all school and center observations, volunteering and practicum experience in child development courses.

CRIMINAL CLEARANCE: In order to fulfill State licensing requirements for employment in private and public programs you must receive a Criminal Clearance to work with young children. Consult with faculty for additional information.

CPR CLASS: Your employer may require you to take a 15-hour Cardiopulmonary Resuscitation class. This class covers training on basic first aid for infants and children, CPR techniques as well as information on basic health and sanitation procedures.

CHILD DEVELOPMENT: PLAN B

<table>
<thead>
<tr>
<th></th>
<th>Associate in Arts Degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major Units: 47</td>
<td></td>
</tr>
</tbody>
</table>

Requirements for the Associate in Arts degree in Child Development: Plan B may be met by completing 38 units of Required Courses and 9 units of Major Electives with a grade of “C” or better along with General Education units. Information on the General Education unit requirements may be found in the catalog under Graduation Requirements.

PROGRAM LEARNING OUTCOMES (PLOs)

Upon completion of the Degree program, students are able to:

- Apply Child Development theories and Early Childhood teaching principles and practices to implement simple teaching strategies, assist in observation and assessment of children to meet the entry-level requirements for early childhood professionals working in programs regulated by the California Department of Social Services (Title 22): This degree is designed to meet the requirements for a California Child Development Teacher Permit.
- Apply effective teaching and guidance strategies that support learning outcomes of young children in diverse learning settings.

REQUIRED COURSES

<table>
<thead>
<tr>
<th>SEMESTER I</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>CH DEV 001</td>
<td>3</td>
</tr>
<tr>
<td>CH DEV 010</td>
<td>3</td>
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<tr>
<td>CH DEV 011</td>
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<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>CH DEV 002</td>
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<td>CH DEV 003</td>
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<td>CH DEV 042</td>
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<table>
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<tr>
<th>SEMESTER III</th>
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<th>SEMESTER V</th>
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<tr>
<td>CH DEV 022</td>
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</tbody>
</table>
Graduation Requirements, Pathways and Programs of Study

GRADUATION REQUIREMENTS, PATHWAYS AND PROGRAMS OF STUDY

EARLY CHILDHOOD EDUCATION

PROGRAM OVERVIEW

The Associate in Science in Early Childhood Education for Transfer (AS-T) degree prepares students with the academic coursework necessary for a variety of child development permits issued by the State of California for students who wish to work while completing their education. Early Childhood Education introduces the theories of child development and principles of education focusing on children ages 0-5 years. The AS-T in Early Childhood Education for Transfer degree is intended for students who plan to complete a baccalaureate degree in a similar program or major at a California State University campus. Students who complete this degree will gain priority admission to the CSU system, but not to a particular campus or major.

The Associate in Science in Early Childhood Education for Transfer (AS-T) degree will be awarded upon completion of the following:

1. Completion of 60 transferable semester units to the California State University
2. Obtainment of a minimum grade point average of 2.0 in all transferable coursework.
3. Full completion of one of the following General education patterns
   • The Intersegmental General Education Transfer Curriculum (IGETC), with “C’s” or better in all coursework AND completion of Area 1C Oral communication (CSU admission requirement)
   • California State University General Education – Breadth Requirements (CSU GE). Areas A1, A2, A3, & B4 must be completed with a grade of “C” or better (CSU admission requirement)
4. A minimum of 24 semester units required for the major
5. All courses in the major must be completed with a grade of “C” or better or a “P” if the course is taken on a “Pass-No Pass” basis (Title 5 § 55063).

PROGRAM LEARNING OUTCOMES (PLOs)

Upon completion of the Degree program, students are able to:

• Students will be able to synthesize child development research with principles and practices for early childhood teaching to create early learning environments that are respectful, supportive, and challenging for all children, from infancy through adolescence.
• Students will be able to recommend developmentally appropriate and culturally relevant approaches to teaching and learning that include respectful, supportive relationships with children, and families.
• Students will be able to apply developmentally appropriate practice and diverse philosophical approaches in early childhood settings.

EARLY CHILDHOOD EDUCATION

Associate in Science Transfer Degree

Major Units: 25

Requirements for the Associate in Science Transfer degree in Early Childhood Education may be met by completing 25 units of Required Courses with a “C” or better along with IGETC or CSU General Education Requirements.

REQUIRED COURSES

<table>
<thead>
<tr>
<th>SEMESTER I</th>
<th>UNITS</th>
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<tbody>
<tr>
<td>CH DEV 001</td>
<td>Child Growth and Development 3</td>
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<tr>
<td>CH DEV 010</td>
<td>Health, Safety and Nutrition 3</td>
</tr>
<tr>
<td>CH DEV 011</td>
<td>Child, Family and Community 3</td>
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<table>
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<tr>
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<th>UNITS</th>
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<tbody>
<tr>
<td>CH DEV 002</td>
<td>Early Childhood: Principles and Practices 3</td>
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<tr>
<td>CH DEV 034</td>
<td>Observing and Recording Children’s Behavior 3</td>
</tr>
<tr>
<td>CH DEV 042</td>
<td>Teaching in a Diverse Society 3</td>
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<tbody>
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<td>CH DEV 007</td>
<td>Introduction to Curriculum in Early Childhood Education 3</td>
</tr>
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<th>SEMESTER IV</th>
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<tbody>
<tr>
<td>CH DEV 022</td>
<td>Practicum in Child Development I 4</td>
</tr>
</tbody>
</table>

MAJOR REQUIRED SUBTOTAL 25 units
CSU or IGETC for CSU GE Pattern 37-39 units
CSU Transferable Elective units (as needed to reach 60 units) 60 units
TOTAL CSU transferrable units 60 units

TRANSFER—Students interested in transferring to a four-year college or university should visit the University Transfer Center or meet with a counselor to select appropriate transferable courses.
CHILD DEVELOPMENT CERTIFICATES

<table>
<thead>
<tr>
<th>Award Title</th>
<th>Academic Plan</th>
<th>Award Type</th>
<th>GE Units</th>
<th>Major Elective Units</th>
<th>Major Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infant/Toddler Teacher</td>
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<td>C</td>
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<tr>
<td>Preschool Associate Teacher</td>
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<td>15</td>
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<tr>
<td>Preschool Teacher</td>
<td>T010404D</td>
<td>C</td>
<td>35</td>
<td>35</td>
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</tr>
<tr>
<td>School Age Program Teacher</td>
<td>T031062D</td>
<td>C</td>
<td>33</td>
<td>33</td>
<td></td>
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<tr>
<td>Site Supervisor</td>
<td>T031063D</td>
<td>C</td>
<td>43</td>
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<tr>
<td>Teacher with Special Needs</td>
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<td>C</td>
<td>30</td>
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</tr>
</tbody>
</table>

PROGRAM OVERVIEW

The Child Development Program offers various educational options. Completion of each program leads to a certificate, transfer option and/or an Associate in Arts degree. With additional general education units and required experience, the student will be eligible for the Child Development Permit as defined under Title 5. Meeting this requirement will enable the student to teach in both Federal and State preschool programs.

The Child Development courses provide training in infant and toddler care; working with school age children; supervising and administering childcare programs, as well as working with special needs children. Students who complete this degree program will be proficient in the methodology of working with young children through the extensive overview of theories and application of child development, the development of curriculum and lesson planning techniques, ways to observe and record child behavior, and classroom management techniques. This curriculum prepares student to teach in programs for children including: private facilities, parent cooperative, Head Start programs, Children's Centers and infant/toddler or school age programs. In addition, this program also prepares students to transfer to four year universities in either Child Development or Teacher Education majors.

Planning Ahead:

MANTOUX TEST (TB TEST): Some Child Development courses may require you to obtain a Mantoux test for Tuberculosis. The college Health Center provides this service. Please call ahead for days and times the Health Center provides this service.

VACCINATION LAW: As of September 1, 2016 under SB 792, day care centers, family day care homes and preschools as part of their licensure requirements, will have to maintain vaccination records for their employees and volunteers for influenza, pertussis, and measles. Obtaining verification of vaccination records is required for all school and center observations, volunteering and practicum experience in child development courses.

CRIMINAL CLEARANCE: In order to fulfill State licensing requirements for employment in private and public programs you must receive a Criminal Clearance to work with young children. Consult with faculty for additional information.

CPR CLASS: Your employer may require you to take a 15-hour Cardiopulmonary Resuscitation class. This class covers training on basic first aid for infants and children, CPR techniques as well as information on basic health and sanitation procedures.

PROGRAM LEARNING OUTCOMES (PLOs)

Upon completion of the Certificate programs, students are able to:

- Students will be able to demonstrate the use of systematic child assessment strategies to plan learning activities and guide decisions about curriculum and teaching strategies.
- Students will be able to employ appropriate responsive care techniques when providing care for children from infancy to school age in diverse populations, including special needs children, in adherence with Title 22 Regulations for licensed childhood programs.
- Students will be able to administer appropriate supervision practices for children from infancy to school age in diverse populations, including special needs children, in adherence with Title 5 and Title 22 Regulations for licensed childhood programs.
- Students will be able to work with young children in early childhood education settings.
- Students will be able to transfer to four year universities in either Child Development or Teacher Education majors.

INFANT / TODDLER TEACHER

Certificate of Achievement

Major Units: 27

A Certificate of Achievement in Infant/Toddler Teacher may be earned by completing 27 units of Required Courses with a "C" or better in each course.

REQUIRED COURSES

<table>
<thead>
<tr>
<th>SEMESTER I</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>CH DEV 001</td>
<td>Child Growth and Development</td>
</tr>
<tr>
<td>CH DEV 002</td>
<td>Early Childhood: Principles and Practices</td>
</tr>
<tr>
<td>CH DEV 010</td>
<td>Health, Safety and Nutrition</td>
</tr>
<tr>
<td>CH DEV 042</td>
<td>Teaching in a Diverse Society</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SEMESTER II</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>CH DEV 003</td>
<td>Infant and Toddler Studies I</td>
</tr>
<tr>
<td>CH DEV 004</td>
<td>Infant and Toddler Studies II</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>SEMESTER III</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>CH DEV 030</td>
<td>Observing and Recording Children's Behavior</td>
</tr>
<tr>
<td>CH DEV 031</td>
<td>Early Intervention for Children with Special Needs</td>
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</tbody>
</table>

PRESCHOOL ASSOCIATE TEACHER

Certificate of Achievement

Major Units: 15

A Certificate of Achievement in Preschool Associate Teacher may be earned by completing 15 units of Required Courses listed above, with a "C" or better in each course.
## GRADUATION REQUIREMENTS, PATHWAYS AND PROGRAMS OF STUDY

### REQUIRED COURSES

#### PRESCHOOL TEACHER Certificate of Achievement

Major Units: 35

A Certificate of Achievement in **Preschool Teacher** may be earned by completing **35 units** of Required Courses with a "C" or better in each course.

<table>
<thead>
<tr>
<th>SEMESTER I</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>CH DEV 001 Child Growth and Development</td>
<td>3</td>
</tr>
<tr>
<td>CH DEV 010 Health, Safety and Nutrition</td>
<td>3</td>
</tr>
<tr>
<td>CH DEV 011 Child, Family and Community</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SEMESTER II</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>CH DEV 002 Early Childhood: Principles and Practices</td>
<td>3</td>
</tr>
<tr>
<td>CH DEV 034 Observing and Recording Children’s Behavior</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SEMESTER III</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>CH DEV 007 Introduction to Curriculum in Early Childhood Education</td>
<td>3</td>
</tr>
</tbody>
</table>

### SCHOOL AGE PROGRAM TEACHER Certificate of Achievement

Major Units: 33

A Certificate of Achievement in **School Age Program Teacher** may be earned by completing **33 units** of Required Courses with "C" or better in each course.

<table>
<thead>
<tr>
<th>SEMESTER I</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>CH DEV 001 Child Growth and Development</td>
<td>3</td>
</tr>
<tr>
<td>CH DEV 010 Health, Safety and Nutrition</td>
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</table>

<table>
<thead>
<tr>
<th>SEMESTER II</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>CH DEV 002 Early Childhood: Principles and Practices</td>
<td>3</td>
</tr>
<tr>
<td>CH DEV 034 Observing and Recording Children’s Behavior</td>
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</tr>
<tr>
<td>CH DEV 042 Teaching in a Diverse Society</td>
<td>3</td>
</tr>
<tr>
<td>CH DEV 046 School Age Programs I</td>
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<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>CH DEV 007 Introduction to Curriculum in Early Childhood Education</td>
<td>3</td>
</tr>
<tr>
<td>CH DEV 045 Programs for Children with Special Needs</td>
<td>3</td>
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<table>
<thead>
<tr>
<th>SEMESTER IV</th>
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<tbody>
<tr>
<td>CH DEV 008 Curriculum in Early Childhood Education</td>
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<tr>
<td>CH DEV 047 School Age Programs II</td>
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</table>

### SITE SUPERVISOR Certificate of Achievement

Major Units: 43

A Certificate of Achievement in **Site Supervisor** may be earned by completing **43 units** of Required Courses with "C" or better in each course.

<table>
<thead>
<tr>
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<th>UNITS</th>
</tr>
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<tbody>
<tr>
<td>CH DEV 001 Child Growth and Development</td>
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<tr>
<td>CH DEV 010 Health, Safety and Nutrition</td>
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<td>CH DEV 011 Child, Family and Community</td>
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<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>CH DEV 002 Early Childhood: Principles and Practices</td>
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</tr>
<tr>
<td>CH DEV 034 Observing and Recording Children’s Behavior</td>
<td>3</td>
</tr>
<tr>
<td>CH DEV 042 Teaching in a Diverse Society</td>
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<table>
<thead>
<tr>
<th>SEMESTER III</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>CH DEV 007 Introduction to Curriculum in Early Childhood Education</td>
<td>3</td>
</tr>
<tr>
<td>CH DEV 038 Administration and Supervision of Early Childhood Programs I</td>
<td>3</td>
</tr>
<tr>
<td>CH DEV 045 Programs for Children with Special Needs</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SEMESTER IV</th>
<th>UNITS</th>
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</thead>
<tbody>
<tr>
<td>CH DEV 008 Curriculum in Early Childhood Education</td>
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</table>
COMMUNITY PLANNING & ECONOMIC DEVELOPMENT

<table>
<thead>
<tr>
<th>Award Title</th>
<th>Academic Plan</th>
<th>Award Type</th>
<th>GE Units</th>
<th>Required Course Units</th>
<th>Major Elective Units</th>
<th>Total Major Units</th>
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<td>27</td>
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<tr>
<td>Community Planning and Economic</td>
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<tr>
<td>Development</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

At least 60 degree applicable units are required to earn an Associate degree.

These programs are Financial Aid Eligible.

PROGRAM OVERVIEW

The Community Planning program at LATTC is the only program offered at an accredited community college in the United States. Our unique program provides students the knowledge and training needed for successful employment in the field of community and economic development. The community and economic development industry focuses on revitalizing low and moderate income communities. Rebuilding the economic, physical and social infrastructure of urban communities represents a new, growing and exciting career opportunity. Students can learn basic planning knowledge, development strategies, technical skills and networks needed to enter the industry, earning a Certificate of Achievement.

The Community Planning curriculum and courses are regularly reviewed to ensure that they are relevant, industry appropriate and cutting edge. Industry experts (academic and practitioners) develop, design and teach our courses. Our industry partnerships provide critical resources for our students, providing them with invaluable employment, volunteer, internship and networking opportunities. Our courses are structured to be laboratories (classroom and field work) that combine lecture, project driven learning and hands on application of knowledge to contemporary issues affecting communities. Community planning courses are taught during the evening/weekends on campus and in the community to provide students with the greatest range of educational opportunities.

Successful students will be able to apply a community organizing set of skills and tools that address multiple community and economic development issues. Students who complete the program become viable and competitive for employment opportunities. They will have developed their knowledge and skill base, practiced their learning through field work, internships or paid experience and have created networks and/or participated in collaborations that have maximized their knowledge with capacity to understand urgent issues and trends.
COMMUNITY PLANNING & ECONOMIC DEVELOPMENT

Associate in Arts Degree

Major Units: 36

Requirements for the Associate in Arts degree in Community Planning and Economic Development may be met by completing 9 units of Required Courses and 27 units of Major Electives with a "C" or better along with the General Education units. Information on the General Education unit requirements may be found in the catalog under Graduation Requirements.

PROGRAM LEARNING OUTCOMES (PLOs)

Upon completion of the Degree program, students are able to:

- Analyze and assess low-income community needs, assets and issues from a community planning and economic development industry lens.
- Develop various types of industry approved project proposals to address community planning and economic development issues with solutions that include data analysis, identified targets, goals, objectives, timelines, expected outcomes and community stakeholder engagement.
- Articulate multiple approaches to development as possible solutions to social and economic justice problems.

REQUIRED COURSES

<table>
<thead>
<tr>
<th>COURSE</th>
<th>TITLE</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMPLAN 001</td>
<td>Introduction to Community Economic Development</td>
<td>3</td>
</tr>
<tr>
<td>COMPLAN 002</td>
<td>Introduction to Community Organizing</td>
<td>3</td>
</tr>
<tr>
<td>COMPLAN 011</td>
<td>Professional Development Skills/Issues in Community Development</td>
<td>3</td>
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</table>

MAJOR ELECTIVES

Select 27 units from the following courses

<table>
<thead>
<tr>
<th>COURSE</th>
<th>TITLE</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMPLAN 003</td>
<td>Affordable Housing Development</td>
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</tr>
<tr>
<td>COMPLAN 005</td>
<td>Sector Development and Employment Strategies</td>
<td>3</td>
</tr>
<tr>
<td>COMPLAN 006</td>
<td>Managing Non-Profit and Public Organizations</td>
<td>3</td>
</tr>
<tr>
<td>COMPLAN 007</td>
<td>Contemporary Issues and Strategies in Popular Education and Organizing</td>
<td>3</td>
</tr>
<tr>
<td>COMPLAN 009</td>
<td>Commercial Real Estate Development</td>
<td>3</td>
</tr>
<tr>
<td>COMPLAN 010</td>
<td>Comprehensive Community Violence Prevention</td>
<td>3</td>
</tr>
<tr>
<td>COMPLAN 012</td>
<td>Fundraising Basics for Nonprofit Organizations</td>
<td>1</td>
</tr>
<tr>
<td>COMPLAN 015</td>
<td>Introduction to the Community Development Industry &amp; Careers</td>
<td>1</td>
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<tr>
<td>COMPLAN 017</td>
<td>Leadership Development and Skill Building</td>
<td>3</td>
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<tr>
<td>COMPLAN 022</td>
<td>Social Media for Organizing and Civic Engagement</td>
<td>2</td>
</tr>
<tr>
<td>COMPLAN 032</td>
<td>Community Building Principles and Strategies</td>
<td>1</td>
</tr>
<tr>
<td>COMPLAN 033</td>
<td>Community Engagement Principles and Strategies</td>
<td>1</td>
</tr>
<tr>
<td>COMPLAN 035</td>
<td>Health Leadership and Community Development</td>
<td>3</td>
</tr>
<tr>
<td>COMPLAN 036</td>
<td>Introduction to Community Based Research and Organizing Methods</td>
<td>3</td>
</tr>
<tr>
<td>COMPLAN 038</td>
<td>Developing Social Networks for Community Building</td>
<td>1</td>
</tr>
<tr>
<td>COMPLAN 040</td>
<td>Non-Profit Program Design and Development</td>
<td>2</td>
</tr>
<tr>
<td>COMPLAN 042</td>
<td>Sustaining Social Justice Campaign</td>
<td>1</td>
</tr>
<tr>
<td>COMPLAN 055</td>
<td>Community-Based Health Policy Advocacy</td>
<td>3</td>
</tr>
<tr>
<td>COMPLAN 100</td>
<td>History of Community Development in Los Angeles</td>
<td>2</td>
</tr>
<tr>
<td>COMPLAN 101</td>
<td>History of Social Justice Movement Theory, Ideology and Practice in America</td>
<td>2</td>
</tr>
<tr>
<td>COMPLAN 102</td>
<td>Cultivating Consciousness: Reflection of the Self in Community as an Organizer</td>
<td>1</td>
</tr>
<tr>
<td>COMPLAN 105</td>
<td>International Models of Community Organizing</td>
<td>1</td>
</tr>
<tr>
<td>COMPLAN 106</td>
<td>Elections, Community, Power and Systems Reform in Community Development</td>
<td>1</td>
</tr>
<tr>
<td>COMPLAN 200</td>
<td>Strategic Planning &amp; Management Training for Economic Development</td>
<td>3</td>
</tr>
<tr>
<td>COMPLAN 201</td>
<td>Financial Management Assistance for Small Business for Economic Development Professional</td>
<td>3</td>
</tr>
<tr>
<td>COMPLAN 202</td>
<td>Effective Human Resources Management for Small Business Assistance</td>
<td>3</td>
</tr>
<tr>
<td>COMPLAN 203</td>
<td>Marketing and Communications Planning for Community Organizations</td>
<td>3</td>
</tr>
</tbody>
</table>

COMMUNITY PLANNING & ECONOMIC DEVELOPMENT

Certificate of Achievement

Major Units: 21

A Certificate of Achievement in Community Planning and Economic Development may be earned by completing 21 units of Required Courses with a “C” or better in each course.

PROGRAM LEARNING OUTCOMES (PLOs)

Upon completion of the Certificate program, students are able to:

- Students will analyze and assess low-income community needs, assets and issues from a community planning and economic development industry lens.
- Students will develop various types of industry approved project proposals to address community planning and economic development issues with solutions that include data analysis, identified targets, goals, objectives, timelines, expected outcomes and community stakeholder engagement.

REQUERIED COURSES

<table>
<thead>
<tr>
<th>COURSE</th>
<th>TITLE</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMPLAN 001</td>
<td>Introduction to Community Economic Development</td>
<td>3</td>
</tr>
<tr>
<td>COMPLAN 002</td>
<td>Introduction to Community Organizing</td>
<td>3</td>
</tr>
<tr>
<td>COMPLAN 003</td>
<td>Affordable Housing Development</td>
<td>3</td>
</tr>
<tr>
<td>COMPLAN 004</td>
<td>School Based Community Development Approaches</td>
<td>3</td>
</tr>
<tr>
<td>COMPLAN 006</td>
<td>Managing Non-Profit and Public Organizations</td>
<td>3</td>
</tr>
<tr>
<td>COMPLAN 007</td>
<td>Contemporary Issues and Strategies in Popular Education and Organizing</td>
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<td>COMPLAN 010</td>
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<td>3</td>
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<tr>
<td>COMPLAN 011</td>
<td>Professional Development Skills/Issues in Community Development</td>
<td>3</td>
</tr>
<tr>
<td>COMPLAN 032</td>
<td>Community Building Principles and Strategies</td>
<td>1</td>
</tr>
</tbody>
</table>
COMPLAN 033  Community Engagement Principles and Strategies  1
COMPLAN 035  Health Leadership and Community Development  3
COMPLAN 036  Introduction to Community Based Research and Organizing Methods  3

PROFESSIONAL DEVELOPMENT:
Select 3 units

CAOT 082 Microcomputer Software Survey in the Office  3
CO INFO 701 Introduction to Computers and Their Uses  3
BUS 005 Business Law I  3
BUS 033 Technical Report Writing  3
-or- ENGLISH 028 Intermediate Reading and Composition (3)
-or- ENGLISH 101 College Reading and Composition I (3)

COMPUTER APPLICATIONS & OFFICE TECHNOLOGIES

<table>
<thead>
<tr>
<th>Award Title</th>
<th>Academic Plan</th>
<th>Award Type</th>
<th>GE Units</th>
<th>Required Course Units</th>
<th>Major Elective Units</th>
<th>Major Units</th>
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<tbody>
<tr>
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<td>A.A.</td>
<td>21*</td>
<td>31</td>
<td>12</td>
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<tr>
<td>Computer App &amp; Office Tech: Administrative Assistant</td>
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<td>C</td>
<td>22</td>
<td>9</td>
<td>31</td>
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<tr>
<td>Computer App &amp; Office Tech: Information Processing Specialist*</td>
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<td>A.A.</td>
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<td>34</td>
<td>34</td>
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</tr>
</tbody>
</table>

At least 60 degree applicable units are required to earn an Associate degree.

*These Associate Degrees are eligible for a reduction of General Education requirements from 21 to 18 units; please consult with a counselor for more details. These programs are Financial Aid Eligible.

PROGRAM OVERVIEW

The Computer Applications and Office Technologies (CAOT) degree and certificate programs are designed to provide students with administrative and clerical competency skills required for employment in a variety of areas, such as business and industry, government agencies, schools, and hospitals. The degree and certificate options are designed to meet the varying needs of a wide spectrum of students, including those seeking:

- Associate in Arts degree(s)
- Certificate(s) that are specific to a discipline or area
- Entry into the job market
- Advanced training and/or retraining
- Lifelong learning

By fulfilling the program requirements, students are prepared for entry level positions, promotion, and career advancement in a variety of office occupations. Students will be proficient in the use of software application programs such as Microsoft Word, Excel, PowerPoint, Access, and Internet research.

COMPUTER APP & OFFICE TECH: ADMINISTRATIVE ASSISTANT

Associate in Arts Degree
Major Units: 43

Requirements for the Associate in Arts degree in CAOT: Administrative Assistant may be met by completing 31 units of Required Courses and 12 units of Major Electives with a “C” or better along with General Education units. Information on the General Education unit requirements may be found in the catalog under Graduation Requirements.

PROGRAM LEARNING OUTCOMES (PLOs)

Upon completion of the Degree/Certificate program, students are able to:

- Utilize various computer software to process, organize, and present data/information in business formats in office settings where proficiency with technology is necessary.

REQUIRED COURSES

The following suggested sequence of Required Courses can be taken in any order provided prerequisites are met.

<table>
<thead>
<tr>
<th>SEMESTER I</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAOT 002</td>
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<td>CAOT 034</td>
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<tr>
<td>BUS 032</td>
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<td>BUS 038</td>
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<tbody>
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<td>CAOT 098</td>
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</tbody>
</table>

Los Angeles Trade-Technical College 2018 - 2020 GENERAL CATALOG
MAJOR ELECTIVES

The following courses may be used as Electives provided that the course is NOT a requirement in the major.

Select at least 12 units from the courses below  

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
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<tr>
<td>BUS 001</td>
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<td>BUS 005</td>
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<td>BUS 040</td>
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<td>CAOT 085</td>
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<td>SUPV 001</td>
<td>3</td>
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<tr>
<td>SUPV 011</td>
<td>3</td>
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</tbody>
</table>

COMPUTER APP & OFFICE TECH: ADMINISTRATIVE ASSISTANT

Certificate of Achievement

Major Units: 31

A Certificate of Achievement in CAOT: Administrative Assistant may be earned by completing 22 units of Required Courses listed below and 9 units of Major Electives listed under the Associate degree in CAOT: Administrative Assistant with a “C” or better in each course.

REQUIRED COURSES

<table>
<thead>
<tr>
<th>Semester I</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAOT 002</td>
<td>3</td>
</tr>
<tr>
<td>CAOT 033</td>
<td>2</td>
</tr>
<tr>
<td>CAOT 034</td>
<td>2</td>
</tr>
<tr>
<td>CAOT 082</td>
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</table>

<table>
<thead>
<tr>
<th>Semester II</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAOT 007</td>
<td>3</td>
</tr>
<tr>
<td>CAOT 030</td>
<td>3</td>
</tr>
<tr>
<td>CAOT 031</td>
<td>3</td>
</tr>
<tr>
<td>BUS 032</td>
<td>3</td>
</tr>
</tbody>
</table>

MAJOR ELECTIVES

9 units of Major Electives listed under the Associate degree must be completed.

COMPUTER APP & OFFICE TECH: INFORMATION PROCESSING SPECIALIST

Associate in Arts Degree

Major Units: 44

PROGRAM OVERVIEW

The Information Processing Specialist provides support to assigned administrative personnel; coordinate office activities; monitor assigned activities, and provide meaningful informational recommendations to administrators and directors.

By fulfilling the program requirements, students are prepared for entry level positions. Some duties include:

- Communicating with clients
- Compiling data from various sources
- Coordinating relevant information for special programs
- Maintaining the organizations website
- Monitoring assigned departmental activities
- Ordering software and equipment for the organization
- Responding to a wide range of correspondence

PROGRAM LEARNING OUTCOMES (PLOs)

Upon completion of the Degree/Certificate program, students are able to:

- Utilize the computer to process, organize, and present data and information to advance format with no errors.
- Demonstrate the ability to critically analyze and interpret data in various materials effectively trouble-shoot, problem-solve with limited resources, and plan strategically.
- Write reports by collecting, analyzing, and summarizing information for private, public and governmental organizations.

Requirements for the Associate in Arts degree in CAOT: Information Processing Specialist may be met by completing 41 units of Required Courses and 3 units of Major Electives with a “C” or better along with General Education units. Information on the General Education unit requirements may be found in the catalog under Graduation Requirements.

REQUIRED COURSES

<table>
<thead>
<tr>
<th>Semester I</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 022</td>
<td>3</td>
</tr>
<tr>
<td>CAOT 002</td>
<td>3</td>
</tr>
<tr>
<td>CAOT 082</td>
<td>3</td>
</tr>
<tr>
<td>CAOT 101</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester II</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAOT 030</td>
<td>3</td>
</tr>
<tr>
<td>CAOT 031</td>
<td>3</td>
</tr>
<tr>
<td>CAOT 084</td>
<td>3</td>
</tr>
<tr>
<td>BUS 038</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester III</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAOT 007</td>
<td>3</td>
</tr>
<tr>
<td>BUS 032</td>
<td>3</td>
</tr>
</tbody>
</table>
Graduation Requirements, Pathways and Programs of Study

### COMPUTER APP & OFFICE TECH: OFFICE ASSISTANT-CLERICAL

#### Associate in Arts Degree

Major Units: 42

Requirements for the Associate in Arts degree in **CAOT: Office Assistant-Clerical** may be met by completing 32 units of Required Courses and 10 units of Major Electives with a “C” or better along with General Education units. Information on the General Education unit requirements may be found in the catalog under Graduation Requirements.

### PROGRAM OVERVIEW

The Computer Applications and Office Technologies (CAOT) degree and certificate programs are designed to provide students with administrative and clerical competency skills required for employment in a variety of areas, such as business and industry, government agencies, schools, and hospitals. The degree and certificate options are designed to meet the varying needs of a wide spectrum of students, including those seeking:

- Associate in Arts degree(s)
- Certificate(s) that are specific to a discipline or area
- Entry into the job market
- Advanced training and/or retraining
- Lifelong learning

By fulfilling the program requirements, students are prepared for entry level positions, promotion, and career advancement in a variety of office occupations. Students will be proficient in the use of software application programs such as Microsoft Word, Excel, PowerPoint, Access, and Internet research.

### PROGRAM LEARNING OUTCOMES (PLOs)

Upon completion of the **Degree/Certificate** program, students are able to:

- Utilize the computer to process, organize, and present data and information to advance format with no errors.
- Demonstrate the ability to critically analyze and interpret data in various materials effectively troubleshoot, problem-solve with limited resources, and plan strategically.
- Write reports by collecting, analyzing, and summarizing information for private, public and governmental organizations.

### REQUIRED COURSES

#### SEMESTER I

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAOT 002</td>
<td>3</td>
</tr>
<tr>
<td>CAOT 031</td>
<td>3</td>
</tr>
<tr>
<td>CAOT 082</td>
<td>3</td>
</tr>
<tr>
<td>CAOT 085</td>
<td>3</td>
</tr>
<tr>
<td>CAOT 101</td>
<td>1</td>
</tr>
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</table>

#### SEMESTER II

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAOT 030</td>
<td>3</td>
</tr>
<tr>
<td>BUS 032</td>
<td>3</td>
</tr>
<tr>
<td>CAOT 034</td>
<td>2</td>
</tr>
<tr>
<td>CAOT 084</td>
<td>3</td>
</tr>
<tr>
<td>CAOT 086</td>
<td>3</td>
</tr>
<tr>
<td>CAOT 088</td>
<td>3</td>
</tr>
</tbody>
</table>

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### COMPUTER APP & OFFICE TECH: INFORMATION PROCESSING SPECIALIST

#### Certificate of Achievement

**Major Units: 33**

A Certificate of Achievement in **CAOT: Information Processing Specialist** may be earned by completing 33 units of Required Courses with a “C” or better in each course.

### REQUIRED COURSES

#### SEMESTER I

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 022 The Business of Electronic Commerce</td>
<td>3</td>
</tr>
<tr>
<td>CAOT 002 Computer Keyboarding and Document Applications II</td>
<td>3</td>
</tr>
<tr>
<td>CAOT 031 Business English</td>
<td>3</td>
</tr>
<tr>
<td>CAOT 082 Microcomputer Software Survey in the Office</td>
<td>3</td>
</tr>
<tr>
<td>CAOT 085 Microcomputer Office Applications: Spreadsheet</td>
<td>3</td>
</tr>
<tr>
<td>CAOT 101 Hands-on Internet</td>
<td>1</td>
</tr>
</tbody>
</table>

#### SEMESTER II

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAOT 030 Office Procedures</td>
<td>3</td>
</tr>
<tr>
<td>BUS 032 Business Communications</td>
<td>3</td>
</tr>
<tr>
<td>CAOT 034 Business Terminology</td>
<td>2</td>
</tr>
<tr>
<td>CAOT 084 Microcomputer Office Applications: Word Processing</td>
<td>3</td>
</tr>
<tr>
<td>CAOT 086 Microcomputer Office Applications: Database</td>
<td>3</td>
</tr>
<tr>
<td>CAOT 088 Microcomputer Office Applications: Discovering Computers: Digital Literacy</td>
<td>3</td>
</tr>
</tbody>
</table>
Graduation Requirements, Pathways and Programs of Study

SEMMER III

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAOT 084</td>
<td>Microcomputer Office Applications: Word Processing</td>
<td>3</td>
</tr>
<tr>
<td>BUS 032</td>
<td>Business Communications</td>
<td>3</td>
</tr>
<tr>
<td>ACCTG 001</td>
<td>Introductory Accounting I</td>
<td>5</td>
</tr>
</tbody>
</table>

SEMMER IV

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAOT 007</td>
<td>Machine Transcription</td>
<td>3</td>
</tr>
<tr>
<td>CAOT 030</td>
<td>Office Procedures</td>
<td>3</td>
</tr>
<tr>
<td>OFF MCH 002</td>
<td>Adding and Calculating Machines</td>
<td>1</td>
</tr>
</tbody>
</table>

MAJOR ELECTIVES

The following courses may be used as Electives provided that the course is NOT a requirement in the major.

Select at least 10 units from the courses below

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 001</td>
<td>Introduction to Business</td>
<td>3</td>
</tr>
<tr>
<td>BUS 005</td>
<td>Business Law I</td>
<td>3</td>
</tr>
<tr>
<td>BUS 040</td>
<td>Business Project Management</td>
<td>3</td>
</tr>
<tr>
<td>CAOT 007</td>
<td>Machine Transcription</td>
<td>3</td>
</tr>
<tr>
<td>CAOT 085</td>
<td>Microcomputer Office Applications: Spreadsheet</td>
<td>3</td>
</tr>
<tr>
<td>CAOT 086</td>
<td>Microcomputer Office Applications: Database</td>
<td>3</td>
</tr>
<tr>
<td>CAOT 088</td>
<td>Microcomputer Office Applications: Desktop Publishing</td>
<td>3</td>
</tr>
<tr>
<td>CAOT 098</td>
<td>Microcomputer Office Applications: Discovering Computers: Digital Literacy</td>
<td>3</td>
</tr>
<tr>
<td>CAOT 101</td>
<td>Hands-on Internet</td>
<td>1</td>
</tr>
<tr>
<td>OFF MCH 002</td>
<td>Adding and Calculating Machines</td>
<td>1</td>
</tr>
<tr>
<td>SUPV 001</td>
<td>Elements of Supervision</td>
<td>3</td>
</tr>
<tr>
<td>SUPV 011</td>
<td>Oral Communications</td>
<td>3</td>
</tr>
</tbody>
</table>

COMPUTER APP & OFFICE TECH: OFFICE ASSISTANT-CLERICAL

Certificate of Achievement

Major Units: 34

A Certificate of Achievement in CAOT: Office Assistant-Clerical may be earned by completing 34 units of Required Courses with a “C” or better in each course.

SEMMER I

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 038</td>
<td>Business Computations</td>
<td>3</td>
</tr>
<tr>
<td>CAOT 002</td>
<td>Computer Keyboarding and Document Applications II</td>
<td>3</td>
</tr>
<tr>
<td>CAOT 033</td>
<td>Records Management and Filing</td>
<td>2</td>
</tr>
<tr>
<td>CAOT 034</td>
<td>Business Terminology</td>
<td>2</td>
</tr>
<tr>
<td>CAOT 082</td>
<td>Microcomputer Software Survey in the Office</td>
<td>3</td>
</tr>
<tr>
<td>CAOT 084</td>
<td>Microcomputer Office Applications: Word Processing</td>
<td>3</td>
</tr>
</tbody>
</table>

SEMMER II

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCTG 001</td>
<td>Introductory Accounting I</td>
<td>5</td>
</tr>
<tr>
<td>BUS 032</td>
<td>Business Communications</td>
<td>3</td>
</tr>
<tr>
<td>CAOT 007</td>
<td>Machine Transcription</td>
<td>3</td>
</tr>
<tr>
<td>CAOT 030</td>
<td>Office Procedures</td>
<td>3</td>
</tr>
<tr>
<td>CAOT 031</td>
<td>Business English</td>
<td>3</td>
</tr>
<tr>
<td>OFF MCH 002</td>
<td>Adding and Calculating Machines</td>
<td>1</td>
</tr>
</tbody>
</table>

COMPUTER INFORMATION SYSTEMS

Award Title | Academic Plan | Award Type | GE Units | Required Course Units | Major Elective Units | Major Units |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer Information Systems*</td>
<td>T002900C</td>
<td>A.S.</td>
<td>21*</td>
<td>21</td>
<td>24</td>
<td>45</td>
</tr>
<tr>
<td>Computer Information Systems</td>
<td>T021839D</td>
<td>C</td>
<td>21</td>
<td>24</td>
<td>45</td>
<td></td>
</tr>
</tbody>
</table>

At least 60 degree applicable units are required to earn an Associate degree.

*This Associate Degree is eligible for a reduction of General Education requirements from 21 to 18 units; please consult with a counselor for more details.

These programs are Financial Aid Eligible.

PROGRAM OVERVIEW

The Computer Information Systems program is designed to prepare students for careers in the exciting Information Technology fields such as programming, software engineering, database administration, computer networking, multimedia programming, and web programming technologies. Microcomputer usage continues to grow at an ever increasing pace as does the demand for workers with solid technical skills and knowledge of programming, networking, and website development and management. The primary goal of the program is to prepare students for entry-level employment as well as providing marketable career advancement knowledge and skills. Students with interest in transferring to an Information Systems program at four-year institutions should consult with the Counseling department for needed course work.

PROGRAM LEARNING OUTCOMES (PLOs)

Upon completion of the Degree/Certificate program, students are able to:

- Create, debug, and comment computer programming codes in order to integrate multiple language constructs in a single project.
- Create business applications using advanced computer software.
- Identify and describe computer hardware, networking concepts, and computer software.

COMPUTER INFORMATION SYSTEMS

Associate in Science Degree

Major Units: 45

Requirements for the Associate in Science degree in Computer Information Systems may be met by completing 21 units of Required Courses and 24 units of Major Electives with a “C” or better along with General Education units. Information on the General Education unit requirements may be found in the catalog under Graduation Requirements.

Students planning to continue studies at a four-year institution should consult with a counselor concerning a transfer curriculum.
REQUIRED COURSES

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO INFO 700</td>
<td>Computer Concepts</td>
<td>3</td>
</tr>
<tr>
<td>CO INFO 701</td>
<td>Introduction to Computers and Their Uses</td>
<td>3</td>
</tr>
<tr>
<td>CO INFO 709</td>
<td>Visual Basic Programming</td>
<td>3</td>
</tr>
<tr>
<td>CO INFO 733</td>
<td>Microcomputer Data Base Programming</td>
<td>3</td>
</tr>
<tr>
<td>CO INFO 739</td>
<td>Programming in C++</td>
<td>3</td>
</tr>
<tr>
<td>CO INFO 757</td>
<td>XHTML Programming and Applications</td>
<td>3</td>
</tr>
<tr>
<td>CO INFO 767</td>
<td>Network Essentials</td>
<td>3</td>
</tr>
</tbody>
</table>

MAJOR ELECTIVES

Select at least 24 units from the courses below

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO INFO 011</td>
<td>Network Security Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>CO INFO 035</td>
<td>Multimedia Presentations for the Internet I</td>
<td>3</td>
</tr>
<tr>
<td>CO INFO 040</td>
<td>Beginning Level Programming/Computer Games</td>
<td>3</td>
</tr>
<tr>
<td>CO INFO 042</td>
<td>Video Game Programming I</td>
<td>3</td>
</tr>
<tr>
<td>CO INFO 741</td>
<td>Programming in C#</td>
<td>3</td>
</tr>
<tr>
<td>CO INFO 743</td>
<td>Object-Oriented Programming in C++</td>
<td>3</td>
</tr>
<tr>
<td>CO INFO 750</td>
<td>Dreamweaver Concepts and Techniques</td>
<td>3</td>
</tr>
<tr>
<td>CO INFO 762</td>
<td>Introduction to Javascript Programming</td>
<td>3</td>
</tr>
<tr>
<td>CO INFO 770</td>
<td>Local Area Network Administration</td>
<td>3</td>
</tr>
<tr>
<td>CO INFO 771</td>
<td>Local Area Network Technical Support</td>
<td>3</td>
</tr>
<tr>
<td>CO INFO 790</td>
<td>Programming in JAVA</td>
<td>3</td>
</tr>
<tr>
<td>MICROTK 160</td>
<td>I.T. Essentials Application Software Fundamentals</td>
<td>2</td>
</tr>
<tr>
<td>MICROTK 166</td>
<td>CCNA Security</td>
<td>3</td>
</tr>
</tbody>
</table>

COMPUTER INFORMATION SYSTEMS

Certificate of Achievement

Major Units: 45

A Certificate of Achievement in Computer Information Systems may be earned by completing 21 units of Required Courses and 24 units of Major Electives listed under the Associate degree in Computer Information Systems with a grade of “C” or better in each course.

CORRECTIONAL SCIENCE

Associate in Science
Major Units: 36

Requirements for the Associate in Science degree in Correctional Science may be met by completing 30 units of Required Courses and 6 units of Major Electives with a “C” or better along with General Education units. Information on the General Education unit requirements may be found in the catalog under Graduation Requirements.

REQUIRED COURSES

<table>
<thead>
<tr>
<th>Semester</th>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>ADM JUS 501</td>
<td>An A to Z Guide to Criminal Justice Careers</td>
<td>3</td>
</tr>
<tr>
<td>II</td>
<td>ADM JUS 002</td>
<td>Concepts of Criminal Law</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>ADM JUS 003</td>
<td>Legal Aspects of Evidence</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>ADM JUS 014</td>
<td>Report Writing for Peace Officers</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>ADM JUS 062</td>
<td>Finger Print Classification</td>
<td>3</td>
</tr>
<tr>
<td>III</td>
<td>ADM JUS 073</td>
<td>Law and Minority Groups</td>
<td>3</td>
</tr>
<tr>
<td>IV</td>
<td>ADM JUS 075</td>
<td>Introduction to Corrections</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>ADM JUS 502</td>
<td>Introduction to Forensic Psychology</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>ADM JUS 750</td>
<td>Ethics and the Criminal Justice System</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>PSYCH 014</td>
<td>Abnormal Psychology</td>
<td>3</td>
</tr>
</tbody>
</table>

PROGRAM OVERVIEW

The Correctional Science program will prepare you to enter the rapidly growing field of corrections. The correctional field has an enormous range of career options, and with the proper training, a future filled with job opportunity and flexibility will be opened. Substantial and growing employment opportunities exist in corrections, public and private detention facilities, law enforcement, private security, immigration and customs, secret service, Federal Bureau of Investigation (FBI), Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF), Homeland Security are just some of the areas open to you. Students will also have the opportunity to gain experience in the field participating in ride alongs and internships with local agencies.

PROGRAM LEARNING OUTCOMES (PLOs)

Upon completion of the Degree/Certificate program, students are able to:

• Demonstrate an understanding of the workings of the correctional system by applying definitions, concepts, and principles to courts and correctional settings.
• Apply critical thinking to research, evaluate, and analyze and synthesize the appropriate procedures for the collection of evidence and data in criminal case preparation pertaining to correctional institutions.
• Develop, organize and write an objective report that meets the legal and detailed requirements of correctional institutions.
MAJOR ELECTIVES

Select at least 6 units from the courses below

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADM JUS 001</td>
<td>Introduction to Administration of Justice</td>
<td>3</td>
</tr>
<tr>
<td>ADM JUS 004</td>
<td>Principles and Procedures of the Justice System</td>
<td>3</td>
</tr>
<tr>
<td>ADM JUS 005</td>
<td>Criminal Investigation</td>
<td>3</td>
</tr>
<tr>
<td>ADM JUS 008</td>
<td>Juvenile Procedures</td>
<td>3</td>
</tr>
<tr>
<td>ADM JUS 041</td>
<td>Officer Safety</td>
<td>3</td>
</tr>
<tr>
<td>ADM JUS 067</td>
<td>Community Relations I</td>
<td>3</td>
</tr>
</tbody>
</table>

CORRECTIONAL SCIENCE

Certificate of Achievement
Major Units: 36

A Certificate of Achievement in Correctional Science may be earned by completing 30 units of Required Courses and 6 units of Major Electives listed under the Associate degree in Correctional Science with a “C” or better in each course.

LABOR STUDIES

The Labor Center

The Labor Center, located in MA-005, offers Labor Studies classes leading to an Associate in Arts Degree or Certificate of Achievement in Labor Studies. Classes and programs are held both on campus and off site at union halls and community organizations. Students can register online, on site in class or at the Labor Center Office.

The Labor Center maintains strong relationships with leaders of organized labor and the community, including a broad based Advisory Board. These leaders help promote participation in the Labor Studies program, and assure evaluation and feedback from the labor movement to help shape future programs. The Labor Center staff also advise Labor Studies students and prospective students, and the Center maintains a collection of labor DVDs available for free loan.

PROGRAM OVERVIEW

Labor Studies is designed to train students, union leaders, human relations professionals, and workers in the practical, applied skills and up-to-date knowledge of labor relations and for positions in union leadership. Employees in labor and human relations can develop career skills and prepare for positions or advancement in labor unions, labor relations, human relations and government.

The instructors are all experts who are active in the field.

The Labor Studies Program offers the following alternative patterns of learning:
- courses may be completed as desired to develop specific skills to meet the needs of the individual student;
- courses may be completed to meet the requirements of the Associate Degree;
- courses may be completed to meet the 24 units required to earn the Certificate of Achievement in Labor Studies.

By fulfilling the program requirements, students will have a greater understanding of the contributions of labor and the skills necessary for union leadership. This is particularly relevant in Los Angeles, with some 250 local unions with a combined membership of more than half a million union members. Students who complete the requirements for the Associate Degree in Labor Studies will have a working knowledge of labor organizations, their structure, philosophy and day to day operations.

LABOR STUDIES

Associate in Arts Degree
Major Units: 36

Requirements for the Associate in Arts degree in Labor Studies may be met by completing 18 units of Required Courses and 18 units of Major Electives with a “C” or better along with General Education units. Information on the General Education unit requirements may be found in the catalog under Graduation Requirements.

PROGRAM LEARNING OUTCOMES (PLOs)

Upon completion of the Degree program, students are able to:
- Apply collective bargaining skills and strategies needed to bargain and enforce a contract through grievance and arbitration.
- Identify and apply employment and labor relations laws to protect workers’ rights.
- Develop and apply internal and external organizing strategies, such as effective communication, member mobilization, and leadership skills, utilized to build and strengthen unions.

REQUIRED COURSES

A.A. DEGREE: May select up to 18 units from the courses below

CERTIFICATE: May select up to 15 units from the courses below

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>LABR ST 001</td>
<td>U.S. Labor History</td>
<td>3</td>
</tr>
<tr>
<td>LABR ST 002</td>
<td>Collective Bargaining</td>
<td>3</td>
</tr>
<tr>
<td>LABR ST 003</td>
<td>Labor Relations Law</td>
<td>3</td>
</tr>
<tr>
<td>LABR ST 004</td>
<td>Labor in America</td>
<td>3</td>
</tr>
<tr>
<td>LABR ST 005</td>
<td>Grievance and Arbitration Procedures</td>
<td>3</td>
</tr>
<tr>
<td>LABR ST 006</td>
<td>Labor and Community Services</td>
<td>3</td>
</tr>
<tr>
<td>LABR ST 007</td>
<td>Labor and Political Action</td>
<td>3</td>
</tr>
<tr>
<td>LABR ST 009</td>
<td>Organizing Strategies and Techniques</td>
<td>3</td>
</tr>
<tr>
<td>LABR ST 011</td>
<td>Labor in the Public Sector</td>
<td>3</td>
</tr>
<tr>
<td>LABR ST 012</td>
<td>Building Strong Unions</td>
<td>3</td>
</tr>
<tr>
<td>LABR ST 013</td>
<td>Union Leadership</td>
<td>3</td>
</tr>
<tr>
<td>LABR ST 020</td>
<td>Workers’ Rights</td>
<td>3</td>
</tr>
<tr>
<td>LABR ST 021</td>
<td>The Working Class in Cinema</td>
<td>3</td>
</tr>
<tr>
<td>LABR ST 024</td>
<td>Enforcing Workers’ Rights</td>
<td>3</td>
</tr>
</tbody>
</table>

NOTE: Additional Labor Studies courses may be used to fulfill Required Courses; for additional information, contact the Labor Center.
MAJOR ELECTIVES

A.A. DEGREE: May select up to 18 units from the courses below
CERTIFICATE: May select up to 9 units from the courses below

<table>
<thead>
<tr>
<th>UNITS</th>
<th>LABR ST 101</th>
<th>Introduction to Unions</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>LABR ST 102</td>
<td>Contract Negotiations Skills</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>LABR ST 103</td>
<td>Labor Law Update</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>LABR ST 104</td>
<td>Current Issues for Labor</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>LABR ST 105</td>
<td>Grievance Handling Skills</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>LABR ST 106</td>
<td>Labor and Disaster Relief</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>LABR ST 107</td>
<td>Organizing for Political Action</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>LABR ST 108</td>
<td>Labor and Globalization</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>LABR ST 109</td>
<td>Union Building Strategies</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>LABR ST 113</td>
<td>Union Leadership Skills</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>LABR ST 114</td>
<td>Workers’ Legal Rights</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>LABR ST 115</td>
<td>Workplace Health and Safety</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>LABR ST 118</td>
<td>Employee Benefit Plans</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>LABR ST 121</td>
<td>Labor Communications</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>LABR ST 122</td>
<td>Framing the Message for Labor</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>LABR ST 123</td>
<td>Steward Training</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>LABR ST 125</td>
<td>Labor Arbitration</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>LABR ST 126</td>
<td>Issues in Labor Arbitration</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>LABR ST 127</td>
<td>Worker’s Compensation</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>LABR ST 128</td>
<td>Sexual Harassment and Discrimination</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>LABR ST 132</td>
<td>Strategic Bargaining</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>LABR ST 134</td>
<td>California Workers’ Rights</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>LABR ST 136</td>
<td>When the Paycheck Stops</td>
<td>1</td>
</tr>
</tbody>
</table>

NOTE: A maximum of 3 units of COOP ED may be applied to meet the 36 units AA Degree requirement in Labor Studies.

LABOR STUDIES

Certificate of Achievement

Major Units: 24

A Certificate of Achievement in Labor Studies may be earned by completing 15 units of Required Courses and 9 units in Major Electives listed under the Associate Degree in Labor Studies with a “C” or better in each course.

Students who complete the requirements for the Certificate of Achievement in Labor Studies will have developed practical skills in representation, negotiations, advocacy, and problem solving at the workplace.

Students who earn a Certificate will be qualified for entry level positions in labor, industry, and government.

PROGRAM LEARNING OUTCOMES (PLOs)

Upon completion of the Certificate program, students are able to:

- Apply collective gaining skills and strategies needed to bargain and enforce a contract through grievance and arbitration.
- Identify and apply employment and labor relations laws to protect workers’ rights.

NOTE: A maximum of 3 units of COOP ED may be applied to meet the 24 units Certificate requirement in Labor Studies. Additional Labor Studies courses may be used to fulfill Major Units; for additional information, contact the Labor Center.

MANAGEMENT/SUPERVISION

<table>
<thead>
<tr>
<th>Award Title</th>
<th>Academic Plan</th>
<th>Award Type</th>
<th>GE Units</th>
<th>Required Course Units</th>
<th>Major Elective Units</th>
<th>Major Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management/Supervision*</td>
<td>T002892C</td>
<td>A.A.</td>
<td>21*</td>
<td>47</td>
<td>-</td>
<td>47</td>
</tr>
<tr>
<td>Management/Supervision</td>
<td>T021829D</td>
<td>C</td>
<td>33</td>
<td>-</td>
<td>33</td>
<td></td>
</tr>
</tbody>
</table>

At least 60 degree applicable units are required to earn an Associate degree.

*This Associate Degree is eligible for a reduction of General Education requirements from 21 to 18 units; please consult with a counselor for more details.

These programs are Financial Aid Eligible.

PROGRAM OVERVIEW

The Management/Supervision program is designed to prepare students for managerial responsibilities in business by studying both fundamentals of business operations and human relations. This program will add basic management/supervisory skills to their current occupation or technical skills they may already possess. Course work will cover the basic business management skills with emphasis on human relations, leadership, written and oral communications that relates to managerial/supervisory positions. Graduates of this program should be able to improve one’s promotability and will be eligible for jobs as assistant managers, management trainees, supervisors, team leaders, first line managers and a wide range of other entry level positions. Non managers/supervisors will also increase their knowledge of basic business functions and enhance their current job performance.

By fulfilling the program requirements, students will increase their abilities to negotiate successfully, build and manage teams, manage projects, resolve conflicts, communicate and motivate teams to achieving departmental and organizational success. Students will also understand and will be able to apply management/supervision concepts in real world situations whether they are in business for themselves or working within government, private or non profit industries.

PROGRAM LEARNING OUTCOMES (PLOs)

Upon completion of the Degree/Certificate program, students are able to:

- Apply project management skills through the use of appropriate technology to implement, track and manage data reporting.
- Implement organizational policies and procedures for recruiting, interviewing, orienting, training and assessing performance.
- Apply leadership theories and skills to create a supportive and ethical work environment.
- Facilitate the management of change, conflict, and diversity in an organization.
- Demonstrate effective facilitation skills to systematically solve problems while building a team environment.
- Ensure compliance with federal, state and local laws that pertain to businesses and organizations.
- Apply continuous improvement strategies to processes and systems to maximize productivity and quality.
• Employ effective speaking, listening coaching, assertiveness, and time and stress management skills.
• Utilize critical thinking to bridge conceptual ideas into practice.

MANAGEMENT/SUPERVISION

<table>
<thead>
<tr>
<th>Associate in Arts Degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major Units: 47 units</td>
</tr>
</tbody>
</table>

Requirements for the Associate in Arts degree in Management/Supervision may be met by completing 47 units of Required Courses with a "C" or better along with General Education units. Information on the General Education unit requirements may be found in the catalog under Graduation Requirements.

REQUIRED COURSES

<table>
<thead>
<tr>
<th>SEMESTER I</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 001</td>
<td>Introduction to Business</td>
</tr>
<tr>
<td>BUS 032</td>
<td>Business Communications</td>
</tr>
<tr>
<td>BUS 033</td>
<td>Technical Report Writing (3)</td>
</tr>
<tr>
<td>BUS 038</td>
<td>Business Computations</td>
</tr>
<tr>
<td>CAOT 082</td>
<td>Microcomputer Software Survey in the Office</td>
</tr>
<tr>
<td>SUPV 011</td>
<td>Oral Communications</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SEMESTER II</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCTG 001</td>
<td>Introductory Accounting I</td>
</tr>
<tr>
<td>ECON 002</td>
<td>Principle of Economics II</td>
</tr>
<tr>
<td>SUPV 001</td>
<td>Elements of Supervision</td>
</tr>
<tr>
<td>MARKET 021</td>
<td>Principles of Marketing</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SEMESTER III</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 005</td>
<td>Business Law I</td>
</tr>
<tr>
<td>MGMT 002</td>
<td>Organization and Management Theory</td>
</tr>
<tr>
<td>BUS 040</td>
<td>Business Project Management</td>
</tr>
<tr>
<td>SUPV 003</td>
<td>Human Relations (Developing Supervisory Leadership)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SEMESTER IV</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>MGMT 013</td>
<td>Small Business Entrepreneurship</td>
</tr>
<tr>
<td>MGMT 033</td>
<td>Personnel Management</td>
</tr>
</tbody>
</table>

MANAGEMENT/SUPERVISION

<table>
<thead>
<tr>
<th>Certificate of Achievement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major Units: 33</td>
</tr>
</tbody>
</table>

A Certificate of Achievement in Management/Supervision may be earned by completing 33 units of Required Courses listed below with a “C” or better in each course.

REQUIRED COURSES

<table>
<thead>
<tr>
<th>SEMESTER I</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 001</td>
<td>Introduction to Business</td>
</tr>
<tr>
<td>BUS 005</td>
<td>Business Law I</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SEMESTER II</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCTG 021</td>
<td>Bookkeeping and Accounting I</td>
</tr>
<tr>
<td>MGMT 002</td>
<td>Personnel Management</td>
</tr>
<tr>
<td>MARKET 021</td>
<td>Principles of Marketing</td>
</tr>
<tr>
<td>CAOT 085</td>
<td>Microcomputer Software Survey in the Office</td>
</tr>
<tr>
<td>SUPV 003</td>
<td>Human Relations (Developing Supervisory Leadership)</td>
</tr>
<tr>
<td>SUPV 011</td>
<td>Oral Communications</td>
</tr>
</tbody>
</table>

MARKETING AND PUBLIC RELATIONS

<table>
<thead>
<tr>
<th>Award Title</th>
<th>Academic Plan</th>
<th>Award Type</th>
<th>GE Units</th>
<th>Required Course Units</th>
<th>Major Elective Units</th>
<th>Major Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marketing and Public Relations*</td>
<td>T002894C</td>
<td>A.A.</td>
<td>21*</td>
<td>44</td>
<td>-</td>
<td>44</td>
</tr>
<tr>
<td>Marketing and Public Relations</td>
<td>T021831D</td>
<td>C</td>
<td>33</td>
<td>-</td>
<td>33</td>
<td></td>
</tr>
</tbody>
</table>

At least 60 degree applicable units are required to earn an Associate degree.

*This Associate Degree is eligible for a reduction of General Education requirements from 21 to 18 units; please consult with a counselor for more details.

These programs are Financial Aid Eligible.

The program is designed to insure all students master all aspects of marketing and public relations, which include advertising, branding, and corporate communications. Students will study and evaluate the effectiveness and appropriateness of marketing and public relations messages while engaging in problem analysis, strategic planning, message development, and tactical solutions. Using both traditional and digital media students will be able to implement compelling marketing campaigns that reach customers and consumers in new and innovative ways, grow market share, and increase bottom line results.

By fulfilling the program requirements, students will have a background in the principles and practices involved in the promotion and distribution of products and services from producers through middleman to the ultimate consumer. This program leads to entry level positions in public relations and marketing careers in business, industry, agency, government, and nonprofit sectors of society. Typical jobs includes, marketing director, public relations representative, corporate consultant, political campaign advisor, small business owner, marketing and non profit communications consultants.

PROGRAM LEARNING OUTCOMES (PLOs)

Upon completion of the Degree/Certificate program, students are able to:

• Understand and communicate the stakeholder point of view in order to develop long range company strategies.
• Analyse consumer trends and development tactical marketing solutions.
MARKETING AND PUBLIC RELATIONS

Associate in Arts Degree
Major Units: 44

Requirements for the Associate in Arts degree in Marketing and Public Relations may be earned by completing 44 units of Required Courses with a "C" or better along with General Education units. Information on the General Education unit requirements may be found in the catalog under Graduation Requirements.

REQUIRED COURSES

The following is a suggested sequence of Required Courses to be taken:

<table>
<thead>
<tr>
<th>SEMESTER I</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 001 Introduction to Business</td>
<td>3</td>
</tr>
<tr>
<td>BUS 032 Business Communications</td>
<td>3</td>
</tr>
<tr>
<td>-or- BUS 033 Technical Report Writing (3)</td>
<td></td>
</tr>
<tr>
<td>BUS 038 Business Computations</td>
<td>3</td>
</tr>
<tr>
<td>CAOT 082 Microcomputer Software Survey in the Office</td>
<td>3</td>
</tr>
<tr>
<td>SUPV 011 Oral Communications</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SEMESTER II</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCTG 001 Introductory Accounting I</td>
<td>5</td>
</tr>
<tr>
<td>ECON 002 Principle of Economics II</td>
<td>3</td>
</tr>
<tr>
<td>MARKET 001 Principles of Selling</td>
<td>3</td>
</tr>
<tr>
<td>PUB REL 001 Principles of Public Relations</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SEMESTER III</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 005 Business Law I</td>
<td>3</td>
</tr>
<tr>
<td>MARKET 021 Principles of Marketing</td>
<td>3</td>
</tr>
<tr>
<td>PUB REL 002 Public Relations Techniques</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SEMESTER IV</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>MARKET 011 Fundamentals of Advertising</td>
<td>3</td>
</tr>
<tr>
<td>PUB REL 003 Writing for Public Relations</td>
<td>3</td>
</tr>
</tbody>
</table>

MARKETING AND PUBLIC RELATIONS

Certificate of Achievement
Major Units: 33

A Certificate of Achievement in Marketing and Public Relations may be earned by completing 33 units of Required Courses listed below with a "C" or better in each course.

REQUIRED COURSES

<table>
<thead>
<tr>
<th>SEMESTER I</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 001 Introduction Business</td>
<td>3</td>
</tr>
<tr>
<td>BUS 055 Business Law I</td>
<td>3</td>
</tr>
<tr>
<td>BUS 032 Business Communications</td>
<td>3</td>
</tr>
<tr>
<td>-or- BUS 033 Technical Report Writing (3)</td>
<td></td>
</tr>
<tr>
<td>BUS 038 Business Computations</td>
<td>3</td>
</tr>
<tr>
<td>CAOT 082 Microcomputer Software Survey in the Office</td>
<td>3</td>
</tr>
<tr>
<td>SUPV 011 Oral Communications</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SEMESTER II</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>MARKET 001 Principles of Selling</td>
<td>3</td>
</tr>
<tr>
<td>MARKET 011 Fundamentals of Advertising</td>
<td>3</td>
</tr>
<tr>
<td>MARKET 021 Principles of Marketing</td>
<td>3</td>
</tr>
<tr>
<td>PUB REL 001 Principles of Public Relations</td>
<td>3</td>
</tr>
<tr>
<td>PUB REL 002 Public Relations Techniques</td>
<td>3</td>
</tr>
</tbody>
</table>

MEDICAL OFFICE ASSISTANT

Certificate of Achievement
Major Units: 32

A Certificate of Achievement in Medical Office Assistant may be earned by completing 32 units of Required Courses with a "C" or better in each course.

REQUIRED COURSES

<table>
<thead>
<tr>
<th>SEMESTER I</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAOT 002 Computer Keyboarding and Document Applications II</td>
<td>3</td>
</tr>
<tr>
<td>CAOT 044 Medical Terminology</td>
<td>3</td>
</tr>
<tr>
<td>CAOT 030 Office Procedures</td>
<td>3</td>
</tr>
</tbody>
</table>

MEDICAL OFFICE ASSISTANT

Certificate of Achievement
Major Units: 32

A Certificate of Achievement in Medical Office Assistant may be earned by completing 32 units of Required Courses with a "C" or better in each course.

REQUIRED COURSES

<table>
<thead>
<tr>
<th>SEMESTER I</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAOT 002 Computer Keyboarding and Document Applications II</td>
<td>3</td>
</tr>
<tr>
<td>CAOT 044 Medical Terminology</td>
<td>3</td>
</tr>
<tr>
<td>CAOT 030 Office Procedures</td>
<td>3</td>
</tr>
</tbody>
</table>
Graduation Requirements, Pathways and Programs of Study

**Semester I**

- CAOT 084 Microcomputer Office Applications: Word Processing 3
- COMM 101 Public Speaking 3
- PALEGAL 010 Introduction to Law and Legal Profession 3
- LIB SCI 101 Library Research Methods 1

**Semester II**

- *BUS 005 Business Law I 3*
- -or- BUS 006 Business Law II (3)
- PALEGAL 011 Introduction to Civil Litigation II 3
- PALEGAL 012 Tort Law 3
- PALEGAL 019 Property and Creditor Rights 3

**Semester III**

- PALEGAL 017 Legal Writing 3
- CAOT 093 Legal Document Production 2
- *PALEGAL 016 Civil and Criminal Evidence 3*
- -or- Law 038 Criminal Law & Procedure (3)

**Semester IV**

- ENGLISH 103 Composition and Critical Thinking 3
- PALEGAL 004 Legal Internship 3
- PALEGAL 051 Legal Research 3

**Electives**

- *PALEGAL 016 Civil and Criminal Evidence 3*
- -or- Law 038 Criminal Law & Procedure (3)
- *BUS 005 Business Law I 3*
- -or- BUS 006 Business Law II (3)
- PALEGAL 014 Law Office Management and Procedures 3
- PALEGAL 003 Civil Rights and the Law 3

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**Program Overview**

The Paralegal Studies program at LATTC will prepare students for employment as paralegals or legal assistants in both the private and public sectors. Students who complete the program will be able to work with lawyers in law offices, corporations, governmental agencies or other entities. Upon completion of the program, students will be able to prepare cases for court, draft various legal documents, fill out Judicial Council Forms, interview clients, brief cases and conduct traditional and computer-assisted legal research using LexisNexis and/or West Law. The program will also provide hands-on experience through internships within private law firms, government agencies, courts and legal aid clinics.

The graduate possessing the Certificate of Achievement or the AA Degree will be able to work closely with attorneys and be responsible for researching, analyzing, and managing tasks associated with legal cases. The Paralegal Studies program at LATTC is driven by its business relationships and partnerships with practicing lawyers, paralegals from the public and private sectors, legal clinics, paralegal consortiums and other community colleges' paralegal faculty members. The mission of the program is to provide an environment of excellence in knowledge and the latest practices of the legal field.

**Program Learning Outcomes (PLOs)**

Upon completion of the Degree/Certificate program, students are able to:

- Understand the legal system, both civil and criminal, and how to navigate the levels of the system.
- Understand how to identify and analyze relevant laws and previous judiciary decisions in common legal areas such as contracts, family and torts.
- Demonstrate proficiency in legal research and writing as well as proficient understanding of various legislative and court documents.

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**Paralegal Studies**

**Associate in Arts Degree**

Major Units: 42

Requirements for the Associate in Arts degree in Paralegal Studies may be met by completing 39 units of Required Courses and 3 unit of Major Electives with a “C” or better along with General Education units. Information on the General Education unit requirements may be found in the catalog under Graduation Requirements.

NOTE: Students seeking the Certificate of Achievement may choose either Paralegal 4 or Paralegal 14. Students seeking the Associate of Arts must satisfy Paralegal 4. Certificate is awarded to students who already possess an Associate's degree in Paralegal Studies or higher.

**Required Courses**

- CAOT 084 Microcomputer Office Applications: Word Processing 3
- COMM 101 Public Speaking 3
- PALEGAL 010 Introduction to Law and Legal Profession 3
- LIB SCI 101 Library Research Methods 1
- *BUS 005 Business Law I 3*
- -or- BUS 006 Business Law II (3)
- PALEGAL 011 Introduction to Civil Litigation II 3
- PALEGAL 012 Tort Law 3
- PALEGAL 019 Property and Creditor Rights 3
- PALEGAL 017 Legal Writing 3
- CAOT 093 Legal Document Production 2
- *PALEGAL 016 Civil and Criminal Evidence 3*
- -or- Law 038 Criminal Law & Procedure (3)
- ENGLISH 103 Composition and Critical Thinking 3
- PALEGAL 004 Legal Internship 3
- PALEGAL 051 Legal Research 3
- *PALEGAL 016 Civil and Criminal Evidence 3*
- -or- Law 038 Criminal Law & Procedure (3)
- *BUS 005 Business Law I 3*
- -or- BUS 006 Business Law II (3)
- PALEGAL 014 Law Office Management and Procedures 3
- PALEGAL 003 Civil Rights and the Law 3
PARALEGAL STUDIES
Certificate of Achievement
Major Units: 42

A Certificate of Achievement in Paralegal Studies may be earned by completing 39 units of Required Courses and 3 units of Major Electives listed under the Associate degree in Paralegal Studies with a "C" or better in each course.

NOTE: Students seeking the Certificate of Achievement may choose either Paralegal 4 or Paralegal 14. Students seeking the Associate of Arts must satisfy Paralegal 4. Certificate is awarded to students who already possess an Associate’s degree in Paralegal Studies or higher.

REAL ESTATE

<table>
<thead>
<tr>
<th>Award Title</th>
<th>Academic Plan</th>
<th>Award Type</th>
<th>GE Units</th>
<th>Required Course Units</th>
<th>Major Elective Units</th>
<th>Major Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Real Estate*</td>
<td>T002896C</td>
<td>A.A.</td>
<td>21*</td>
<td>45</td>
<td>-</td>
<td>45</td>
</tr>
<tr>
<td>Real Estate</td>
<td>T021832D</td>
<td>C</td>
<td>30</td>
<td>-</td>
<td>30</td>
<td>30</td>
</tr>
</tbody>
</table>

At least 60 degree applicable units are required to earn an Associate degree.

*This Associate Degree is eligible for a reduction of General Education requirements from 21 to 18 units; please consult with a counselor for more details.

These programs are Financial Aid Eligible.

PROGRAM OVERVIEW

The Real Estate Program offers several options, which prepare students for increasing levels of responsibility and career choices within the field of real estate.

The Associate of Arts in Real Estate degree is designed for transfer to an upper division public college or university in the State of California. The designed curriculum prepares students for the real estate salesperson’s license, the real estate broker’s license and the practice of real estate.

By fulfilling the program requirements, students are prepared for a variety of entry level and advanced career opportunities in the real estate profession. Typical positions include: real estate agent, broker, real estate assistant, processor, appraiser, property manager, escrow officer, title officer, real estate office manager, consumer protection representative, land developer, urban planner, construction, business sales agent, community advocate, property inspector, investor, and owner of income producing properties.

PROGRAM LEARNING OUTCOMES (PLOs)

Upon completion of the Degree/Certificate program, students are able to:

- Demonstrate knowledge of real estate principles and practices in fulfillment of Department of Real Estate Licensure requirements.

REAL ESTATE

<table>
<thead>
<tr>
<th>Award Title</th>
<th>Academic Plan</th>
<th>Award Type</th>
<th>GE Units</th>
<th>Required Course Units</th>
<th>Major Elective Units</th>
<th>Major Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>A.A.</td>
<td>T002896C</td>
<td>A.A.</td>
<td>21*</td>
<td>45</td>
<td>-</td>
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<td>T021832D</td>
<td>C</td>
<td>30</td>
<td>-</td>
<td>30</td>
<td>30</td>
</tr>
</tbody>
</table>

At least 60 degree applicable units are required to earn an Associate degree.

Required Courses for the Associate in Arts degree in Real Estate may be met by completing 45 units of Required Courses with a “C" or better along with General Education units. Information on the General Education unit requirements may be found in the catalog under Graduation Requirements.

REAL ESTATE

Certificate of Achievement
Major Units: 30

A Certificate of Achievement in Real Estate may be earned by completing 30 units of Required Courses with a “C” or better in each course.
REQUIRED COURSES

<table>
<thead>
<tr>
<th>Semester I</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>REAL ES 001 Real Estate Principles</td>
<td>3</td>
</tr>
<tr>
<td>REAL ES 003 Real Estate Practices</td>
<td>3</td>
</tr>
<tr>
<td>BUS 005 Business Law I</td>
<td>3</td>
</tr>
<tr>
<td>CAOT 082 Microcomputer Software Survey in the Office</td>
<td>3</td>
</tr>
<tr>
<td>REAL ES 007 Real Estate Finance I</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester II</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>REAL ES 009 Real Estate Appraisal I</td>
<td>3</td>
</tr>
<tr>
<td>ACCTG 001 Introductory Accounting I</td>
<td>5</td>
</tr>
<tr>
<td>MARKET 001 Principles of Selling</td>
<td>3</td>
</tr>
<tr>
<td>BUS 001 Introduction to Business</td>
<td>3</td>
</tr>
<tr>
<td>CAOT 101 Hands-on Internet</td>
<td>1</td>
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</tbody>
</table>

RETAIL MANAGEMENT

<table>
<thead>
<tr>
<th>Award Title</th>
<th>Academic Plan</th>
<th>Major Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retail Management*</td>
<td>T002895C A.A.</td>
<td>6</td>
</tr>
<tr>
<td>Retail Management</td>
<td>T035286D C</td>
<td>24</td>
</tr>
</tbody>
</table>

At least 60 degree applicable units are required to earn an Associate degree.

*This Associate Degree is eligible for a reduction of General Education requirements from 21 to 16 units; please consult with a counselor for more details.

These programs are Financial Aid Eligible.

PROGRAM OVERVIEW

The Retail Management AA is a comprehensive college program designed to prepare current and future retail employees for a fast-paced and competitive retail environment. This program—designed in collaboration with retail industry leaders—will provide the student with the competencies required to succeed at the management level within the dynamic retail industry.

PROGRAM LEARNING OUTCOMES (PLOs)

Upon completion of the Degree/Certificate program, students are able to:

- Identify and understand basic theories, principles, practices, and terminology related to business and management.
- Demonstrate effective leadership, teamwork, and communication skills, while possessing proficient oral, written, and non-verbal techniques to gather and present information.
- Utilize technology, theoretical concepts, and analytical skills to assist with business management related problem-solving and decision making.
RETAIL MANAGEMENT
Certificate of Achievement
Major Units: 24

A Certificate of Achievement in Retail Management may be earned by completing 24 units of Required Courses listed below with a “C” or better in each course.

REQUIRED COURSES

<table>
<thead>
<tr>
<th>Major Course</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 032</td>
<td>3</td>
</tr>
<tr>
<td>BUS 038</td>
<td>3</td>
</tr>
<tr>
<td>CAOT 082</td>
<td>3</td>
</tr>
<tr>
<td>MARKET 021</td>
<td>3</td>
</tr>
<tr>
<td>MARKET 040</td>
<td>3</td>
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<tr>
<td>MGMT 002</td>
<td>3</td>
</tr>
<tr>
<td>MGMT 033</td>
<td>3</td>
</tr>
<tr>
<td>SUPV 003</td>
<td>3</td>
</tr>
</tbody>
</table>

SMALL BUSINESS ENTREPRENEURSHIP

Program Learning Outcomes (PLOs)

Upon completion of the Degree/Certificate program, students are able to:
- Understand the fundamentals of management, marketing, finance, and organizational skills required to operate a small business.
- Identify accounting and other finance concepts that will enable the student to interpret financial data and use it to make informed decisions about the operating performance and financial position of a company.
- Apply leadership and workplace relationship skills that will enable them to deal with customer, employee, and supplies needs, while understanding the legal issues of operating a business.

Small Business Entrepreneurship

Associate of Arts Degree
Major Units: 41

Requirements for the Associate in Arts degree in Small Business Entrepreneurship may be met by completing 41 units of Required Courses with a “C” or better along with General Education units. Information on the General Education unit requirements may be found in the catalog under Graduation Requirements.

REQUIRED COURSES

<table>
<thead>
<tr>
<th>Semester I</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 005</td>
<td>3</td>
</tr>
<tr>
<td>BUS 038</td>
<td>3</td>
</tr>
<tr>
<td>CAOT 082</td>
<td>3</td>
</tr>
<tr>
<td>MARKET 013</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester II</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCTG 001</td>
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<tr>
<td>BUS 032</td>
<td>3</td>
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<tr>
<td>MARKET 021</td>
<td>3</td>
</tr>
<tr>
<td>CAOT 085</td>
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<table>
<thead>
<tr>
<th>Semester III</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>FINANCE 008</td>
<td>3</td>
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<tr>
<td>SUPV 001</td>
<td>3</td>
</tr>
<tr>
<td>MARKET 001</td>
<td>3</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester IV</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>MARKET 025</td>
<td>3</td>
</tr>
</tbody>
</table>

PROGRAM OVERVIEW

The Small Business Entrepreneurship AA Degree Program at Los Angeles Trade-Technical College will prepare students to understand the process of creating, launching and managing a small business. Through academic coursework and experiential learning students will leave prepared to pursue the entrepreneurial lifestyle and be ready to maximize their entrepreneurial potential. Students who complete the program will be proficient in the process and procedures needed to transform an initial entrepreneurial idea into a viable business operation.

Through business simulations, mentorships and internships within local small businesses in the surrounding community this program will also provide students with practical knowledge, hands-on experience and the skills to be a successful entrepreneur.
SMALL BUSINESS ENTREPRENEURSHIP
Certificate of Achievement
Major Units: 32

A Certificate of Achievement in Small Business Entrepreneurship may be earned by completing 32 units of Required Courses listed below with a “C” or better in each course.

PROGRAM OVERVIEW

The Small Business Entrepreneurship Certificate of Achievement is designed to provide prospective small business owners/entrepreneurs with the principals involved in planning and operating a small business. Students will acquire the tools, skills, and knowledge necessary for successful start up and the fundamentals for sustainable success. Particular interest is placed on evaluating potential business opportunities, the development of dynamic business plans, small business problem recognition and solutions, record-keeping, effective marketing strategies, human relations and personnel management and efficient/effective operating principles.

Students will also gain technical and business expertise through classroom and hands on field experiences with a strong emphasis on entrepreneurship and lifelong learning. By fulfilling the program requirements, students will be proficient in startup strategies and practices needed to transform an initial entrepreneurial idea into a viable business operation, which will enable them to prosper in the ever changing small business environment.

REQUIRED COURSES

<table>
<thead>
<tr>
<th>SEMESTER I</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 038</td>
<td>Business Computations</td>
</tr>
<tr>
<td>BUS 005</td>
<td>Business Law I</td>
</tr>
<tr>
<td>MGMT 013</td>
<td>Small Business Entrepreneurship</td>
</tr>
<tr>
<td>MARKET 001</td>
<td>Principles of Selling</td>
</tr>
<tr>
<td>CAOT 082</td>
<td>Microcomputer Software Survey in the Office</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SEMESTER II</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>SUPV 001</td>
<td>Elements of Supervision</td>
</tr>
<tr>
<td>-or- MGMT 033</td>
<td>Personnel Management (3)</td>
</tr>
<tr>
<td>ACCTG 001</td>
<td>Introductory Accounting I</td>
</tr>
<tr>
<td>MARKET 021</td>
<td>Principles of Marketing</td>
</tr>
<tr>
<td>SUPV 011</td>
<td>Oral Communications</td>
</tr>
<tr>
<td>CAOT 085</td>
<td>Microcomputer Office Applications: Spreadsheet</td>
</tr>
</tbody>
</table>
ABOUT THE PATHWAY
The Construction Maintenance & Utilities Pathway (CMU) offers programs of study that enable students to gain the competencies needed to build credentials for lifelong career success as they prepare to enter the workforce in the Construction, Maintenance, Operation and Utilitie sectors. LATTC CMU programs host external accreditation from the Environmental Protection Agency (EPA), Occupational Safety & Heath Association (OSHA), LA/OC Building Trades Council, Los Angeles Building & Safety, Los Angeles Department of Water & Power, and others.

PATHWAY TEAM:
Dean: Dr. Arineh Arzoumanian ~ Email: arzouma@lattc.edu
Chair: William Elarton-Selig ~ Email: cdm@lattc.edu
Counselor: Derek Majors ~ Email: MajorsDA@lattc.edu
Navigator: Sue Blumenfeld ~ Email: BlumenS@lattc.edu
Office Staff: Yvonne Walters ~ Email: WalterYR@lattc.edu and Mercendes Gaitan ~ GaitanMY@lattc.edu

CONTACT US:
Office Location: Sequoia Hall/B - Room 122
Email: CDM@lattc.edu
Phone Number: (213) 763-3700
Hours of Operation: Mon – Fri: 8:30am to 6:00pm
Pathway Website: http://pathways.lattc.edu/catalog-programs/cmu/

PATHWAY CERTIFICATES AND DEGREES

<table>
<thead>
<tr>
<th>PROGRAM OF STUDY</th>
<th>AWARD</th>
<th>PROGRAM OF STUDY</th>
<th>AWARD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Architectural Technology</td>
<td>AA/C</td>
<td>-Powerline Mechanic</td>
<td>C</td>
</tr>
<tr>
<td>Carpentry</td>
<td>AS/C</td>
<td>-Utility Industry Fundamentals</td>
<td>C</td>
</tr>
<tr>
<td>Carpentry - Construction Technologies</td>
<td>AA/C</td>
<td>Renewable Energy Technician: Solar PV Installation and Maintenance</td>
<td>AS</td>
</tr>
<tr>
<td>Electrical Construction &amp; Maintenance: Electrician</td>
<td>AS/C</td>
<td>-Solar PV Installation and Maintenance Technician</td>
<td>C</td>
</tr>
<tr>
<td>Electrical Construction &amp; Maintenance: Construction Technician</td>
<td>AA/C</td>
<td>Renewable Energy Technician: Solar Thermal</td>
<td>AS</td>
</tr>
<tr>
<td>Operation &amp; Maintenance Engineering: Steam Plant</td>
<td>C</td>
<td>-Solar Thermal Installation &amp; Maintenance Technician</td>
<td>C</td>
</tr>
<tr>
<td>Plumbing</td>
<td>AS/C</td>
<td>Solid Waste Management Technology</td>
<td>C</td>
</tr>
<tr>
<td>Plumbing: Construction Tech</td>
<td>AA/C</td>
<td>Street Maintenance Technology</td>
<td>AA/C</td>
</tr>
<tr>
<td>Refrigeration &amp; Air Conditioning Mechanics</td>
<td>AS/C</td>
<td>Supply Water Systems Technology</td>
<td>C</td>
</tr>
<tr>
<td>-Weatherization and Energy Efficiency</td>
<td>C</td>
<td>Water Systems Technology- Wastewater Technology</td>
<td>AS</td>
</tr>
<tr>
<td>-Energy Systems Technology Fundamentals</td>
<td>C</td>
<td>Welding, Gas and Electric</td>
<td>AS/C</td>
</tr>
<tr>
<td>Renewable Energy Generation, Transmission &amp; Distribution w. Powerline Mechanic Emphasis</td>
<td>AS</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
ARCHITECTURE TECHNOLOGY

PROGRAM OVERVIEW

In keeping with the LATTC and Construction, Design, and manufacturing mission, we offer transfer courses and provide assistance with job placement in various venues, including architectural, urban planning and engineering offices; construction management firms; the construction manufacturing industry; and government agencies. We meet Leadership in Energy and Environmental Design (LEED) standards and use sustainable design strategies and current computer tools (including Global Positioning System—GPS, Computer-aided design—CAD, Geographic Information System—GIS, Building Information Modeling—BIM, 3-D modeling and others) to record, organize, design and maintain the life cycle of the built environment.

Our courses are integrated and comprehensive, covering four clusters of study: 1) design/space-planning/programming; 2) construction documents/BIM; 3) building systems/materials/historical context; and 4) sustainable tools, such as BIM, GPS, CAD, GIS, 3-D modeling, and simulation. Every class includes training in organizational skills, time management, teamwork, communication and digital file management, and the equipment used in the classroom is the same found in professional offices.

In the architecture design program, students learn additional skills, such as prototyping, visualization, conceptualization, 3-D composition, lighting, proportion, sketching and modeling.

This critical foundational knowledge can be applied to the fields of industrial design, toy design, furniture design, interior design, landscape architecture, set design and virtual reality spaces.

By fulfilling the program requirements, students will have the skills needed to enter the field as an Architectural Technician who is both a problem solver and an integral part of the design process. Students will master the skills necessary to work in the construction, drafting, estimating, building inspection, civil, electrical, mechanical and structural engineering, construction computer rendering, and computer-aided drawing arenas. General education classes provide a well rounded education, imparting the knowledge and skills needed to successfully participate in all aspects of society.

PROGRAM LEARNING OUTCOMES (PLOs)

Upon completion of the Degree/Certificate program, students are able to:

- Produce construction documents and architectural drawings for a variety of building projects in accordance industry standards, practices, and principles.
- Design architectural and building solutions for engineering problems utilizing architectural design concepts and techniques, math, and geometrical composition to address human needs and use.

ARCHITECTURAL TECHNOLOGY

Associate in Arts Degree
Major Units: 47

Requirements for the Associate in Arts degree in Architectural Technology may be met by completing 46 units of Required Courses and 1 unit of Major Electives with a "C" or better along with General Education units. Information on the General Education unit requirements may be found in the catalog under Graduation Requirements.

REQUIRED COURSES

<table>
<thead>
<tr>
<th>SEMESTER I</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>INT 200 Residential Planning</td>
<td>3</td>
</tr>
<tr>
<td>ARC 130 History of Architecture I</td>
<td>2</td>
</tr>
<tr>
<td>ARC 172 Architectural Drawing I</td>
<td>3</td>
</tr>
<tr>
<td>DRAFT 062 C.A.D.D. for Architects</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SEMESTER II</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENV 101 Foundations of Design I</td>
<td>3</td>
</tr>
<tr>
<td>ARC 151 Materials of Construction</td>
<td>3</td>
</tr>
<tr>
<td>ARC 173 Architectural Drawing II</td>
<td>3</td>
</tr>
<tr>
<td>ARC 261 Computer-Aided Design for Architecture I</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SEMESTER III</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARC 131 History of Architecture II</td>
<td>2</td>
</tr>
<tr>
<td>ARC 201 Architectural Design I</td>
<td>3</td>
</tr>
<tr>
<td>ARC 271 Architectural Drawing III</td>
<td>3</td>
</tr>
<tr>
<td>DRAFT 063 C.A.D. for Building</td>
<td>3</td>
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</table>

<table>
<thead>
<tr>
<th>SEMESTER IV</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARC 152 Equipment of Buildings</td>
<td>3</td>
</tr>
<tr>
<td>ARC 202 Architectural Design II</td>
<td>3</td>
</tr>
<tr>
<td>ARC 341 GIS Metropolitan Access Planning Systems I</td>
<td>3</td>
</tr>
<tr>
<td>DRAFT 010 CADD for Sustainable Landscape Design</td>
<td>3</td>
</tr>
</tbody>
</table>

MAJOR ELECTIVES

Select at least 1 unit from the courses below

<table>
<thead>
<tr>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARC 160 Computers for Designer</td>
</tr>
</tbody>
</table>

ARCHITECTURAL TECHNOLOGY

Certificate of Achievement
Major Units: 47

A Certificate of Achievement in Architectural Technology may be earned by completing 46 units of Required Courses and 1 unit of Major Electives listed under the Associate degree in Architectural Technology with a "C" or better in each course.
CARPENTRY/BUILDING AND CONSTRUCTION TECHNOLOGIES

Carpentry
---(day only)
T002909C A.S. 21* 45 3 48

Carpentry
---(day only)
T021848D C 45 3 48

Carpentry Construction Technologies*
---(evening only)
T008479C A.A. 21* 39 9 48

Carpentry Construction Technologies
---(evening only)
T021849D C 39 9 48

At least 60 degree applicable units are required to earn an Associate degree.

*These Associate Degrees are eligible for a reduction of General Education requirements from 21 to 18 units; please consult with a counselor for more details.

These programs are Financial Aid Eligible.

PROGRAM OVERVIEW
To meet the training needs of persons interested in becoming a Carpenter, LATTC offers a Carpentry Associate in Science degree and a Carpentry Construction Technologies Associate in Arts degree as well as Certificates of Achievement.

The Associate in Science degree is designed for individuals seeking entry level positions in the field. Students enrolling in this program should be able to commit to full-time student status, which is approximately 24 hours per week. This time commitment is necessary to allow for hands-on training with the laboratory applications used during the course of instruction.

The Associate in Arts degree is an evening-only course of study designed for individuals currently in the field who want to improve their skills or learn new ones. Due to limitations on available evening hours, the utilization of hands-on laboratory application is assumed to be provided at the students’ place of employment.

By fulfilling the program requirements, students will have the necessary knowledge and skills for a career as a Carpenter in the Construction or Maintenance arena. The construction, installation, and repair of structures and fixtures made from wood and other materials, working from blueprints, layout, measuring, marking, and arranging materials in accordance with local building codes, cutting and shaping wood, plastic, fiberglass, or drywall using hand and power tools, joining materials with nails, screws, staples, or adhesives are just some of the skills that will be mastered during this program.

CARPENTRY
Associate in Science Degree
Major Units: 48

Requirements for the Associate in Science degree in Carpentry may be met by completing 45 units of Required Courses and 3 units of Major Electives with a “C” or better along with General Education units. Information on the General Education unit requirements may be found in the catalog under Graduation Requirements.

PROGRAM LEARNING OUTCOMES (PLOs)
Upon completion of the Degree/Certificate program, students are able to:

- Use hand and power tools, testing equipment, and P.P.E required for performing work in the building construction industry in accordance with industry standards.
- Perform calculations and measurements required for work in the building construction industry.
- Construct and install interior/exterior walls, stairs, doors, windows, roof components, flooring, and exterior finish for various residential and commercial constructions that meet customer specifications and industry standards.

REQUIRED COURSES

<table>
<thead>
<tr>
<th>SEMESTER I</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRPNTRY 105 Calculations and Measurement for Woodworking Students I</td>
<td>3</td>
</tr>
<tr>
<td>CRPNTRY 114 Hand and Power Tools Application</td>
<td>4</td>
</tr>
<tr>
<td>CRPNTRY 115 Basic Blueprint Reading and Core Construction Skills</td>
<td>3</td>
</tr>
<tr>
<td>CRPNTRY 117 Construction Materials</td>
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</table>

<table>
<thead>
<tr>
<th>SEMESTER II</th>
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<tbody>
<tr>
<td>CRPNTRY 123 Basic House Construction</td>
<td>6</td>
</tr>
<tr>
<td>CRPNTRY 124 Blueprint Reading and Estimating I</td>
<td>3</td>
</tr>
<tr>
<td>CRPNTRY 129 † Basic Residential Estimating</td>
<td>2</td>
</tr>
<tr>
<td>CRPNTRY 130 Calculations and Measurement for Woodworking Students II</td>
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</table>

<table>
<thead>
<tr>
<th>SEMESTER III</th>
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</thead>
<tbody>
<tr>
<td>CRPNTRY 132 Applied Blueprint Reading</td>
<td>3</td>
</tr>
<tr>
<td>CRPNTRY 133 Advanced Residential Estimating</td>
<td>3</td>
</tr>
<tr>
<td>CRPNTRY 134 Advanced Residential Construction</td>
<td>4</td>
</tr>
<tr>
<td>CRPNTRY 135 Concrete Construction</td>
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<table>
<thead>
<tr>
<th>SEMESTER IV</th>
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<tbody>
<tr>
<td>CRPNTRY 144 Residential Exterior Finish</td>
<td>4</td>
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<tr>
<td>CRPNTRY 145 Residential Interior Finish</td>
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MAJOR ELECTIVES

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
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<tbody>
<tr>
<td>BLDGCTQ 007</td>
<td>Weatherization - Practical Energy Efficiency Techniques</td>
<td>3</td>
</tr>
<tr>
<td>BLDGCTQ 008</td>
<td>Weatherization - Energy Efficiency Practices</td>
<td>1</td>
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<tr>
<td>BLDGCTQ 009</td>
<td>Energy Auditor – Residential</td>
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<tr>
<td>BLDGCTQ 012</td>
<td>Energy Auditor – Residential Practices</td>
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<tr>
<td>BLDGCTQ 010</td>
<td>O.S.H.A. Based Safety Standards: Construction &amp; Industry</td>
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<tr>
<td>BLDGCTQ 921</td>
<td>Cooperative Education-Building Construction Techniques</td>
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</tr>
<tr>
<td>CRPNTRY 111</td>
<td>Construction I</td>
<td>7</td>
</tr>
<tr>
<td>CRPNTRY 126</td>
<td>Construction II</td>
<td>6</td>
</tr>
<tr>
<td>CRPNTRY 148</td>
<td>Computer Assisted Estimating I</td>
<td>3</td>
</tr>
<tr>
<td>CRPNTRY 149</td>
<td>Computer Assisted Estimating II</td>
<td>3</td>
</tr>
<tr>
<td>CRPNTRY 170</td>
<td>Introduction to CNC Woodworking Machining Center and Programming</td>
<td>3</td>
</tr>
<tr>
<td>CRPNTRY 243</td>
<td>Building Estimating I</td>
<td>3</td>
</tr>
<tr>
<td>CRPNTRY 247</td>
<td>Building Estimating II</td>
<td>3</td>
</tr>
<tr>
<td>CRPNTRY 941</td>
<td>Cooperative Education-Carpentry</td>
<td>4</td>
</tr>
<tr>
<td>ECONMT 100</td>
<td>(O.S.H.A.) Safety Standards: Construction and Industry</td>
<td>2</td>
</tr>
</tbody>
</table>

CARPENTRY

Certificate of Achievement
Major Units: 48

A Certificate of Achievement in Carpentry may be earned by completing 45 units of Required Courses and 3 units of Major Electives listed under the Associate degree in Carpentry with a “C” or better in each course.

CARPENTRY - CONSTRUCTION TECHNOLOGIES

Associate in Arts Degree
Major Units: 48

Requirements for the Associate in Arts degree in Carpentry - Construction Technologies may be met by completing 39 units of Required Courses and 9 units of Major Electives with a “C” or better along with General Education units. Information on the General Education unit requirements may be found in the catalog under Graduation Requirements.

PROGRAM LEARNING OUTCOMES (PLOs)

Upon completion of the Degree/Certificate program, students are able to:
- Use drawings and other related documents and graphics to communicate information effectively.
- Use hand and power tools, testing equipment, and P.P.E required for performing work in the building construction industry in accordance with industry standards.

REQUIRED COURSES

LEVEL I

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRPNTRY 105</td>
<td>Calculations and Measurements for Woodworking Students I</td>
<td>3</td>
</tr>
<tr>
<td>CRPNTRY 111A</td>
<td>Construction IA</td>
<td>3</td>
</tr>
<tr>
<td>CRPNTRY 126A</td>
<td>Construction II</td>
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LEVEL II

<table>
<thead>
<tr>
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<th>Course Title</th>
<th>Units</th>
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<tbody>
<tr>
<td>CRPNTRY 130</td>
<td>Calculations and Measurements for Woodworking Students II</td>
<td>3</td>
</tr>
<tr>
<td>CRPNTRY 149</td>
<td>Computer Assisted Estimating I</td>
<td>3</td>
</tr>
<tr>
<td>CRPNTRY 240</td>
<td>Building Construction Specialties</td>
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<tr>
<td>CRPNTRY 251</td>
<td>Building Codes I: International Residential Code (IRC)</td>
<td>3</td>
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LEVEL III

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tr>
<td>ECONMT 100</td>
<td>(O.S.H.A.) Safety Standards: Construction and Industry</td>
<td>2</td>
</tr>
<tr>
<td>CRPNTRY 149</td>
<td>Computer Assisted Estimating II</td>
<td>3</td>
</tr>
<tr>
<td>CRPNTRY 240</td>
<td>Building Construction Specialties</td>
<td>4</td>
</tr>
<tr>
<td>CRPNTRY 251</td>
<td>Building Codes I: International Residential Code (IRC)</td>
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LEVEL IV

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
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<tbody>
<tr>
<td>CRPNTRY 247</td>
<td>Building Estimating II</td>
<td>3</td>
</tr>
<tr>
<td>CRPNTRY 252</td>
<td>Building Codes II: International Residential Code (IRC)</td>
<td>3</td>
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MAJOR ELECTIVES

Select at least 9 units from the courses below

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
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<tbody>
<tr>
<td>BLDGCTQ 007</td>
<td>Weatherization - Practical Energy Efficiency Techniques</td>
<td>3</td>
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<tr>
<td>BLDGCTQ 008</td>
<td>Weatherization - Energy Efficiency Practices</td>
<td>1</td>
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<tr>
<td>BLDGCTQ 009</td>
<td>Energy Auditor – Residential</td>
<td>3</td>
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<tr>
<td>BLDGCTQ 022</td>
<td>Energy Auditor – Residential Practices</td>
<td>1</td>
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<tr>
<td>BLDGCTQ 101</td>
<td>Contract’s License Law</td>
<td>3</td>
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<tr>
<td>BLDGCTQ 102</td>
<td>O.S.H.A. Based Safety Standards: Construction &amp; Industry</td>
<td>2</td>
</tr>
<tr>
<td>BLDGCTQ 921</td>
<td>Cooperative Education-Building Construction Techniques</td>
<td>2</td>
</tr>
<tr>
<td>CRPNTRY 247</td>
<td>Hand and Power Tool Application</td>
<td>4</td>
</tr>
<tr>
<td>CRPNTRY 115</td>
<td>Basic Blueprint Reading and Core Construction Skills</td>
<td>3</td>
</tr>
<tr>
<td>CRPNTRY 117</td>
<td>Construction Materials</td>
<td>3</td>
</tr>
</tbody>
</table>

† Course currently unavailable
CARPENTRY - CONSTRUCTION TECHNOLOGIES
Certificate of Achievement
Major Units: 48

A Certificate of Achievement in Carpentry - Construction Technologies may be earned by completing 39 units of Required Courses and 9 units of Major Electives listed under the Associate degree in Carpentry Construction Technologies with a “C” or better in each course.

ELECTRICAL CONSTRUCTION & MAINTENANCE

<table>
<thead>
<tr>
<th>Award Title</th>
<th>Academic Plan</th>
<th>Award Type</th>
<th>GE Units</th>
<th>Required Course Units</th>
<th>Major Elective Units</th>
<th>Major Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrical Construction and Maintenance: Electrician* —(day only)</td>
<td>T002910C</td>
<td>A.S.</td>
<td>21*</td>
<td>42</td>
<td>6</td>
<td>48</td>
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<tr>
<td>Electrical Construction and Maintenance: Electrician —(day only)</td>
<td>T021853D</td>
<td>C</td>
<td></td>
<td>42</td>
<td>6</td>
<td>48</td>
</tr>
<tr>
<td>Electrical Construction and Maintenance: Construction Technician* —(evening only)</td>
<td>T008481C</td>
<td>A.A.</td>
<td>21*</td>
<td>40</td>
<td>8</td>
<td>48</td>
</tr>
<tr>
<td>Electrical Construction and Maintenance: Construction Technician* —(evening only)</td>
<td>T021852D</td>
<td>C</td>
<td></td>
<td>40</td>
<td>8</td>
<td>48</td>
</tr>
</tbody>
</table>

At least 60 degree applicable units are required to earn an Associate degree.

*This Associate Degree is eligible for a reduction of General Education requirements from 21 to 18 units; please consult with a counselor for more details.

These programs are Financial Aid Eligible.

PROGRAM OVERVIEW

To meet the training needs of persons interested in becoming an Electrician, LATTC offers an Electrical Construction and Maintenance Associate of Science degree, and Electrical Construction and Maintenance Construction Technologies Associate of Arts degree, as well as Certificates of Achievement.

The Associate in Science degree is designed for individuals seeking entry level positions in the field. Students enrolling in this program should be able to commit to full time student status, which is approximately 24 hours per week in the classrooms and laboratories, plus at least 12 hours of homework every week. This time commitment is necessary to allow for hands on training in the laboratory applications used during the course of instruction.

The Associate in Arts degree is an evenings only course of study designed for individuals, currently working in the electrical field, who want to improve or expand their skills. Due to the limitations of the student’s available evening hours, much of the hands on laboratory component is assumed to be provided at the student’s place of employment. Depending on availability, the Associate in Arts degree may require more time to complete. See the Department Chair for details prior to enrolling.

By fulfilling the program requirements, students will have the necessary knowledge and skills for a career in Residential, Commercial, and Industrial Construction and Maintenance of Electrical Systems. Electrical theory, electrical controls, conduit installation, blueprints, low voltage systems, maintenance practices, equipment installation, etc. are just some of the skills that will be mastered during this program.

PROGRAM LEARNING OUTCOMES (PLOs)

Upon completion of the Degree/Certificate programs, students are able to:

- Use electrical trade hand and power tools in accordance with industry and safety standards.
- Analyze and solve mathematical problems related to the electrical trade.
- Locate and interpret technical information from the National Electrical Code.

ELECTRICAL CONSTRUCTION AND MAINTENANCE: ELECTRICIAN

Associate in Science Degree
Major Units: 48

Requirements for the Associate in Science degree in Electrical Construction and Maintenance: Electrician may be met by completing 42 units of Required Courses and 6 unit of Major Electives with a “C” or better along with General Education units. Information on the General Education unit requirements may be found in the catalog under Graduation Requirements.

REQUIRED COURSES

<table>
<thead>
<tr>
<th>SEMESTER I</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>ECONM115</td>
<td>Fundamentals of D.C. Electricity</td>
</tr>
<tr>
<td>ECONM116</td>
<td>Hand Tools and Wiring Practices</td>
</tr>
<tr>
<td>ECONM117</td>
<td>Elementary Circuit Practices</td>
</tr>
<tr>
<td>ELECTIVE</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>SEMESTER II</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECONM120</td>
<td>Industrial Control Systems</td>
</tr>
<tr>
<td>ECONM128</td>
<td>Industrial Control Systems Practices</td>
</tr>
<tr>
<td>ECONM129</td>
<td>Fundamentals of Alternating Current</td>
</tr>
<tr>
<td>ECONM169</td>
<td>Alternating Current Practices</td>
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<tr>
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<table>
<thead>
<tr>
<th>SEMESTER III</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>ECONM130</td>
<td>Principles of Industrial Electric Power</td>
</tr>
<tr>
<td>ECONM136</td>
<td>Industrial Power Applications</td>
</tr>
<tr>
<td>ECONM137</td>
<td>Industrial Electronic Control Systems</td>
</tr>
<tr>
<td>ECONM138</td>
<td>Applications of Electrical and Electronic Devices</td>
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<tr>
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</table>
## SEMESTER IV

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECONMT 140</td>
<td>Construction Wiring Principles and Practices</td>
<td>3</td>
</tr>
<tr>
<td>ECONMT 150</td>
<td>Introduction to the Electrical Codes</td>
<td>3</td>
</tr>
<tr>
<td>ECONMT 167</td>
<td>Electrical Construction Wiring Techniques</td>
<td>3</td>
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<tr>
<td>ECONMT 168</td>
<td>Installation of Electrical Wiring</td>
<td>2</td>
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<tr>
<td>ELECTIVE</td>
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<td>1</td>
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### MAJOR ELECTIVES

Select at least 6 units from the courses below

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<th>Course Title</th>
<th>Units</th>
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<tbody>
<tr>
<td>ECONMT 001</td>
<td>Resistive Circuit Electrical Fundamentals</td>
<td>3</td>
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<tr>
<td>ECONMT 006</td>
<td>Security &amp; Fire Alarm Technician Certification</td>
<td>3</td>
</tr>
<tr>
<td>ECONMT 007</td>
<td>Home Theater &amp; Comm Audio Video Installation</td>
<td>3</td>
</tr>
<tr>
<td>ECONMT 100</td>
<td>(O.S.H.A.) Safety Standards: Construction and Industry</td>
<td>2</td>
</tr>
<tr>
<td>ECONMT 101</td>
<td>Electrical Craft Helper</td>
<td>4</td>
</tr>
<tr>
<td>ECONMT 105</td>
<td>Fundamentals of Solar Electricity</td>
<td>3</td>
</tr>
<tr>
<td>ECONMT 110</td>
<td>Renewable Energy Systems</td>
<td>3</td>
</tr>
<tr>
<td>ECONMT 119</td>
<td>Applied Calculations and Measurements</td>
<td>3</td>
</tr>
<tr>
<td>ECONMT 142</td>
<td>Basic Programmable Logic Controls (PLC)</td>
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<tr>
<td>ECONMT 159</td>
<td>Programmable Logic Controls (PLC)</td>
<td>4</td>
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<tr>
<td>ECONMT 164</td>
<td>Sustainable Lighting Principles &amp; Practices</td>
<td>3</td>
</tr>
<tr>
<td>ECONMT 171</td>
<td>Electrical Codes and Ordinances I</td>
<td>3</td>
</tr>
<tr>
<td>ECONMT 172</td>
<td>Electrical Codes and Ordinances II</td>
<td>3</td>
</tr>
<tr>
<td>ECONMT 173</td>
<td>Electrical Mathematics I</td>
<td>3</td>
</tr>
<tr>
<td>ECONMT 174</td>
<td>Electrical Mathematics II</td>
<td>3</td>
</tr>
<tr>
<td>ECONMT 177</td>
<td>Electric Motor Control</td>
<td>3</td>
</tr>
<tr>
<td>ECONMT 178</td>
<td>Electric Motor Control II</td>
<td>3</td>
</tr>
<tr>
<td>ECONMT 181</td>
<td>Basic Wiring Practices</td>
<td>3</td>
</tr>
<tr>
<td>ECONMT 182</td>
<td>Basic Diagram and Circuit Practices</td>
<td>1</td>
</tr>
<tr>
<td>ECONMT 183</td>
<td>Residential Electric Wiring</td>
<td>3</td>
</tr>
<tr>
<td>ECONMT 184</td>
<td>Motor Control Principles and Practices</td>
<td>3</td>
</tr>
<tr>
<td>ECONMT 185</td>
<td>Directed Study - Electrical Construction and Maintenance</td>
<td>1</td>
</tr>
<tr>
<td>ECONMT 185L</td>
<td>Directed Study, Electrical Construction And Maintenance (Lab)</td>
<td>1</td>
</tr>
<tr>
<td>ECONMT 186</td>
<td>Industrial Electrical Principles and Practices</td>
<td>3</td>
</tr>
<tr>
<td>ECONMT 187</td>
<td>Advanced Programmable Controllers</td>
<td>4</td>
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<tr>
<td>ECONMT 190</td>
<td>Electrical Code Calculations</td>
<td>3</td>
</tr>
<tr>
<td>ECONMT 191</td>
<td>Commercial Wiring and Practices</td>
<td>2</td>
</tr>
<tr>
<td>ECONMT 192</td>
<td>Residential Wiring and Practices</td>
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</tr>
<tr>
<td>ECONMT 193</td>
<td>Conduit Bending and Calculations</td>
<td>3</td>
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<tr>
<td>ECONMT 193A</td>
<td>Conduit Bending Laboratory</td>
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<tr>
<td>ECONMT 195</td>
<td>Grounding: Fundamentals, Applications and Practices</td>
<td>3</td>
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<tr>
<td>ECONMT 196</td>
<td>Infrastructure Wiring Practices</td>
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<tr>
<td>ECONMT 197</td>
<td>Low Voltage Electrical Practices</td>
<td>3</td>
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<tr>
<td>ECONMT 199</td>
<td>Journeyman Electrician Exam Preparation</td>
<td>3</td>
</tr>
<tr>
<td>ECONMT 212</td>
<td>Significant Changes NEC - National Electrical Code</td>
<td>3</td>
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<tr>
<td>ECONMT 215</td>
<td>Small Wind Energy Systems Principles and Practices</td>
<td>3</td>
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<td>ECONMT 285</td>
<td>Directed Study - Electrical Construction and Maintenance</td>
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<td>ECONMT 285L</td>
<td>Directed Study, Electrical Construction and Maintenance (Lab)</td>
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<td>Directed Study, Electrical Construction and Maintenance (Lab)</td>
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<tr>
<td>ECONMT 941</td>
<td>Cooperative Education - Electrical Construction &amp; Maintenance</td>
<td>4</td>
</tr>
</tbody>
</table>

## ELECTRICAL CONSTRUCTION AND MAINTENANCE: ELECTRICIAN

### Certificate of Achievement

**Major Units:** 48

A Certificate of Achievement in Electrical Construction and Maintenance: Electrician may be earned by completing 42 units of Required Courses and 6 units of Major Electives listed under the Associate degree in Electrical Construction and Maintenance: Electrician with a “C” or better in each course.

## ELECTRICAL CONSTRUCTION & MAINTENANCE: CONSTRUCTION TECHNICIAN

### Associate in Arts Degree

**Major Units:** 48

Requirements for the Associate in Arts degree in Electrical Construction and Maintenance: Construction Technician may be met by completing 40 units of Required Courses and 8 units of Major Electives with a “C” or better along with General Education units. Information on the General Education unit requirements may be found in the catalog under Graduation Requirements.

## REQUIRED COURSES

### SEMESTER I

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
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<tbody>
<tr>
<td>ECONMT 115</td>
<td>Fundamentals of D.C. Electricity</td>
<td>3</td>
</tr>
<tr>
<td>ECONMT 116</td>
<td>Hand Tools and Wiring Practices</td>
<td>2</td>
</tr>
<tr>
<td>ECONMT 119</td>
<td>Applied Calculations and Measurements</td>
<td>3</td>
</tr>
<tr>
<td>or - ECONMT 173</td>
<td>Electrical Mathematics I (3)</td>
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</tr>
<tr>
<td>ECONMT 100</td>
<td>(O.S.H.A.) Safety Standards: Construction and Industry</td>
<td>2</td>
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<tr>
<td>or - BLDGCTQ 102</td>
<td>OSHA Based Safety Standards: Construction &amp; Industry (2)</td>
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### SEMESTER II

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
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<tbody>
<tr>
<td>ECONMT 177</td>
<td>Electric Motor Control I</td>
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<tr>
<td>ECONMT 181</td>
<td>Basic Wiring Practices</td>
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<tr>
<td>ECONMT 182</td>
<td>Basic Diagram and Circuit Practices</td>
<td>1</td>
</tr>
<tr>
<td>ECONMT 183</td>
<td>Residential Electric Wiring</td>
<td>3</td>
</tr>
<tr>
<td>ECONMT 184</td>
<td>Motor Control Principles and Practices</td>
<td>3</td>
</tr>
<tr>
<td>ECONMT 185</td>
<td>Directed Study - Electrical Construction and Maintenance</td>
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<td>ECONMT 185L</td>
<td>Directed Study, Electrical Construction And Maintenance (Lab)</td>
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<tr>
<td>ECONMT 120</td>
<td>Industrial Control Systems</td>
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</tr>
<tr>
<td>ECONMT 127A</td>
<td>Industrial Control Systems Principles</td>
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</tr>
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<td>ECONMT 129</td>
<td>Fundamentals of Alternating Current</td>
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### SEMESTER III

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>ECONMT 120</td>
<td>Industrial Control Systems</td>
<td>3</td>
</tr>
<tr>
<td>ECONMT 178</td>
<td>Electric Motor Control II</td>
<td>3</td>
</tr>
<tr>
<td>ECONMT 128A</td>
<td>Industrial Control Systems Principles</td>
<td>1</td>
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<tr>
<td>ECONMT 128B</td>
<td>Industrial Control Systems Principles</td>
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### SEMESTER IV

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECONMT 171</td>
<td>Electrical Codes and Ordinances I</td>
<td>3</td>
</tr>
<tr>
<td>ECONMT 184</td>
<td>Motor Control Principles and Practices</td>
<td>3</td>
</tr>
<tr>
<td>ELECTIVE</td>
<td></td>
<td>3</td>
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</tbody>
</table>

### SEMESTER V

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECONMT 172</td>
<td>Electrical Code and Ordinances II</td>
<td>3</td>
</tr>
<tr>
<td>ECONMT 186</td>
<td>Industrial Electrical Principles &amp; Practices</td>
<td>3</td>
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<tr>
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MAJOR ELECTIVES

Select at least 8 units from the courses below

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<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
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<tbody>
<tr>
<td>ECONMT 1</td>
<td>Resistive Circuit Electrical Fundamentals</td>
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<tr>
<td>ECONMT 6</td>
<td>Security And Fire Alarm Technician Certification</td>
<td>3</td>
</tr>
<tr>
<td>ECONMT 7</td>
<td>Home Theater &amp; Commercial Audio, Video Installation</td>
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</tr>
<tr>
<td>ECONMT 101</td>
<td>Electrical Craft Helper</td>
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<tr>
<td>ECONMT 105</td>
<td>Fundamentals of Solar Electricity</td>
<td>3</td>
</tr>
<tr>
<td>ECONMT 110</td>
<td>Renewable Energy Systems</td>
<td>3</td>
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<tr>
<td>ECONMT 117</td>
<td>Elementary Circuit Practices</td>
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<td>ECONMT 128</td>
<td>Industrial Control Systems Practices</td>
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<td>Fundamentals of Alternating Current</td>
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<td>ECONMT 130</td>
<td>Principles of Industrial Electric Power</td>
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<td>ECONMT 136</td>
<td>Industrial Power Applications</td>
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<td>ECONMT 137</td>
<td>Industrial Electronic Control Systems</td>
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<td>ECONMT 138</td>
<td>Applications of Electrical and Electronics Devices</td>
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<td>ECONMT 140</td>
<td>Construction Wiring Principles and Practices</td>
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<td>ECONMT 142</td>
<td>Basic Programmable Logic Controls (PLC)</td>
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<td>ECONMT 150</td>
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<td>ECONMT 159</td>
<td>Programmable Logic Controls (PLC)</td>
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<td>ECONMT 164</td>
<td>Sustainable Lighting Principles &amp; Practices</td>
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<td>ECONMT 167</td>
<td>Electrical Construction Wiring Techniques</td>
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<td>ECONMT 168</td>
<td>Installation of Electrical Wiring</td>
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<td>ECONMT 169</td>
<td>Alternating Current Practices</td>
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<td>ECONMT 174</td>
<td>Electrical Mathematics II</td>
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<td>ECONMT 183</td>
<td>Residential Electric Wiring</td>
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<td>ECONMT 185</td>
<td>Directed Study - Electrical Construction and</td>
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<td>ECONMT 190</td>
<td>Electrical Code Calculations</td>
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<td>ECONMT 191</td>
<td>Commercial Wiring and Practices</td>
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<td>ECONMT 192</td>
<td>Residential Wiring and Practices</td>
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<td>ECONMT 193</td>
<td>Conduit Bending and Calculations</td>
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<td>Conduit Bending Laboratory</td>
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<td>ECONMT 195</td>
<td>Grounding: Fundamentals, Applications and Practices</td>
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<td>ECONMT 196</td>
<td>Infrastructure Wiring Practices</td>
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<td>ECONMT 197</td>
<td>Low Voltage Electrical Practices</td>
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<td>ECONMT 199</td>
<td>Journeyman Electrician Exam Preparation</td>
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<td>ECONMT 205</td>
<td>Solar Energy Installation &amp; Maintenance Principles</td>
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<td></td>
<td>and Practices</td>
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<td>ECONMT 212</td>
<td>Significant Changes NEC - National Electrical Code</td>
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<td>ECONMT 215</td>
<td>Small Wind Energy Systems Principles and Practices</td>
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<td>ECONMT 285</td>
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<td>ECONMT 941</td>
<td>Cooperative Education -Electrical Construction &amp;</td>
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<td></td>
<td>Maintenance</td>
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</tbody>
</table>

ELECTRICAL CONSTRUCTION & MAINTENANCE: CONSTRUCTION TECHNICIAN

Certificate of Achievement

Major Units: 48

A Certificate of Achievement in Electrical Construction and Maintenance: Construction Technician may be earned by completing 40 units of Required Courses and 8 units of Electives listed under the Associate degree in Electrical Construction and Maintenance: Construction Technician with a “C” or better in each course.

OPERATION AND MAINTENANCE ENGINEERING: STEAM PLANT

PROGRAM OVERVIEW

Most craft workers specialize in one kind of work, such as plumbing or carpentry. General maintenance and repair workers, however, have skills in many different crafts. They repair and maintain machines, mechanical equipment, and buildings. They also work on plumbing, electrical, and air conditioning and heating systems. They build partitions, make plaster or drywall repairs, and fix or paint roofs, windows, doors, floors, woodworking, and other parts of building structures. In addition, they maintain and repair specialized equipment and machinery found in cafeterias, laundries, hospitals, stores, offices, and factories.

A general maintenance worker’s typical duties include troubleshooting and fixing faulty electrical switches, repairing air-conditioning motors, and unclogging drains. In addition, newer buildings sometimes have computer-controlled systems that allow maintenance workers to make adjustments in building settings and monitor problems from a central location; for example, they can remotely control light sensors that turn off lights automatically after a set amount of time or identify a broken ventilation fan that needs to be replaced.

General maintenance and repair workers inspect and diagnose problems and determine the best way to correct them, frequently checking blueprints, repair manuals, and parts catalogs. They obtain supplies and repair parts from distributors or storerooms. Using common hand and power tools such as screwdrivers, saws, drills, wrenches, and hammers, as well as specialized equipment and electronic testing devices, these workers replace or fix worn or broken parts, where necessary, or make adjustments to correct malfunctioning equipment and machines.

General maintenance and repair workers also perform routine preventive maintenance tasks to ensure that machines continue to run smoothly, building systems operate efficiently, and the physical condition of buildings does not
deteriorate. Following a checklist, they may inspect drives, motors, and belts, check fluid levels, replace filters, and perform other maintenance actions. Maintenance and repair workers keep records of their work.

The “Certified Steam Boiler License” is a specialized certification required for many maintenance workers. LATTC offers a Certificate of Achievement-Steam Plant to address this need. The core of the program is designed to prepare students to take the Boiler/Steam Plant certification exam, while the remainder is structured to create students who possess an array of skills which would be transferable to a variety of job settings, creating a highly capable general maintenance worker.

By fulfilling the program requirements, students will have the necessary skills for entry and mid level jobs in the general maintenance industry. This program prepares the student for basic electrical, heating and refrigeration, plumbing, and carpentry work, and to pass the “Certified Boiler/Steam Plant” License exam.

PROGRAM LEARNING OUTCOMES (PLOs)

Upon completion of the Certificate program, students are able to:

- Identify and describe the function of all major components of a high and low pressure boiler system utilizing technical manuals.
- Perform calculations and measurements necessary in the operations and maintenance field in accordance with industry standards.
- Troubleshoot a high and low pressure boiler system in utilizing appropriate materials and equipment, in accordance with industry safety standards.

OPERATION & MAINTENANCE ENGINEERING: STEAM PLANT

Certificate of Achievement

Major Units: 36

A Certificate of Achievement in Operation & Maintenance Engineering: Steam Plant may be earned by completing 12 units of Required Courses and 24 units of Major Electives with a “C” or better in each course.

 REQUIRED COURSES

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>OPMINT 228</td>
<td>Steam Plant Operation I</td>
<td>6</td>
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<tr>
<td>OPMINT 229</td>
<td>Steam Plant Operation II</td>
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MAJOR ELECTIVES

Select at least 24 units from the courses below

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<th>Course Code</th>
<th>Course Name</th>
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<tr>
<td>CRPNTRY 111A</td>
<td>Construction IA</td>
<td>3</td>
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<tr>
<td>CRPNTRY 241</td>
<td>Blueprint Reading and Estimating</td>
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</tr>
<tr>
<td>ECONMT 100</td>
<td>(O.S.H.A.) Safety Standards: Construction and Industry</td>
<td>2</td>
</tr>
<tr>
<td>ECONMT 105</td>
<td>Fundamentals of Solar Electricity</td>
<td>3</td>
</tr>
<tr>
<td>ECONMT 110</td>
<td>Renewable Energy Systems</td>
<td>3</td>
</tr>
<tr>
<td>ECONMT 171</td>
<td>Electrical Codes and Ordinances I</td>
<td>3</td>
</tr>
<tr>
<td>ECONMT 181</td>
<td>Basic Wiring Practices</td>
<td>3</td>
</tr>
<tr>
<td>ECONMT 182</td>
<td>Basic Diagram and Circuit Practices</td>
<td>1</td>
</tr>
<tr>
<td>PLUMBING 028</td>
<td>Plumbing Code I</td>
<td>3</td>
</tr>
<tr>
<td>PLUMBING 031</td>
<td>Backflow Prevention Devices</td>
<td>3</td>
</tr>
<tr>
<td>REF A/C 159</td>
<td>Principles and Practices of Electric Circuits and Controls</td>
<td>4</td>
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<tr>
<td>REF A/C 160</td>
<td>Refrigeration System Principles and Practices</td>
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PLUMBING

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<thead>
<tr>
<th>Award Title</th>
<th>Academic Plan</th>
<th>Award Type</th>
<th>GE Units</th>
<th>Required Course Units</th>
<th>Major Elective Units</th>
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<tbody>
<tr>
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<td>A.S.</td>
<td>21*</td>
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<td>Plumbing: Construction Tech*—(evening only)</td>
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<td>A.A.</td>
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<td>T021856D</td>
<td>C</td>
<td>37</td>
<td>8</td>
<td>45</td>
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</table>

At least 60 degree applicable units are required to earn an Associate degree.

*This Associate Degree is eligible for a reduction of General Education requirements from 21 to 18 units; please consult with a counselor for more details.

These programs are Financial Aid Eligible.

PROGRAM OVERVIEW

The Plumbing Degree & Certificate are designed to prepare students for employment in the plumbing and related pipe industry.

Career opportunities for students completing this program of study include, but are not limited to:

- First-Line Sup/Mgrs of Construction Trades and Extraction Workers
- Helpers--Pipelayers, Plumbers, Pipefitters, and Steamfitters
- Pipelayers
- Plumbers, Pipefitters, and Steamfitters
- Septic Tank Servicers and Sewer Pipe Cleaners

By fulfilling the program requirements, students will have the necessary knowledge and skills for a career in residential, commercial, and industrial service and repair or construction plumbing. Reading of blueprints, layout, estimating, installation of piping systems and fixtures, repair of supply and waste water systems are just some of the skills that will be mastered during this program.

The coursework in this program meets the requirements for entry into the plumbing trade.
Note: Students enrolling in this program should be able to commit to full-time student status, which is approximately 24 hours per week. This time commitment is necessary to allow for hands-on training with the laboratory applications used during the course of instruction.

PLUMBING

Associate in Science Degree
Major Units: 48

Requirements for the Associate in Science degree in Plumbing may be met by completing 45 units of Required Courses and 3 units of Major Electives with a “C” or better along with General Education units. Information on the General Education unit requirements may be found in the catalog under Graduation Requirements.

PROGRAM LEARNING OUTCOMES (PLOs)

Upon completion of the Degree/Certificate program, students are able to:

- Demonstrate proper procedures and techniques required to construct a plumbing system, utilizing plumbing tools, in preparation for the Apprentice-level employment in the plumbing trade.
- Perform standard industry trade calculations and formulas including measurements to lay out to design a basic plumbing system.
- Recall, restate and apply current plumbing codes, industry rules, regulations, legal standards and procedures to the construction of an operable plumbing system following industry guidelines and restrictions according to the Uniform Plumbing Code for construction of commercial and residential.

REQUIRED COURSES

<table>
<thead>
<tr>
<th>SEMESTER I</th>
<th>UNITS</th>
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<tbody>
<tr>
<td>PLUMBNG 111 Introduction to Plumbing</td>
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<tr>
<td>PLUMBNG 112 Fundamentals of Plumbing</td>
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<td>PLUMBNG 113 Basic Plumbing Principles and Practices</td>
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<thead>
<tr>
<th>SEMESTER II</th>
<th>UNITS</th>
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<tbody>
<tr>
<td>PLUMBNG 121 Working Drawings and Layout I</td>
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<tr>
<td>PLUMBNG 122 Plumbing Mathematics and Procedures II</td>
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<td>PLUMBNG 123 Plumbing Practices and Installation</td>
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<table>
<thead>
<tr>
<th>SEMESTER III</th>
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<tr>
<td>PLUMBNG 131 Working Drawing II</td>
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<tr>
<td>PLUMBNG 132 Plumbing Calculations and Procedures II</td>
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<tr>
<td>PLUMBNG 133 Installation and Plumbing Fixtures</td>
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<table>
<thead>
<tr>
<th>SEMESTER IV</th>
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<tbody>
<tr>
<td>PLUMBNG 141 Advanced Layout and Procedures</td>
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<tr>
<td>PLUMBNG 142 Servicing of Plumbing Fixtures and Appliances</td>
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<td>PLUMBNG 143 Plumbing Code I</td>
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MAJOR ELECTIVES

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<tr>
<td>ECONMT 100 (O.S.H.A.) Safety Standards: Construction and Industry</td>
<td>2</td>
</tr>
<tr>
<td>PLUMBNG 026 Plumbing Layout and Estimating I</td>
<td>3</td>
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<tr>
<td>PLUMBNG 027 Plumbing Layout and Estimating II</td>
<td>3</td>
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<tr>
<td>PLUMBNG 028 Plumbing Code I</td>
<td>3</td>
</tr>
<tr>
<td>PLUMBNG 029 Plumbing Code II</td>
<td>3</td>
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<tr>
<td>PLUMBNG 031 Backflow Prevention Devices</td>
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<tr>
<td>PLUMBNG 033 Plumbing Code III</td>
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<tr>
<td>PLUMBNG 144 Special Purposes Installation</td>
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<tr>
<td>PLUMBNG 941 Cooperative Education-Plumbing</td>
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</tbody>
</table>

PLUMBING

Certificate of Achievement
Major Units: 48

A Certificate of Achievement in Plumbing may be earned by completing 45 units of Required Courses and 3 units of Electives listed under the Associate degree in Plumbing with a “C” or better in each course.

By fulfilling the program requirements, students will have the necessary knowledge and skills for a career in residential, commercial, and industrial service and repair or construction plumbing.

PLUMBING: CONSTRUCTION TECH

Associate in Arts Degree
Major Units: 45

Requirements for the Associate in Arts degree in Plumbing: Construction Tech may be met by completing 37 units of Required Courses and 8 units of Major Electives with a “C” or better along with General Education units.

By fulfilling the program requirements, students will have the necessary knowledge and skills for a career in Residential, Commercial, and Industrial Service and Repair or Construction Plumbing.

PROGRAM LEARNING OUTCOMES (PLOs)

Upon completion of the Degree/Certificate program, students are able to:

- Use hand and power tools, testing equipment, and P.P.E required for performing work in the plumbing construction industry in accordance with industry standards.
- Perform plumbing operations using hand and power tools in accordance with industry plumbing practices.
- Perform trade calculations related to plumbing practices.

REQUIRED COURSES

<table>
<thead>
<tr>
<th>SEMESTER I</th>
<th>UNITS</th>
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<tbody>
<tr>
<td>PLUMBNG 028 Plumbing Code I</td>
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<tr>
<td>PLUMBNG 112 Fundamentals of Plumbing</td>
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<tr>
<td>WELDG/E 201A Welding-Gas and Electric IA</td>
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GRADUATION REQUIREMENTS, PATHWAYS AND PROGRAMS OF STUDY

SELUMER II

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<td>Plumbing Layout and Estimating I</td>
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<td>PLUMBNG 029</td>
<td>Plumbing Code II</td>
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<tr>
<td>WELDG/E 202B</td>
<td>Welding – Gas and Electric II</td>
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SEUMER III

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<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>OPMANT 228</td>
<td>Steam Plant Operation I</td>
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<tr>
<td>PLUMBNG 027</td>
<td>Plumbing Layout and Estimating II</td>
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</tr>
<tr>
<td>PLUMBNG 033</td>
<td>Plumbing Code III</td>
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SEUMER IV

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<th>Course Title</th>
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<tbody>
<tr>
<td>OPMANT 229</td>
<td>Steam Plant Operation II</td>
<td>6</td>
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<td>PLUMBNG 031</td>
<td>Backflow Prevention Devices</td>
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<tr>
<td>PLUMBNG 246</td>
<td>Principles and Practices of Plumbing Design</td>
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MAJOR ELECTIVES

Select at least 8 units from the courses below

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>BLDGCTQ 101</td>
<td>Contract's License Law</td>
<td>3</td>
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<tr>
<td>ECONMT 181</td>
<td>Basic Wiring Practices</td>
<td>3</td>
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<tr>
<td>ECONMT 100</td>
<td>(O.S.H.A.) Safety Standards: Construction and Industry</td>
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<td>ENGLISH 101</td>
<td>College Reading and Composition I</td>
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<tr>
<td>LABR ST 115</td>
<td>Workplace Health and Safety</td>
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<td>LABR ST 127</td>
<td>Worker's Compensation</td>
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<td>MARKET 021</td>
<td>Principles of Marketing</td>
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<td>MATH 115</td>
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<td>MATH 245</td>
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<td>Cooperative Education- Plumbing</td>
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PLUMBING: CONSTRUCTION TECH

Certificate of Achievement

Major Units: 45

A Certificate of Achievement in Plumbing: Construction Tech may be earned by completing 37 units of Required Courses and 8 units of Major Electives listed under the Associate degree in Plumbing: Construction Tech with a “C” or better in each course.

REFRIGERATION & AIR CONDITIONING MECHANICS

<table>
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<tr>
<th>Award Title</th>
<th>Academic Plan</th>
<th>Award Type</th>
<th>GE Units</th>
<th>Required Course Units</th>
<th>Major Elective Units</th>
<th>Major Units</th>
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<tbody>
<tr>
<td>Refrigeration &amp; Air Conditioning Mechanics*</td>
<td>A.S.</td>
<td>21</td>
<td>42</td>
<td>6</td>
<td>48</td>
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<td>Refrigeration &amp; Air Conditioning Mechanics</td>
<td>C</td>
<td>42</td>
<td>6</td>
<td>48</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*This Associate Degree is eligible for a reduction of General Education requirements from 21 to 18 units; please consult with a counselor for more details.

These programs are Financial Aid Eligible.

PROGRAM OVERVIEW

Cooling and heating devices help regulate the temperature, humidity, and air quality in residential homes, commercial locations, and industrial facilities. Critical items like food and medicine require refrigeration to keep them from spoiling. Technicians repair, maintain, and install heating, air-conditioning, and refrigeration systems. Our program trains these technicians. Los Angeles Trade-Technical College offers an Associate of Science degree in Refrigeration and Air Conditioning Mechanics, as well as Certificate of Achievement.

By fulfilling the program requirements, students will have the necessary knowledge and skills for a career in residential, commercial, and Industrial service and repair of air conditioning, heating and refrigeration systems. Environmental Protection Agency (EPA) refrigerant certification will be received. Electrical controls, piping installation, compressor installation and repair are just some of the skills that would be mastered during this program.

PROGRAM LEARNING OUTCOMES (PLOs)

Upon completion of the Degree/Certificate program, students are able to:
- Students will maintain and repair air conditioning and refrigeration systems using appropriate test instruments and tools effectively and safely.
- Students will analyze the proper operation of air conditioning and refrigeration systems by applying the principles of thermodynamics and electrical theory.
- Students will certify the proper and efficient operation of air conditioning and refrigeration systems by measuring temperatures, pressures, combustion gasses, and air flow.

Los Angeles Trade-Technical College 2018 - 2020 GENERAL CATALOG
**REFRIGERATION & AIR CONDITIONING MECHANICS**

### Associate in Science Degree
Major Units: 48

Requirements for the Associate in Science degree in Refrigeration & Air Conditioning Mechanics may be met by completing 42 units of Required Courses and 6 unit of Major Electives with a “C” or better along with General Education units. Information on the General Education unit requirements may be found in the catalog under Graduation Requirements.

Courses from the day or evening programs should not be mixed in an attempt to meet the degree requirements.

#### OPTION 1: DAY PROGRAM

##### REQUIRED COURSES

<table>
<thead>
<tr>
<th>SEMESTER I</th>
<th>UNITS</th>
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<tbody>
<tr>
<td>REF A/C 111 †</td>
<td>Fundamentals of Refrigeration 3</td>
</tr>
<tr>
<td>REF A/C 101</td>
<td>Air Conditioning &amp; Refrigeration Principles &amp; Practices-First Semester 9</td>
</tr>
<tr>
<td>ECONMT 119</td>
<td>Applied Calculations and Measurements 3</td>
</tr>
<tr>
<td>-or- ECONMT 173</td>
<td>Electrical Mathematics I (3)</td>
</tr>
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<table>
<thead>
<tr>
<th>SEMESTER II</th>
<th>UNITS</th>
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</thead>
<tbody>
<tr>
<td>REF A/C 123</td>
<td>Pipe and Tube Joining Processes 1</td>
</tr>
<tr>
<td>REF A/C 124</td>
<td>Refrigeration Electrical Circuits and Controls 5</td>
</tr>
<tr>
<td>REF A/C 125</td>
<td>Refrigeration System Components 3</td>
</tr>
<tr>
<td>ECONMT 174</td>
<td>Electrical Mathematics II 3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SEMESTER III</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>REF A/C 133</td>
<td>Refrigeration Service Procedures I 3</td>
</tr>
<tr>
<td>REF A/C 134</td>
<td>Service for Commercial Refrigeration 3</td>
</tr>
<tr>
<td>REF A/C 135</td>
<td>Air Conditioning and Refrigeration 3</td>
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</table>

<table>
<thead>
<tr>
<th>SEMESTER IV</th>
<th>UNITS</th>
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<tbody>
<tr>
<td>REF A/C 141</td>
<td>Applied Refrigeration and Air Conditioning Principles 3</td>
</tr>
<tr>
<td>REF A/C 143</td>
<td>Refrigeration Servicing Procedures II 3</td>
</tr>
<tr>
<td>REF A/C 145</td>
<td>Air Conditioning and Refrigeration Mechanics 3</td>
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</tbody>
</table>

#### OPTION 2: EVENING PROGRAM

##### REQUIRED COURSES

<table>
<thead>
<tr>
<th>LEVEL</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>REF A/C 202</td>
<td>Refrigeration Fundamentals 3</td>
</tr>
<tr>
<td>REF A/C 250</td>
<td>Indoor Air Quality 3</td>
</tr>
<tr>
<td>ECONMT 115</td>
<td>Fundamentals of D.C. Electricity 3</td>
</tr>
<tr>
<td>ECONMT 173</td>
<td>Electrical Mathematics I 3</td>
</tr>
</tbody>
</table>

### MAJOR ELECTIVES

**DAY PROGRAM:** Select at least 6 units from the courses below

**EVENING PROGRAM:** Select at least 5 units from the courses below

<table>
<thead>
<tr>
<th>COURSE</th>
<th>UNITS</th>
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</thead>
<tbody>
<tr>
<td>BLDGCTQ 101</td>
<td>Contract’s License Law 3</td>
</tr>
<tr>
<td>ECONMT 100</td>
<td>(O.S.H.A.) Safety Standards: Construction and Industry 2</td>
</tr>
<tr>
<td>PHYSICS 012</td>
<td>Physics Fundamentals 3</td>
</tr>
<tr>
<td>REF A/C 100</td>
<td>Air Conditioning Project Management 3</td>
</tr>
<tr>
<td>REF A/C 161</td>
<td>Air Conditioning System Principles and Practices 4</td>
</tr>
<tr>
<td>REF A/C 162</td>
<td>Piping Principles and Practices 4</td>
</tr>
<tr>
<td>REF A/C 164</td>
<td>Gas Heating Systems 4</td>
</tr>
<tr>
<td>REF A/C 165</td>
<td>Ice Storage Air Conditioning 4</td>
</tr>
<tr>
<td>REF A/C 176</td>
<td>Heating and Air Conditioning I 3</td>
</tr>
<tr>
<td>REF A/C 177</td>
<td>Heating and Air Conditioning II 3</td>
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<tr>
<td>REF A/C 187</td>
<td>Servicing I 3</td>
</tr>
<tr>
<td>REF A/C 188</td>
<td>Servicing II 3</td>
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<tr>
<td>REF A/C 199</td>
<td>Mechanical Code I - HVACR 3</td>
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<tr>
<td>REF A/C 208</td>
<td>Refrigerant Management-EPA Section 608 Certification 4</td>
</tr>
<tr>
<td>REF A/C 209</td>
<td>North American Technician Excellence (Nate) - Air Conditioning Specialist Certification Preparation 4</td>
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<tr>
<td>REF A/C 210</td>
<td>Refrigeration System Efficiency Factors 3</td>
</tr>
<tr>
<td>REF A/C 941</td>
<td>Cooperative Education-Refrigeration &amp; Air Conditioning Mech 4</td>
</tr>
</tbody>
</table>

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**REFRIGERATION & AIR CONDITIONING MECHANICS**

### Certificate of Achievement
Major Units: 48

A Certificate of Achievement in Refrigeration & Air Conditioning Mechanics may be earned by completing 42 units of Required Courses and 6 unit of Major Electives listed under the Associate degree in Refrigeration & Air Conditioning with a “C” or better in each course.

Courses from the day or evening programs should not be mixed in an attempt to meet the degree requirements.

† Course currently unavailable
**RENEWABLE ENERGY CERTIFICATE AND DEGREE PATHWAYS**

### Weatherization and Energy Efficiency Certificate of Achievement (12 units)
- BLDGCTQ 007 Weatherization – Practical Energy Efficiency Techniques 3
- BLDGCTQ 008 Weatherization – Energy Efficiency Practices 1
- BLDGCTQ 009 Energy Auditor – Residential 3
- BLDGCTQ 012 Energy Auditor – Residential Practices 1
- ECONMT 105 Fundamentals of Solar Electricity 3

### Solar PV Installation and Maintenance Certificate of Achievement (26-28 units)
- BLDGCTQ 007 Weatherization – Practical Energy Efficiency Techniques 3
- BLDGCTQ 008 Weatherization – Energy Efficiency Practices 1
- BLDGCTQ 009 Energy Auditor – Residential 3
- BLDGCTQ 012 Energy Auditor – Residential Practices 1
- ECONMT 105 Fundamentals of Solar Electricity 3
- REF A/C 105 Solar Water & Pool Heating System Principles 3
- REF A/C 165 Ice Storage Air Conditioning 4

### Solar Thermal Installation and Maintenance Certificate of Achievement (30-32 units)
- BLDGCTQ 007 Weatherization – Practical Energy Efficiency Techniques 3
- BLDGCTQ 008 Weatherization – Energy Efficiency Practices 1
- BLDGCTQ 009 Energy Auditor – Residential 3
- BLDGCTQ 012 Energy Auditor – Residential Practices 1
- ECONMT 105 Fundamentals of Solar Electricity 3
- REF A/C 105 Solar Water & Pool Heating System Principles 3
- REF A/C 165 Ice Storage Air Conditioning 4

### REQUIRED COURSES FOR ALL RENEWABLE ENERGY DEGREES (12 UNITS)
- ECONMT 110 Renewable Energy Systems 3
- CRPNTRY 148 Computer Assisted Estimating I 3
- REF A/C 100 Air Conditioning Project Management 3
- ECONMT 171 Electrical Codes and Ordinances I 3
- or PLUMBNG 028 Plumbing Code I 3

### ELECTIVE COURSES FOR ALL RENEWABLE ENERGY DEGREES (4 UNITS)
Choose one or more courses from the list below to reach 4 units

### GENERAL EDUCATION (21 UNITS)
Refer to the General Education Requirements for specific courses to complete an Associate's of Science degree.

### RENEWABLE ENERGY: Energy Efficiency A.S. (60-62 units)

### RENEWABLE ENERGY: Solar PV Installation and Maintenance A.S. (60-62 units)

### RENEWABLE ENERGY: Solar Thermal Installation and Maintenance A.S. (62-64 units)
RENEWABLE ENERGY: ENERGY EFFICIENCY

Program Overview

LATTC offers a series of courses for individuals interested in working in the new, emerging renewable energy and energy efficiency industry. This degree program includes courses that enable individuals to: (1) have the requisite knowledge and skills to obtain employment in the energy/utility sector and (2) obtain skills and expertise to pursue other renewable energy and/or energy efficiency occupations.

By fulfilling the program requirements, students will have the necessary knowledge and skills for a career in residential and commercial renewable energy-related occupations.

Program Learning Outcomes (PLOs)

Upon completion of the Degree program, students are able to:

• Use energy efficiency diagnostic tools such as door blowers and duct blasters to determine air infiltration into buildings.
• Calculate energy usage in terms of electrical, mechanical and heat energy units.
• Recommend alternative energy methods to reduce utility costs and provide green energy substitutes for fossil fuel energy forms.

RENEWABLE ENERGY: ENERGY EFFICIENCY

Associate in Science Degree
Major Units: 40-42

Requirements for the Associate in Science degree in Renewable Energy Technician W/ Energy Efficiency Emphasis may be met by completing 36-38 units of Required Courses and 4 units of Major Electives with a “C” or better along with General Education units. Information on the General Education unit requirements may be found in the catalog under Graduation Requirements.
level in jobs such as: Los Angeles Department of Water and Power "Electrical Utility Helper" classification, Southern California Edison's "Utility Helper" position, City of Los Angeles "Electrical Craft Helper."

PROGRAM LEARNING OUTCOMES (PLOs)
Upon completion of the Certificate program, students are able to:
• Use electrical drawings and other related documents and graphics to communicate information effectively.
• Calibrate, use, and maintain tools, instrumentation and test equipment.

REQUIRED COURSES

<table>
<thead>
<tr>
<th>Major Units</th>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BLDGCTQ 010</td>
<td>Energy and Utility Industry Careers</td>
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<tr>
<td></td>
<td>ECONMT 100</td>
<td>(O.S.H.A.) Safety Standards: Construction and Industry</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>ECONMT 115</td>
<td>Fundamentals of D.C. Electricity</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>ECONMT 116</td>
<td>Hand Tools and Wiring Practices</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>ECONMT 119</td>
<td>Applied Calculations and Measurements</td>
<td>3</td>
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<tr>
<td></td>
<td>ECONMT 129</td>
<td>Fundamentals of Alternating Current</td>
<td>3</td>
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</tbody>
</table>

WEATHERIZATION AND ENERGY EFFICIENCY
Certificate of Achievement
Major Units: 12

A Certificate of Achievement in Weatherization and Energy Efficiency may be earned by completing 12 units of Required Courses listed, with a "C" or better in each course.

LATTC offers a series of courses for individuals interested in employment as weatherization and energy efficiency specialists. The courses are developed both for new building professionals and for professional builders/contractors already in the workforce in need of these skills. Homeowners may also find the introduction class helpful. Individuals will be prepared to be weatherization, energy efficiency, and retrofit technicians, home improvement retrofit trainers, residential air sealing technicians, insulation installers, energy conservation representatives or residential energy field auditors.

PROGRAM LEARNING OUTCOMES (PLOs)
Upon completion of the Certificate program, students are able to:
• Perform new and retrofit weatherization and related energy efficiency operations using hand and power tools, testing equipment, and other P.P.E. in accordance to industry standards.
• Evaluate site and remediation strategies through building orientation, erosion, water management.

REQUIRED COURSES

<table>
<thead>
<tr>
<th>Major Units</th>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
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<tbody>
<tr>
<td></td>
<td>BLDGCTQ 007</td>
<td>Weatherization - Practical Energy Efficiency Techniques</td>
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<td></td>
<td>BLDGCTQ 008</td>
<td>Weatherization - Energy Efficiency Practices</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>BLDGCTQ 009</td>
<td>Energy Auditor – Residential</td>
<td>3</td>
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<tr>
<td></td>
<td>BLDGCTQ 012</td>
<td>Energy Auditor – Residential Practices</td>
<td>1</td>
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<tr>
<td></td>
<td>BLDGCTQ 921</td>
<td>Cooperative Education-Building Construction Techniques</td>
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<td></td>
<td>ECONMT 100</td>
<td>(O.S.H.A.) Safety Standards: Construction and Industry</td>
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RENEWABLE ENERGY GENERATION, TRANSMISSION, AND DISTRIBUTION: POWERLINE MECHANIC

<table>
<thead>
<tr>
<th>Award Title</th>
<th>Academic Plan</th>
<th>Award Type</th>
<th>GE Units</th>
<th>Required Course Units</th>
<th>Major Elective Units</th>
<th>Major Units</th>
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<tr>
<td>Powerline Mechanic</td>
<td>T030905D</td>
<td>C</td>
<td>18-20</td>
<td></td>
<td></td>
<td>18-20</td>
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<tr>
<td>Utility Industry Fundamentals</td>
<td>T030904D</td>
<td>C</td>
<td>19-21</td>
<td></td>
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<td>19-21</td>
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</tbody>
</table>

At least 60 degree applicable units are required to earn an Associate degree.

*This Associate Degree may be eligible for a reduction of General Education requirements from 21 to 18 units; please consult with a counselor for more details.

These programs are Financial Aid Eligible.

PROGRAM OVERVIEW
LATTC offers Utility Industry Fundamentals and Powerline Mechanic Certificates of Achievement, as well as an Associate of Science degree in Renewable Energy Generation, Transmission, and Distribution with a Powerline Mechanic emphasis, for individuals interested in working in occupations in the utility industry sector—particularly transmission and distribution occupations. The courses comprising this program enable individuals to be prepared to obtain entry-level positions in the utility sector.

RENEWABLE ENERGY GENERATION, TRANSMISSION, & DISTRIBUTION: POWERLINE MECHANIC
Associate in Science Degree
Major Units: 40-43

Requirements for the Associate in Science degree in Renewable Energy Generation, Transmission, & Distribution: Powerline Mechanic may be met by completing 34-36 units of Required Courses and 6-7 unit of Major Electives with a "C" or better along with General Education units. Information on the General Education unit requirements may be found in the catalog under Graduation Requirements.

PROGRAM LEARNING OUTCOMES (PLOs)
Upon completion of the Degree program, students are able to:
• Identify problems with overhead and underground powerline equipment and systems following established procedures and using a variety of troubleshooting techniques.
• Analyze and solve routine technical problems related to electrical technology and power distribution by applying the principles of mathematics and science.
• Install, maintain and remove power poles, transformers, structures and other utility equipment.
REQUIRED COURSES

SEMESTER I

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECONMT 115</td>
<td>Fundamentals of D.C. Electricity</td>
<td>3</td>
</tr>
<tr>
<td>ECONMT 116</td>
<td>Hand Tools and Wiring Practices</td>
<td>2</td>
</tr>
<tr>
<td>ECONMT 100</td>
<td>(O.S.H.A.) Safety Standards: Construction and Industry</td>
<td>2</td>
</tr>
<tr>
<td>ECONMT 119</td>
<td>Applied Calculations and Measurements</td>
<td>3</td>
</tr>
<tr>
<td>ECONMT 173</td>
<td>Electrical Mathematics I (3)</td>
<td></td>
</tr>
<tr>
<td>MATH 115</td>
<td>Elementary Algebra (3-5)</td>
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SEMESTER II

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<td>Fundamentals of Alternating Current</td>
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</tr>
<tr>
<td>ECONMT 130</td>
<td>Principles of Industrial Electric Power</td>
<td>3</td>
</tr>
<tr>
<td>BLDGCTQ 010</td>
<td>Energy and Utility Industry Careers</td>
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SEMESTER III

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<tr>
<th>Course Code</th>
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</thead>
<tbody>
<tr>
<td>ELECL 601</td>
<td>Power Line Mechanic - Trainee (600 Hours)</td>
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</table>

MAJOR ELECTIVES

Select 6-7 units from the courses below

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>ECONMT 105</td>
<td>Fundamentals of Solar Electricity</td>
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<tr>
<td>ECONMT 110</td>
<td>Renewable Energy Systems</td>
<td>3</td>
</tr>
<tr>
<td>ECONMT 205</td>
<td>Solar Energy Installation &amp; Maintenance Principles and Practices</td>
<td>2</td>
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<td>ECONMT 215</td>
<td>Small Wind Energy Systems Principles and Practices</td>
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<tr>
<td>REF A/C 105</td>
<td>Solar Water &amp; Pool Heating System Principles</td>
<td>3</td>
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<tr>
<td>REF A/C 110</td>
<td>Solar Water &amp; Pool Heating System Practices</td>
<td>2</td>
</tr>
<tr>
<td>REF A/C 165</td>
<td>Ice Storage Air Conditioning</td>
<td>4</td>
</tr>
</tbody>
</table>

POWERLINE MECHANIC

Certificate of Achievement
Major Units: 18-20

A Certificate of Achievement in Powerline Mechanic may be earned by completing 18-20 units of Required Courses with a "C" or better in each course.

PROGRAM LEARNING OUTCOMES (PLOs)

Upon completion of the Certificate program, students are able to:
1. Practice appropriate procedures for self and others by safely utilizing equipment to complete industry procedures, including pole climbing, rigging and construction practices.

REQUIRED COURSES

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECONMT 173</td>
<td>Electrical Mathematics I (3)</td>
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</tr>
<tr>
<td>MATH 115</td>
<td>Elementary Algebra (3-5)</td>
<td></td>
</tr>
</tbody>
</table>

UTILITY INDUSTRY FUNDAMENTALS

Certificate of Achievement
Major Units: 19-21

A Certificate of Achievement in Utility Industry Fundamentals may be earned by completing 19-21 units of Required Courses with a "C" or better in each course.

PROGRAM LEARNING OUTCOMES (PLOs)

Upon completion of the Certificate program, students are able to:
1. Use utility distribution and transmission drawings and other related documents and graphics to communicate information effectively.
2. Calibrate, use, and maintain electrical utility tool, instrumentation and test equipment.

REQUIRED COURSES

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECONMT 117</td>
<td>Electrical Mathematics I (3)</td>
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</tr>
<tr>
<td>MATH 115</td>
<td>Elementary Algebra (3-5)</td>
<td></td>
</tr>
</tbody>
</table>

RENEWABLE ENERGY TECHNICIAN:
SOLAR PV INSTALLATION AND MAINTENANCE

A Certificate of Achievement in Solar PV Installation and Maintenance may be earned by completing 24-26 units of Required Courses with a "C" or better in each course.

PROGRAM LEARNING OUTCOMES (PLOs)

Upon completion of the Certificate program, students are able to:
1. Practice appropriate procedures for self and others by safely utilizing equipment to complete industry procedures, including pole climbing, rigging and construction practices.

REQUIRED COURSES

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
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<tbody>
<tr>
<td>ECONMT 173</td>
<td>Electrical Mathematics I (3)</td>
<td></td>
</tr>
<tr>
<td>MATH 115</td>
<td>Elementary Algebra (3-5)</td>
<td></td>
</tr>
</tbody>
</table>

At least 60 degree applicable units are required to earn an Associate degree.

*This Associate Degree may be eligible for a reduction of General Education requirements from 21 to 18 units; please consult with a counselor for more details.

These programs are Financial Aid Eligible.
Program Overview

LATTC offers a series of courses for individuals interested in working in the new, emerging field of solar energy. The courses enable individuals to be prepared to become certified by North American Board of Certified Energy Practitioners (NABCEP). The solar courses have also obtained NABCEP approval. In addition, one of the courses—Fundamentals of Solar Electricity (ECONMT 105)—prepares individuals to take the NABCEP Photovoltaic (PV) Entry Level Certificate of Knowledge test. This certificate program also prepares individuals and is required to successfully complete other renewable energy or energy efficiency Certificate of Achievements and degree programs at the college. As such, it serves as one of the “stackable” certificates in the renewable energy/energy efficiency certificate and degree pathway.

Renewable Energy Technician with Emphasis in Solar PV Installation and Maintenance

Associate in Science Degree

Major Units: 42

Requirements for the Associate in Science degree in Renewable Energy Technician with Emphasis in Solar PV Installation and Maintenance may be met by completing 38 units of Required Courses and 4 units of Major Electives with a “C” or better along with General Education units. Information on the General Education unit requirements may be found in the catalog under Graduation Requirements.

Program Learning Outcomes (PLOs)

Upon completion of the Degree program, students are able to:

- Use hand and power tools, testing equipment, and PPE required for performing solar (PV) installation and maintenance work in accordance with industry standards.
- Perform solar (PV) installation and maintenance work utilizing hand and power tools, testing equipment, and other PPE in accordance to industry standards.
- Function effectively individually and as a member of a technical team to execute energy efficiency operations.

Required Courses

**Semester I**

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECONMT 115</td>
<td>3</td>
</tr>
<tr>
<td>ECONMT 116</td>
<td>2</td>
</tr>
<tr>
<td>ECONMT 119</td>
<td>3</td>
</tr>
<tr>
<td>-or- ECONMT 173</td>
<td></td>
</tr>
<tr>
<td>-or- MATH 115 or higher</td>
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</tbody>
</table>

**Semester II**

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECONMT 105</td>
<td>3</td>
</tr>
<tr>
<td>ECONMT 129</td>
<td>3</td>
</tr>
<tr>
<td>ECONMT 100</td>
<td>2</td>
</tr>
<tr>
<td>CRPNTRY 111A</td>
<td>3</td>
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</table>

**Semester III**

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
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<tbody>
<tr>
<td>REF A/C 100</td>
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</tr>
<tr>
<td>ECONMT 110</td>
<td>3</td>
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<tr>
<td>CRPNTRY 111B</td>
<td>2</td>
</tr>
<tr>
<td>ECONMT 205</td>
<td>2</td>
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<tr>
<td>BLDGCTQ 010</td>
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**Semester IV**

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>CRPNTRY 148</td>
<td>3</td>
</tr>
<tr>
<td>ECONMT 171</td>
<td>3</td>
</tr>
<tr>
<td>-or- PLUMBNG 028</td>
<td></td>
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</table>

**Major Electives**

Select at least 4 units from the courses below

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
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<tbody>
<tr>
<td>REF A/C 115</td>
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</tr>
<tr>
<td>REF A/C 110</td>
<td>2</td>
</tr>
<tr>
<td>REF A/C 165</td>
<td>4</td>
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<tr>
<td>BLDGCTQ 007</td>
<td>3</td>
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<tr>
<td>BLDGCTQ 008</td>
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<tr>
<td>BLDGCTQ 009</td>
<td>3</td>
</tr>
<tr>
<td>BLDGCTQ 012</td>
<td>1</td>
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</tbody>
</table>

Solar PV Installation and Maintenance Technician

Certificate of Achievement

**Major Units: 24-26**

A Certificate of Achievement in Solar PV Installation and Maintenance may be earned by successfully completing 24-26 units from the Required Courses listed below with a “C” or better grade in each course.

Program Overview

Program outcomes include the use of hand and power tools to perform entry level laborer work within the utility energy sector, demonstration of sustainable industry principles and practices, perform calculations & measurements commiserate to entry level laborer work within the utility energy sector, and work independently & interdependently to safely accomplish shared professional outcomes. Skills gained from the program prepare a student for employment with contractors, individual facilities management companies, and other private or public agencies doing energy efficient building or performing energy upgrade retrofitting on existing residential and commercial buildings.

Recommended sequence of courses for the Solar PV Installation and Maintenance Technician certificate of Achievement.

Upon successful completion of this program, a student will have the basic knowledge and skills for employment in the solar PV area of the energy industry at the entry level.
PROGRAM LEARNING OUTCOMES (PLOs)

Upon completion of the Certificate program, students are able to:
• Use electrical drawings and other related documents and graphics to communicate information effectively.
• Perform basic solar (PV) installation and maintenance work utilizing hand and power tools, testing equipment, and other P.P.E. in accordance to industry standards.

RENEWABLE ENERGY TECHNICIAN: SOLAR THERMAL

RENEWABLE ENERGY TECHNICIAN W/ SOLAR THERMAL EMPHASIS

Award Title | Academic Plan | Award Type | GE Units | Required Course Units | Major Elective Units | Major Units
--- | --- | --- | --- | --- | --- | ---
Renewable Energy Technician: Solar Thermal* | T031089C | A.S. | 21* | 38 | 4 | 42
Solar Thermal Installation & Maintenance Technician | T031082D | C | 30 | - | 30

At least 60 degree applicable units are required to earn an Associate degree.

*This Associate Degree may be eligible for a reduction of General Education requirements from 21 to 18 units; please consult with a counselor for more details.

These programs are Financial Aid Eligible.

PROGRAM OVERVIEW

LATTC offers a series of courses for individuals interested in working in the new, emerging renewable energy and energy efficiency industry. This degree program includes courses that enable individuals to: (1) have the requisite knowledge and skills to obtain employment in the energy/utility sector, (2) be prepared to obtain solar thermal installation and maintenance entry-level occupations, and (3) obtain skills and expertise to pursue other renewable energy and/or energy efficiency occupations.

By fulfilling the program requirements, students have the necessary knowledge and skills for a career in residential and commercial solar thermal and renewable energy-related occupations.

RENEWABLE ENERGY TECHNICIAN: SOLAR THERMAL

Associate in Science Degree
Major Units: 42

Requirements for the Associate in Science degree in Renewable Energy Technician with Emphasis in Solar Thermal may be met by completing 38 units of Required Courses and 4 unit of Major Electives with a "C" or better along with General Education units. Information on the General Education unit requirements may be found in the catalog under Graduation Requirements.

PROGRAM LEARNING OUTCOMES (PLOs)

Upon completion of the Degree program, students will be able to:
• Perform solar thermal installations and maintenance work utilizing hand and power tools.
• Certify the proper and safe operation of solar thermal systems utilizing proper test equipment.
• Calculate solar thermal system efficiency, performance, and installation costs.

REQUIRED COURSES

Semester I | Units
--- | ---
ECONMT 119 | Applied Calculations and Measurements 3
or ECONMT 173 | Electrical Mathematics I (3)
or MATH 115 or higher | Elementary Algebra (3-5)
ECONMT 115 | Fundamentals of D.C. Electricity 3
ECONMT 116 | Hand Tools and Wiring Practices 2

Semester II | Units
--- | ---
ECONMT 129 | Fundamentals of Alternating Current 3
CRPNTRY 111A | Construction IA 3
CRPNTRY 111B | Construction IB 2
ECONMT 100 | (O.S.H.A.) Safety Standards: Construction and Industry 2

Semester III | Units
--- | ---
BLDGCTQ 010 | Energy and Utility Industry Careers 3
ECONMT 105 | Fundamentals of Solar Electricity 3
ECONMT 205 | Solar Energy Installation & Maintenance Principles and Practices 2
ECONMT 105 | Fundamentals of Solar Electricity 3
ECONMT 205 | Solar Energy Installation & Maintenance Principles and Practices 2

At least 60 degree applicable units are required to earn an Associate degree.

These programs are Financial Aid Eligible.
SOLAR THERMAL INSTALLATION & MAINTENANCE TECHNICIAN
Certificate of Achievement
Units: 30

A Certificate of Achievement in Solar Thermal Installation & Maintenance may be earned by successfully completing 30 units from the Required Courses listed below with a “C” or better grade in each course.

PROGRAM OVERVIEW:
Program outcomes include: the use of hand and power tools to perform entry level laborer work within the solar thermal energy sector, demonstration of sustainable industry principles and practices, perform calculations & measurements commensurate to entry level laborer work within the utility energy sector, and work independently & interdependently to safely accomplish shared professional outcomes. Skills gained from the program prepare a student for employment with contractors, individual facilities management companies, and other private or public agencies doing energy efficient building or performing solar thermal energy upgrade retro-fitting on existing residential and commercial buildings.

Upon successful completion of this program a student will have the basic knowledge and skills for employment in the solar thermal area of the energy industry at the entry level.

PROGRAM LEARNING OUTCOMES (PLOs)
Upon completion of the Certificate program, students will be able to:
• Students will perform solar thermal installations and maintenance work utilizing hand and power tools.
• Students will certify the proper and safe operation of solar thermal systems utilizing proper test equipment.
• Students will analyze solar thermal problems and efficiency with the measurement of temperatures, pressures and flow rates.

REQUIRED COURSES

SEMESTER I

<table>
<thead>
<tr>
<th>Course/Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECONMT 119 Applied Calculations and Measurements</td>
<td>3</td>
</tr>
<tr>
<td>or ECONMT 173 Electrical Mathematics I (3)</td>
<td></td>
</tr>
<tr>
<td>or MATH 115 or higher Elementary Algebra (3-5)</td>
<td></td>
</tr>
<tr>
<td>ECONMT 115 Fundamentals of D.C. Electricity</td>
<td>3</td>
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</table>

SEMESTER II

<table>
<thead>
<tr>
<th>Course/Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRPNTRY 111A Construction IA</td>
<td>3</td>
</tr>
<tr>
<td>REF A/C 105 Solar Water &amp; Pool Heating System Principles</td>
<td>3</td>
</tr>
<tr>
<td>REF A/C 110 Solar Water &amp; Pool Heating System Practices</td>
<td>2</td>
</tr>
<tr>
<td>ECONMT 129 Fundamentals of Alternating Current</td>
<td>3</td>
</tr>
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</table>

SEMESTER III

<table>
<thead>
<tr>
<th>Course/Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRPNTRY 111B Construction IB</td>
<td>2</td>
</tr>
<tr>
<td>REF A/C 165 Ice Storage Air Conditioning</td>
<td>4</td>
</tr>
<tr>
<td>ECONMT 100 (O.S.H.A.) Safety Standards: Construction and Industry</td>
<td>2</td>
</tr>
<tr>
<td>BLDGCTQ 010 Energy and Utility Industry Careers</td>
<td>3</td>
</tr>
<tr>
<td>ECONMT 116 Hand Tools and Wiring Practices</td>
<td>2</td>
</tr>
</tbody>
</table>

SOLID WASTE MANAGEMENT TECHNOLOGY
Certificate of Achievement
Units: 24

A Certificate of Achievement in Solid Waste Management Technology may be earned by completing 12 units of Required Courses and 12 units of Major Electives listed with a “C” or better in each course.

REQUIRED COURSES

<table>
<thead>
<tr>
<th>Course/Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>SWM TEK 101 Introduction to Solid Waste Management</td>
<td>3</td>
</tr>
<tr>
<td>SWM TEK 102 Collection Systems, Routing and Management</td>
<td>3</td>
</tr>
<tr>
<td>SWM TEK 107 Waste Reduction and Recycling</td>
<td>3</td>
</tr>
<tr>
<td>SWM TEK 108 Solid Waste Facilities</td>
<td>3</td>
</tr>
</tbody>
</table>
MAJOR ELECTIVES

Select at least 12 units from the courses below

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>CHEM 051</td>
<td>Fundamentals of Chemistry I</td>
<td>5</td>
</tr>
<tr>
<td>GEOLOGY 001</td>
<td>Physical Geology</td>
<td>3</td>
</tr>
<tr>
<td>LABR ST 002</td>
<td>Collective Bargaining</td>
<td>3</td>
</tr>
<tr>
<td>LABR ST 003</td>
<td>Labor Relations Law</td>
<td>3</td>
</tr>
<tr>
<td>MGMT 002</td>
<td>Organization and Management Theory</td>
<td>3</td>
</tr>
<tr>
<td>MGMT 033</td>
<td>Personnel Management</td>
<td>3</td>
</tr>
<tr>
<td>MICRO 020</td>
<td>General Microbiology</td>
<td>4</td>
</tr>
<tr>
<td>WASTE 012</td>
<td>Wastewater Operations I</td>
<td>3</td>
</tr>
</tbody>
</table>

STREET MAINTENANCE TECHNOLOGY

PROGRAM OVERVIEW

The Street Maintenance Technology program is designed primarily for those involved in public works maintenance operations. Asphalting and concrete pavement, construction, plan reading, calculation of materials, state and municipal codes, report writing, and heavy equipment operation and maintenance are some of the skills required in this field. To meet the training needs of persons interested in becoming a street maintenance worker, LATTC offers a Street Maintenance Associate degree and a Certificate of Achievement.

The street maintenance field has evolved into a broader category of workers. Workers in this area are primarily employed by governmental agencies that perform maintenance operations on public highways and streets. Professionals in this field are involved at the ground level through upper level management.

By fulfilling the program requirements, students will have the necessary knowledge and skills for a career as a Street Services Worker. Knowledge and skills will be mastered in the area of installation and maintenance of various types of street construction and material including asphalt and concrete. Students will also gain the supervisory skills needed to be promoted into management.

PROGRAM LEARNING OUTCOMES (PLOs)

Upon completion of the Degree/Certificate program, students are able to:

- Perform street services works utilizing hand and power tools.
- Perform calculations and measurements required for street services work in accordance to industry standards.
- Demonstrate various soft skills, such as the ability to work independently and interdependently to safely accomplish shared professional outcomes, needed for employment in the street maintenance technology industry.

STREET MAINTENANCE TECHNOLOGY

Associate in Arts Degree

Major Units: 36

Requirements for the Associate in Arts degree in Street Maintenance Technology may be met by completing 30 units of Required Courses and 6 units of Major Electives with a “C” or better along with General Education units. Information on the General Education unit requirements may be found in the catalog under Graduation Requirements.

REQUIRED COURSES

<table>
<thead>
<tr>
<th>SEMESTER</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEMESTER I</td>
<td></td>
</tr>
<tr>
<td>ST MAIN 103</td>
<td>Street Maintenance (Applied Calculations in Public Works)</td>
</tr>
<tr>
<td>ST MAIN 200</td>
<td>Survey of Street Services</td>
</tr>
<tr>
<td>ST MAIN 201</td>
<td>Street Maintenance I</td>
</tr>
<tr>
<td>SEMESTER II</td>
<td></td>
</tr>
<tr>
<td>ST MAIN 202</td>
<td>Street Maintenance II</td>
</tr>
<tr>
<td>ST MAIN 203</td>
<td>Street Maintenance III</td>
</tr>
<tr>
<td>SEMESTER III</td>
<td></td>
</tr>
<tr>
<td>ST MAIN 204</td>
<td>Report Writing for Public Works</td>
</tr>
<tr>
<td>ST MAIN 205</td>
<td>Issues and Practices in Public Works</td>
</tr>
<tr>
<td>SEMESTER IV</td>
<td></td>
</tr>
<tr>
<td>ST MAIN 206</td>
<td>Street Maintenance VI</td>
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<tr>
<td>ST MAIN 208</td>
<td>Street Maintenance Technology</td>
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</table>

MAJOR ELECTIVES

SELECT 6 UNITS FROM THE COURSES BELOW

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
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<tbody>
<tr>
<td>ST MAIN 209</td>
<td>Drivers License Preparation (Class “B”)</td>
<td>2</td>
</tr>
<tr>
<td>ST MAIN 210</td>
<td>Motor Sweeper Operator</td>
<td>3</td>
</tr>
<tr>
<td>ST MAIN 240</td>
<td>Introduction to Management in Public Works</td>
<td>3</td>
</tr>
<tr>
<td>ST MAIN 242</td>
<td>Management in Public Works</td>
<td>3</td>
</tr>
<tr>
<td>ST MAIN 245</td>
<td>Leadership in Public Works</td>
<td>3</td>
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<tr>
<td>ST MAIN 252</td>
<td>Management in Public Works II</td>
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</tr>
</tbody>
</table>

STREET MAINTENANCE TECHNOLOGY

Certificate of Achievement

Major Units: 36

A Certificate of Achievement in Street Maintenance Technology may be earned by completing 30 units of Required Courses and 6 units of Major Electives listed under the Associate degree in Street Maintenance Technology with a “C” or better in each course.
WATER SYSTEMS TECHNOLOGY

GRADUATION REQUIREMENTS, PATHWAYS AND PROGRAMS OF STUDY

WATER SYSTEMS TECHNOLOGY--WASTEWATER TECHNOLOGY

<table>
<thead>
<tr>
<th>Award Title</th>
<th>Academic Plan</th>
<th>Award Type</th>
<th>GE Units</th>
<th>Required Course Units</th>
<th>Major Elective Units</th>
<th>Major Units</th>
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<tbody>
<tr>
<td>Water Systems Technology--Wastewater Technology</td>
<td>T010755C</td>
<td>A.S.</td>
<td>21</td>
<td>21</td>
<td>9</td>
<td>30</td>
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<tr>
<td>Water Systems Technology-Supply Water Technology</td>
<td>T002917C</td>
<td>A.S.</td>
<td>21</td>
<td>21</td>
<td>9</td>
<td>30</td>
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<td>Supply Water Systems Technology</td>
<td>T010754D</td>
<td>C</td>
<td>30</td>
<td>-</td>
<td>30</td>
<td>30</td>
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</tbody>
</table>

At least 60 degree applicable units are required to earn an Associate degree.

These programs are Financial Aid Eligible.

PROGRAM OVERVIEW

Projected retirements of existing operators and expansion of the industry will fuel the demand for occupations in Supply Water Distribution. The net result of these shifts will be increased openings for personnel in all areas: plant operations, distribution/collection field maintenance, administration, customer service, line supervision, meter readers, engineers, and plant maintenance. The Water Systems Technology program at LATTC offers students a choice of two concentrations within water systems industry:

- **WASTEWATER OPTION** offers courses focusing on preliminary, primary, secondary, and tertiary treatment systems as well as disinfection methods, solids treatment, and solids and effluent disposal practices.
- **SUPPLY WATER OPTION** offers courses focused on the operation and design of water systems, wells, pumps and meters; water treatment for potable water; and technical phases of automatic controls, including power and code considerations.

PROGRAM LEARNING OUTCOMES (PLOs)

Upon completion of the Degree program, students are able to:

- Discuss Regulations governing wastewater treatment and organizations involved.
- Describe the supply water treatment processes and process control strategies.
- Use advanced mathematical operations to solve applied wastewater calculations and measurements.

WATER SYSTEMS TECHNOLOGY--WASTEWATER TECHNOLOGY

Associate in Science Degree

Major Units: 30

Requirements for the Associate in Science degree in Water Systems Technology--Wastewater Technology may be met by completing 21 units of Required Courses and 9 units of Major Elective Courses with a "C" or better, along with general education courses meeting graduation requirements.

In the State of California, there are five operator grade levels of profession in operating and maintaining publicly owned wastewater treatment facilities. Each grade level requires passing an examination administered by the State of California, after meeting qualifying experience and educational requirements. An Associate degree and 6 years of performance of an Operator Duty while holding a certificate, qualifies a person to be promoted to grade five level.

REQUIRED COURSES

<table>
<thead>
<tr>
<th>SEMESTER I</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>WATER 101</td>
<td>Intro to water supply, water treatment &amp; distribution</td>
</tr>
<tr>
<td>WATER 102</td>
<td>Basic Applied Calculations and Measurements</td>
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</table>

<table>
<thead>
<tr>
<th>SEMESTER II</th>
<th>UNITS</th>
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<tbody>
<tr>
<td>WASTE 017</td>
<td>Wastewater Operations (Public Health, Environment &amp; Management)</td>
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<tr>
<td>WASTE 012</td>
<td>Wastewater Operations I</td>
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<table>
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<tr>
<th>SEMESTER III</th>
<th>UNITS</th>
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<tr>
<td>WASTE 013</td>
<td>Wastewater Operations II</td>
</tr>
<tr>
<td>WASTE 014</td>
<td>Wastewater Operations III</td>
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<table>
<thead>
<tr>
<th>SEMESTER IV</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>WASTE 018</td>
<td>Advanced Applied Calculations and Measurements</td>
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MAJOR ELECTIVES

Select 9 units from the courses below

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<tbody>
<tr>
<td>WASTE 016</td>
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<tr>
<td>BUS 032</td>
</tr>
<tr>
<td>BUS 033</td>
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<tr>
<td>MATH 115</td>
</tr>
<tr>
<td>MATH 125</td>
</tr>
<tr>
<td>WATER 001</td>
</tr>
<tr>
<td>WATER 004</td>
</tr>
<tr>
<td>SWM TEK 101</td>
</tr>
<tr>
<td>LABR ST 002</td>
</tr>
<tr>
<td>LABR ST 003</td>
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</table>
WELDING, GAS AND ELECTRIC

<table>
<thead>
<tr>
<th>Award Title</th>
<th>Academic Plan</th>
<th>Award Type</th>
<th>GE Units</th>
<th>Required Course Units</th>
<th>Major Elective Units</th>
<th>Major Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Welding, Gas and Electric*</td>
<td>T002916C</td>
<td>A.S.</td>
<td>21</td>
<td>44</td>
<td>4</td>
<td>48</td>
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<tr>
<td>Welding, Gas and Electric</td>
<td>T021861D</td>
<td>C</td>
<td>44</td>
<td>4</td>
<td>4</td>
<td>48</td>
</tr>
</tbody>
</table>

At least 60 degree applicable units are required to earn an Associate degree.

*This Associate Degree is eligible for a reduction of General Education requirements from 21 to 18 units; please consult with a counselor for more details.

These programs are Financial Aid Eligible.

PROGRAM OVERVIEW

The Associate in Science degree and Certificate of Achievement in Welding Gas and Electric is a full-time program designed for individuals seeking entry level positions in the field. Students enrolling in this program should be able to commit to full-time student status, which is approximately 21 hours per week. This time commitment is necessary to allow for hands-on training with the lab applications used during the course of instruction.

LATTCC’s welding program is a Certified Welding Test Center. Individuals seeking certification as a welder can take the required certification exams on site.

By fulfilling the program requirements, students will have the necessary skills for all positions that are related to welding on plate. This program prepares the student for fabrication work, construction work, job shops and other entry-to-mid level related jobs.

PROGRAM LEARNING OUTCOMES (PLOs)

Upon completion of the Degree/Certificate program, students are able to:

- Name and select the appropriate hand and power tools in order to set up a portable oxyacetylene welding outfit and a 1” Vee Groove test Plate.
- Use welding equipment and jigs to set up and weld a Vee Groove in a vertical position using AWS Standards and safely procedures.
- Apply the proper procedures for calculation and measurements by sketching oblique, isometric and pictorial views to designated sizes.

WELDING, GAS AND ELECTRIC

Certificate of Achievement

Major Units: 30

A Certificate of Achievement in Supply Water Systems Technology may be earned by completing 30 units of Required Courses listed under for the Associate degree in Water System Technology-Supply Water Technology with a “C” or better in each course.

WATER SYSTEMS TECHNOLOGY-SUPPLY WATER TECHNOLOGY

Associate in Science Degree

Major Units: 30

Requirements for the Associate in Science degree in Water Systems Technology-Supply Water Technology may be met by completing 21 units of Required courses and 9 units of Major Elective courses with a “C” or better. Information on general education requirements may be found in the catalog under Graduation Requirements.

By fulfilling the program requirements, students are prepared for certification by the American Water Works Association (AWWA) as well as the State Department of Health. Students will also have the background to advance in the Supply Water Industry.

REQUIRED COURSES

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>WASTE 018</td>
<td>Water &amp; Wastewater Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>WATER 001</td>
<td>Water Distribution I</td>
<td>3</td>
</tr>
<tr>
<td>WATER 002</td>
<td>Water Distribution II</td>
<td>3</td>
</tr>
<tr>
<td>WATER 004</td>
<td>Water Purification I (Potable)</td>
<td>3</td>
</tr>
<tr>
<td>WATER 005</td>
<td>Water Treatment II (Potable)</td>
<td>3</td>
</tr>
<tr>
<td>WATER 101</td>
<td>Introduction to Supply Water Technology</td>
<td>3</td>
</tr>
<tr>
<td>WATER 102</td>
<td>Calculations and Measurement for Water Technology Programs</td>
<td>3</td>
</tr>
</tbody>
</table>

MAJOR ELECTIVES

Select 9 units from the courses below

<table>
<thead>
<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>BUS 032</td>
<td>Business Communications</td>
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<tr>
<td>BUS 033</td>
<td>Technical Report Writing</td>
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</tr>
<tr>
<td>LABR ST 002</td>
<td>Collective Bargaining</td>
<td>3</td>
</tr>
<tr>
<td>LABR ST 003</td>
<td>Labor Relations Law</td>
<td>3</td>
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<tr>
<td>MATH 115</td>
<td>Elementary Algebra</td>
<td>5</td>
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<tr>
<td>MATH 125</td>
<td>Intermediate Algebra</td>
<td>5</td>
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<tr>
<td>SWM TEK 101</td>
<td>Introduction to Solid Waste Management</td>
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<tr>
<td>WASTE 012</td>
<td>Wastewater Operations I</td>
<td>3</td>
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<tr>
<td>WASTE 016</td>
<td>Wastewater Operations V (Mechanics, Fluids, Electricity Management)</td>
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<tr>
<td>WASTE 017</td>
<td>Wastewater Operations VI (Public Health, Env. &amp; Mgt.)</td>
<td>3</td>
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</table>

SUPPLY WATER SYSTEMS TECHNOLOGY

Certificate of Achievement

Major Units: 30

A Certificate of Achievement in Supply Water Systems Technology may be earned by completing 30 units of Required Courses listed under for the Associate degree in Water System Technology-Supply Water Technology with a “C” or better in each course.
## REQUIRED COURSES

### SEMESTER I

<table>
<thead>
<tr>
<th>COURSE</th>
<th>TITLE</th>
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<tbody>
<tr>
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<td>Acetylene Welding, Cutting and Brazing</td>
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<tr>
<td>WELDG/E 112</td>
<td>Welding Related Technical Instructions I</td>
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</tr>
<tr>
<td>WELDG/E 113</td>
<td>Applied Mathematics I</td>
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<td>WELDG/E 124</td>
<td>Blueprint Reading I</td>
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### SEMESTER III

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<tbody>
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<td>Blueprint Reading II</td>
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<td>WELDG/E 133</td>
<td>Welding Related Technical Instruction III</td>
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### SEMESTER IV

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<td>WELDG/E 141</td>
<td>Electric Welding III</td>
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<td>WELDG/E 142</td>
<td>Inert Gas Welding (TIG and MIG)</td>
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<td>WELDG/E 143</td>
<td>Welding Related Technical Instruction IV</td>
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## MAJOR ELECTIVES

Select at least 4 units from the courses below

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<td>Welding Laboratory - Gas &amp; Electric</td>
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<td>WELDG/E 030</td>
<td>Welding Laboratory - Electric I</td>
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<td>WELDG/E 040</td>
<td>Welding Laboratory - Electric II</td>
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<td>WELDG/E 050</td>
<td>Welding Laboratory - Electric III</td>
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<td>WELDG/E 100</td>
<td>Metal Sculpture I</td>
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<tr>
<td>WELDG/E 101</td>
<td>Flux Cored Arc Welding</td>
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<tr>
<td>WELDG/E 200</td>
<td>Metal Sculpture II</td>
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<tr>
<td>WELDG/E 210</td>
<td>Metal Sculpting Laboratory</td>
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**WELDING, GAS AND ELECTRIC Certificate of Achievement**

**Major Units: 48**

A Certificate of Achievement in **Welding, Gas and Electric** may be earned by completing **44 units** of Required Courses and **4 units** of Major Electives listed under the Associate degree in Welding, Gas and Electric with a “C” or better in each course.
ABOUT THE PATHWAY
The Cosmetology Pathway (COS) offers programs of study that enable students to gain the competencies needed to build credentials for lifelong career success as they prepare to enter the workforce in Barbering, Cosmetology, and Skin Care fields. LATTC Cosmetology programs host external accreditation from the California State Board of Barbering and Cosmetology.

PATHWAY TEAM:
Dean: Ann Hamilton ~ Email: hamiltae@lattc.edu
Chair: Lina Chen ~ Email: ChenLH@lattc.edu

CONTACT US:
Office Location: Magnolia Hall - Room 129
Email: Cosmetology@lattc.edu
Phone number: (213) 763-7133
Hours of operation: Monday - Friday 9:00am to 5:00pm
Website: http://pathways.lattc.edu/catalog-programs/cos/

PATHWAY CERTIFICATES AND DEGREES

<table>
<thead>
<tr>
<th>PROGRAM OF STUDY</th>
<th>AWARD</th>
<th>PROGRAM OF STUDY</th>
<th>AWARD</th>
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<tbody>
<tr>
<td>Barbering</td>
<td>C</td>
<td>Skin Therapy</td>
<td>C</td>
</tr>
<tr>
<td>Cosmetology</td>
<td>AA/C</td>
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*Pathway name under review.*
GRADUATION REQUIREMENTS, PATHWAYS AND PROGRAMS OF STUDY

BARBERING

PROGRAM OVERVIEW

Barbering is the study and practice of professional care of the hair, skin and nails. The LATTC Barbering program offers training in hair styling and cutting; chemical treatments, waving, shaving techniques, hair cutting with clippers, razor, shears; skin care, manicures. The Barbering occupation is governed by stringent state laws which stipulate that all who enter the field must complete 1500 hours of instruction. The LATTC Barbering program is carefully designed to prepare students to pass the California State Board of Barbering and Cosmetology examination. This program integrates a mock state board exam to help familiarize the students with the examination procedures. By fulfilling the program requirements, students will have the knowledge and skills needed to successfully compete in the Barbering industry as barber stylists, barber salon managers, educators, make-up artists (both conventional and theatrical), product sales, manicurists and business owners.

Important Notes: All hours and operations on time cards are kept for five years per state requirements.

Please note regarding transfer hours: Transfer students with more than 300 hours from another Barbering program who have not received college level units from an accredited institution may not transfer into Los Angeles Trade Technical College. However, students who cannot transfer hours can start the LATTC Barbering program at the freshman level.

PROGRAM LEARNING OUTCOMES (PLOs)

Upon completion of the Certificate program, students are able to:

- Execute barbering skills in compliance with safety and sanitation rules set forth by the California Board of Barbering and Cosmetology using appropriate industry equipment and tools.
- Apply fundamental barbering techniques established by the California Board of Barbering and Cosmetology.
- Implement a variety of business practices, such as customer service and marketing skills, applicable to the barbering industry.

BARBERING

Certificate of Achievement
Major Units: 48

A Certificate of Achievement in Barbering may be earned by completing 48 units of Required Courses with a grade of “C” or better in each course.

REQUIRED COURSES

<table>
<thead>
<tr>
<th>SEMESTER I</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>BAR 113 Barbering I</td>
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<tr>
<td>BAR 114 Barbering II</td>
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<table>
<thead>
<tr>
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<tbody>
<tr>
<td>BAR 123 Barbering Jr. Salon I</td>
<td>6</td>
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<td>BAR 124 Barbering Jr. Salon II</td>
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<thead>
<tr>
<th>SEMESTER III</th>
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</thead>
<tbody>
<tr>
<td>BAR 133 Barbering Jr. Salon III</td>
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<td>BAR 134 Barbering Jr. Salon IV</td>
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<table>
<thead>
<tr>
<th>SEMESTER IV</th>
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<tbody>
<tr>
<td>BAR 143 Barbering Sr. Salon I</td>
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<tr>
<td>BAR 144 Barbering Sr. Salon II</td>
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</table>

Note: Completion of 1500 hours of instruction as required by the State Board of Cosmetology regulations.

COSMETOLOGY

PROGRAM OVERVIEW

Cosmetology is the study and practice of professional care of the hair, skin and nails. The LATTC Cosmetology program offers training in hair styling and cutting; chemical treatments, including hair coloring and lightening, permanent waving, hair straightening, hair cutting with clippers, razor, shears; skin care, and nail care. The Cosmetology occupation is governed by stringent state laws which stipulate that all who enter the field must complete 1600 hours of instruction. The LATTC Cosmetology program is carefully designed to prepare students to pass the California State Board of Barbering and Cosmetology examination. This program integrates a mock state board exam to help familiarize the students with the examination procedures. By fulfilling the program requirements, students will have the knowledge and skills needed to successfully compete in the Beauty industry as stylists, salon managers, educators, make-up artists (both conventional and theatrical), product sales, manicurists, and business owners.

Important Notes: All hours and operations on time cards are kept for five years per state requirements.

PROGRAM LEARNING OUTCOMES (PLOs)

Upon completion of the Certificate program, students are able to:

- Apply fundamental cosmetology techniques established by the California Board of Barbering and Cosmetology.
- Implement a variety of business practices, such as customer service and marketing skills, applicable to the cosmetology industry.

COSMETOLOGY

Certificate of Achievement
Major Units: 48

A Certificate of Achievement in Cosmetology may be earned by completing 48 units of Required Courses with a grade of “C” or better in each course.

REQUIRED COURSES

<table>
<thead>
<tr>
<th>SEMESTER I</th>
<th>UNITS</th>
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<tbody>
<tr>
<td>Cosmetology</td>
<td>T002940C A.A. 21</td>
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<tr>
<td>Cosmetology</td>
<td>T021873D C</td>
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</table>

At least 60 degree applicable units are required to earn an Associate degree.

*This Associate Degree is eligible for a reduction of General Education requirements from 21 to 18 units; please consult with a counselor for more details.

These programs are Financial Aid Eligible.
Please note regarding transfer hours: Transfer students with more than 300 hours from another Cosmetology program who have not received college level units from an accredited institution may not transfer into Los Angeles Trade Technical College. However, students who cannot transfer hours can start the LATTC Cosmetology program at the freshman level.

PROGRAM LEARNING OUTCOMES (PLOs)

Upon completion of the Degree/Certificate program, students are able to:

- Perform Cosmetology skills set forth by the California Board of barbering and Cosmetology in accordance with industry safety and sanitation regulations.
- Demonstrate skills necessary to build and maintain an ongoing clientele in the cosmetology salon environment and industry.
- Demonstrate knowledge of cosmetology industry requirements regarding good work ethic, resumes and employment guidelines, track and maintain business transactions.

COSMETOLOGY

Associate in Arts Degree
Major Units: 48

Requirements for the Associate in Arts degree in Cosmetology may be met by completing 48 units of Required Courses with a “C” or better along with General Education units. Information on the General Education unit requirements may be found in the catalog under Graduation Requirements.

REQUIRED COURSES

<table>
<thead>
<tr>
<th>SEMESTER I</th>
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<tbody>
<tr>
<td>CSMTLGY 111 Freshman Cosmetology</td>
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<tr>
<td>CSMTLGY 112 Junior Salon I</td>
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</table>

<table>
<thead>
<tr>
<th>SEMESTER II</th>
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</thead>
<tbody>
<tr>
<td>CSMTLGY 121 Junior Salon II</td>
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<tr>
<td>CSMTLGY 122 Junior Salon III</td>
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<table>
<thead>
<tr>
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<tbody>
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<td>CSMTLGY 131 Tinting I</td>
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<td>CSMTLGY 132 Tinting II</td>
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Note: Completion of 1500 hours of instruction as required by the State Board of Cosmetology regulations.

SUPPLEMENTARY ELECTIVES

<table>
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<tr>
<th>UNITS</th>
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<tbody>
<tr>
<td>CSMTLGY 101 Introduction to Cosmetology</td>
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<tr>
<td>CSMTLGY 210 Introduction to Hair Coloring and Styling</td>
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<tr>
<td>CSMTLGY 211 Intermediate Hair Coloring and Styling</td>
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<tr>
<td>CSMTLGY 214 Advanced Hair Coloring and Styling</td>
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<tr>
<td>CSMTLGY 215 Contemporary Styling Techniques</td>
</tr>
<tr>
<td>CSMTLGY 217 Multi-Texture Design (Level 1 to 2)</td>
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<tr>
<td>CSMTLGY 221 Advanced Makeup Techniques</td>
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COSMETOLOGY

Certificate of Achievement
Major Units: 48

A Certificate of Achievement in Cosmetology may be earned by completing 48 units of Required Courses listed under the Associate degree in Cosmetology with a grade of “C” or better in each course.
SKIN THERAPY

This program is Financial Aid Eligible.

PROGRAM OVERVIEW

The Trade Tech Skin Therapy Program offers training and technical instruction of manual, electrical and chemical facials, temporary hair removal, makeup, chemistry, health, safety, electricity, spa ecology, anatomy and physiology. The LATTC Skin Therapy program prepares student to pass the State Board examination and integrates a mock State Board written and practical exam to further familiarize students with the process.

The Skin Therapy program prepares students for entry level positions that include but are not limited to; skin therapists, spa managers, educators, makeup artist, holistic skin care professionals, business owners, product & equipment sales representatives or managers.

PROGRAM LEARNING OUTCOMES (PLOs)

Upon completion of the Certificate program, students are able to:

- Students will be able to perform a variety of skin care techniques, while observing the safety and sanitation rules set forth by the California Board of Barbering and Cosmetology.
- Students will be able to apply skin therapy theory and clinical practice to effectively interact with and service guests in a real-world setting.

SKIN THERAPY

Certificate of Achievement
Major Units: 24

A Certificate of Achievement in Skin Therapy may be earned by completing 24 units of Required Courses listed with a grade of "C" or better in each course.

REQUIRED COURSES

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<tr>
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<tbody>
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<td>CSMTLGY 035</td>
<td>Skin Therapy I</td>
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<td>CSMTLGY 036</td>
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<td>CSMTLGY 037</td>
<td>Skin Therapy III</td>
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<td>CSMTLGY 038</td>
<td>Skin Therapy IV</td>
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ABOUT THE PATHWAY

The Culinary Arts Pathway (CA) offers programs of study that enable students to gain the competencies needed to build credentials for lifelong career success as they prepare to enter the workforce in Food Service Industry. LATTC Culinary Arts programs host external accreditation from the American Culinary Federation Educational Foundation Accrediting Commission (ACFEFAC), at graduation with your AA degree you may apply for your first level of industry certification with the ACF.

PATHWAY TEAM

Dean: Vincent Jackson ~ Email: jacksovc@lattc.edu
Chair: Stacy Damaso ~ Email: DamasoSD@lattc.edu

CONTACT US

Office Location: Sage Hall (SA/H) - Room 118
Email: Culinary@lattc.edu
Phone number: (213) 763-7331
Hours of Operation: - Monday - Friday 7:00am to 5:00pm
Website: http://pathways.lattc.edu/catalog-programs/ca/

PATHWAY CERTIFICATES AND DEGREES

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<tr>
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<th>PROGRAM OF STUDY</th>
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<td>Baking Professional</td>
<td>AA/C</td>
<td>Restaurant Management</td>
<td>AA</td>
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<tr>
<td>Culinary Arts</td>
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*Pathway name under review.*
BAKING PROFESSIONAL

**Award Title**

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<td>-</td>
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At least 60 degree applicable units are required to earn an Associate degree.

*This Associate Degree is eligible for a reduction of General Education requirements from 21 to 18 units; please consult with a counselor for more details.

These programs are Financial Aid Eligible.

**PROGRAM OVERVIEW**

The Professional Baking program is accredited by the American Culinary Federation Educational Foundation (ACFEF). This two year program prepares students for successful careers within the hospitality community. Baking program students, under the direct supervision of their chef instructor, will discuss, prepare, and analyze various baked goods including quick breads, yeast breads, laminated dough, specialty and wedding cakes, cookies, batters, and restaurant-style plated desserts. Baking formulas, cost controls, ingredient identification and usage is practiced throughout the program. Students prepare baked goods on a daily basis for a retail bakery located on the LATTC campus, the college cafeteria and faculty dining room as well as catering for special events and holiday functions.

The Professional Baking program will prepare students for employment in areas of baking and pastry arts. Students will demonstrate the ability to prepare and formulate baking/pastry recipes, assess food costs and sales prices, and organize daily tasks for successful completion of baked goods. The National Restaurant Association Serve Safe Exam is administered during the first semester.

**PROGRAM LEARNING OUTCOMES (PLOs)**

Upon completion of the Degree/Certificate program, students are able to:

- Recognize industry standards for entry, supervisory, and management level employment.
- Demonstrate professional baking techniques according to industry standards and competencies.
- Evaluate proper practices in various industry segments.

**BAKING PROFESSIONAL**

**Associate in Arts Degree**

Major Units: 48

Requirements for the Associate in Arts degree in Baking Professional may be met by completing 48 units of Required Courses with a “C” or better along with General Education units. Information on the General Education unit requirements may be found in the catalog under Graduation Requirements.

**CULINARY ARTS**

**Award Title**

<table>
<thead>
<tr>
<th>Academic Plan</th>
<th>Award Type</th>
<th>GE Units</th>
<th>Course Units</th>
<th>Major Units</th>
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At least 60 degree applicable units are required to earn an Associate degree.

*This Associate Degree is eligible for a reduction of General Education requirements from 21 to 18 units; please consult with a counselor for more details.

These programs are Financial Aid Eligible.
PROGRAM OVERVIEW

The Culinary Arts department at LATTC has the proud history of being one of the oldest cooking schools in the nation. The program offers an extensive “hands on” and theory based culinary arts education that prepares students to enter the highly competitive hospitality industry. The department hosts professional industry-seasoned chefs as faculty, bringing their experiences from around the world. In addition to rigorous classroom instruction, students are trained in a working foodservice facility while attending classes. The Culinary Arts Associate in Arts degree and Certificate of Achievement are recognized and accredited by the American Culinary Federation Educational Foundation (ACFEF). On graduating from the LATTC Culinary Arts program, students are qualified to work as cooks, line cooks, caterers, private chefs, chef assistants, and sous chefs.

The Culinary Arts program has successfully prepared students for the hospitality industry for many years. By fulfilling the program requirements, students will possess a working foundation of skills necessary to work in a professional industry kitchen. Within the program, students will illustrate a working foundation of skills necessary to work in a professional industry kitchen. Students are proficient in cooking techniques and terminology including meat fabrication and cookery, hot and cold sauce preparation, vegetable identification and production, task organizing and time management. Successful students will graduate with a working knowledge of culinary nutrition and fundamental management skills, as well as National Restaurant Association Serve Safe Certification.

PROGRAM LEARNING OUTCOMES (PLOs)

Upon completion of the Degree/Certificate program, students are able to:

- Recognize industry standards for entry, supervisory, and management level employment.
- Demonstrate professional culinary techniques according to industry standards.
- Evaluate proper practices in various industry segments.

CULINARY ARTS

Associate in Arts Degree

Major Units: 48

Requirements for the Associate in Arts degree in Culinary Arts may be met by completing 48 units of Required Courses with a grade of "C" or better along with General Education units. Information on the General Education unit requirements may be found in the catalog under Graduation Requirements.

REQUIRED COURSES

<table>
<thead>
<tr>
<th>SEMESTER I</th>
<th>UNITS</th>
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<tbody>
<tr>
<td>CLN ART 120</td>
<td>Front of House/Dining Services</td>
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<tr>
<td>CLN ART 111</td>
<td>Culinary Arts Orientation I</td>
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<tr>
<td>CLN ART 112</td>
<td>Sanitation and Safety</td>
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<td>CLN ART 170</td>
<td>Culinary Nutrition</td>
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<tbody>
<tr>
<td>CLN ART 121</td>
<td>Garde Manger II—Baking</td>
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<tr>
<td>CLN ART 122</td>
<td>Garde Manger II - Charcuterie</td>
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CULINARY ARTS

Certificate of Achievement

Major Units: 48

Requirements for the Certificate of Achievement in Culinary Arts may be met by completing 48 units of Required Courses listed under the Associate degree in Culinary Arts with a "C" or better in each course.

RESTAURANT MANAGEMENT

PROGRAM OVERVIEW

The Greater Los Angeles area needs qualified individuals who can lead the numerous hotel, restaurant, and catering kitchens in our region. The Restaurant Management program at LATTC offers a foundation in management theory, cooking fundamentals, sanitation, safety and restaurant supervision. Students practice and demonstrate culinary and management skills in a working foodservice facility located on the college campus.

The Restaurant Management program provides a foundation in kitchen fundamentals including preparation of hot and cold sauces, vegetable and meat cookery, identifying accounting procedures and reports, operating kitchen equipment, and knowledge of management theory and supervision techniques.

By fulfilling the program requirements, students are prepared to find positions as restaurant managers, assistant managers, kitchen managers, dining room managers, or kitchen supervisors.
PROGRAM LEARNING OUTCOMES (PLOs)

Upon completion of the Degree program, students are able to:
- Demonstrate food service management skills in the hospitality industry.
- Demonstrate kitchen fundamentals as prescribed by industry standards.
- Employ management and supervision techniques in a hospitality setting.

RESTAURANT MANAGEMENT

Associate in Arts Degree

Major Units: 42

Requirements for the Associate in Arts degree in Restaurant Management may be met by completing 42 units of Required Courses with a “C” or better along with General Education units. Information on the General Education unit requirements may be found in the catalog under Graduation Requirements.

REQUIRED COURSES

<table>
<thead>
<tr>
<th>SEMESTER I</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLN ART 111</td>
<td>Culinary Arts Orientation I</td>
</tr>
<tr>
<td>CLN ART 112</td>
<td>Sanitation and Safety</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SEMESTER II</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCTG 021</td>
<td>Bookkeeping and Accounting I</td>
</tr>
<tr>
<td>RESTMGT 100</td>
<td>Restaurant Management</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SEMESTER III</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLN ART 121</td>
<td>Garde Manger I - Baking</td>
</tr>
<tr>
<td>CLN ART 122</td>
<td>Garde Manger II - Charcuterie</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SEMESTER IV</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLN ART 131</td>
<td>Culinary Arts - Breakfast I</td>
</tr>
<tr>
<td>CLN ART 235</td>
<td>Menu Planning and Purchasing</td>
</tr>
<tr>
<td>CLN ART 240</td>
<td>Restaurant Supervision and Training</td>
</tr>
</tbody>
</table>

NOTE: Most Baking/Culinary Arts courses have prerequisites and/or corequisites. Refer to the Course Descriptions section of the catalog for additional details.
ABOUT THE PATHWAY

The Design & Media Arts Pathway (DMA) offers programs of study that enable students to gain the competencies needed to build credentials for lifelong career success as they prepare to enter the workforce in creative and technology related fields.

PATHWAY TEAM

Dean: Dr. Henan Joof ~ Email: JoofHL@lattc.edu
Chair: Joseph Guerrieri ~ Email: GuerriJ@lattc.edu
Counselor: Angela Ortiz ~ Email: OrtizAM@lattc.edu
Navigator: Armine Javadyan ~ Email: JavadyA@lattc.edu
Office Staff: Tessie Fernando ~ Email: FernanME@lattc.edu

CONTACT US

Office Location: Cypress Hall/CY - Room 222
Email: DMApathway@lattc.edu
Phone number: (213) 763-3640
Hours of operation: Monday – Friday: 8:00am to 4:30pm
Pathway Website: http://pathways.lattc.edu/catalog-programs/dmapath/

PATHWAY CERTIFICATES AND DEGREES

<table>
<thead>
<tr>
<th>PROGRAM OF STUDY</th>
<th>AWARD</th>
<th>PROGRAM OF STUDY</th>
<th>AWARD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Digital Media</td>
<td>AS/C</td>
<td>Fashion Technology</td>
<td>AA/C</td>
</tr>
<tr>
<td>Digital Media: Digital Video and Audio</td>
<td>AS/C</td>
<td>Sign Graphics</td>
<td>AA/C</td>
</tr>
<tr>
<td>Digital Media Mobile Application and Web Design</td>
<td>AS/C</td>
<td>Tailoring</td>
<td>C</td>
</tr>
<tr>
<td>Fashion Design</td>
<td>AA/C</td>
<td>Visual Communications</td>
<td>AA/C</td>
</tr>
<tr>
<td>Fashion Merchandising</td>
<td>AS/C</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
DIGITAL MEDIA

**PROGRAM OVERVIEW**

The Digital Media program in the Design and Media Arts Pathway provides instruction using industry recognized software and cutting edge digital tools to promote best practices in the innovative design of digital media across a variety of delivery platforms. Students who complete this program will be prepared to enter careers as mobile and interactive application developers, web designers, audio and video producers as well as other technology-driven, creative fields.

**PROGRAM LEARNING OUTCOMES (PLOs)**

Upon completion of the Degree, students will be able to:

- Use technology-related applications to produce creative work in a variety of emerging, multimedia fields.
- Create original images for a variety of digital media applications that reflect industry standards.

**REQUIRED COURSES**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIGLMD 100</td>
<td>Introduction to Digital Video</td>
<td>3</td>
</tr>
<tr>
<td>DIGLMD 101</td>
<td>Fundamentals of Digital Media</td>
<td>3</td>
</tr>
<tr>
<td>DIGLMD 103</td>
<td>Fundamentals of Digital Audio</td>
<td>3</td>
</tr>
<tr>
<td>DIGLMD 104</td>
<td>Digital Media Entrepreneurship</td>
<td>3</td>
</tr>
<tr>
<td>DIGLMD 105</td>
<td>Visual Design for Digital Media</td>
<td>3</td>
</tr>
<tr>
<td>DIGLMD 152</td>
<td>Digital Art</td>
<td>3</td>
</tr>
</tbody>
</table>

At least 60 degree applicable units are required to earn an Associate degree. These programs are Financial Aid Eligible.

DIGITAL MEDIA

**Certificate of Achievement**

Major Units: 18

Requirements for the Certificate of Achievement in Digital Media may be met by completing 18 units of Required Courses listed under the Associate degree in Digital Media with a “C” or better in each course.

**PROGRAM OVERVIEW**

The Digital Media: Digital Video and Audio program in the Design and Media Arts Pathway uses industry recognized software and cutting edge digital tools to promote best practices in the innovative design of digital video and audio across a variety of delivery platforms. Students who complete this program will be prepared to enter careers in film, television, music and other media related industries.

**REQUIRED COURSES**

<table>
<thead>
<tr>
<th>Award Title</th>
<th>Academic Plan</th>
<th>Award Type</th>
<th>GE Units</th>
<th>Required Course Units</th>
<th>Major Elective Units</th>
<th>Major Units</th>
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</thead>
<tbody>
<tr>
<td>Digital Media: Digital Video and Audio</td>
<td>T035296C</td>
<td>A.S.</td>
<td>21</td>
<td>30</td>
<td>-</td>
<td>30</td>
</tr>
<tr>
<td>Digital Media: Digital Video and Audio</td>
<td>T035292D</td>
<td>C</td>
<td>21</td>
<td>30</td>
<td>-</td>
<td>30</td>
</tr>
</tbody>
</table>

At least 60 degree applicable units are required to earn an Associate degree. These programs are Financial Aid Eligible.
Los Angeles Trade-Technical College

Graduation Requirements, Pathways and Programs of Study

PROGRAM LEARNING OUTCOMES (PLOs)

Upon completion of the Degree/Certificate program, students are able to:

• Create professional quality video and audio productions using a variety of digital tools and technologies.

DIGITAL MEDIA: DIGITAL VIDEO AND AUDIO

Associate in Science Degree
Major Units: 30

Requirements for the Associate in Science degree in Digital Media: Digital Video and Audio may be met by completing 30 units of Required Courses with a “C” or better along with General Education units. Information on the General Education unit requirements may be found in the catalog under Graduation Requirements.

REQUIRED COURSES

<table>
<thead>
<tr>
<th>SEMESTER I</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIGLMD 100</td>
<td>Introduction to Digital Video</td>
</tr>
<tr>
<td>DIGLMD 101</td>
<td>Fundamentals of Digital Media</td>
</tr>
<tr>
<td>DIGLMD 103</td>
<td>Fundamentals of Digital Audio</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SEMESTER II</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIGLMD 104</td>
<td>Digital Media Entrepreneurship</td>
</tr>
<tr>
<td>DIGLMD 105</td>
<td>Visual Design for Digital Media</td>
</tr>
<tr>
<td>DIGLMD 152</td>
<td>Digital Art</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SEMESTER III</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIGLMD 106</td>
<td>Essentials for Live Audio</td>
</tr>
<tr>
<td>DIGLMD 107</td>
<td>Digital Audio Studio Recording</td>
</tr>
<tr>
<td>DIGLMD 110</td>
<td>Visual Effects and Motion Graphics</td>
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</table>

<table>
<thead>
<tr>
<th>SEMESTER IV</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIGLMD 115</td>
<td>Video Editing</td>
</tr>
</tbody>
</table>

DIGITAL MEDIA: MOBILE APPLICATION AND WEB DESIGN

Certificate of Achievement
Major Units: 30

A Certificate of Achievement in Digital Media: Digital Video and Audio may be earned by completing 30 units of Required Courses listed under the Associate degree in Digital Media: Digital Video and Audio with a “C” or better in each course.

PROGRAM OVERVIEW

The Digital Media: Mobile Application and Web Design program in the Design and Media Arts Pathway uses industry recognized tools and technologies to promote best practices in the design, development, testing and delivery of a variety of applications. Students who complete this program will be prepared to enter careers as mobile and interactive application developers, web designers and other technology related careers in this rapidly evolving industry.

PROGRAM LEARNING OUTCOMES (PLOs)

Upon completion of the Degree/Certificate program, students are able to:

• Students will be able to develop a variety of mobile and web application at a level commensurate with industry standards.

DIGITAL MEDIA MOBILE APPLICATION AND WEB DESIGN

Associate in Science Degree
Major Units: 45

Requirements for the Associate in Science degree in Digital Media Mobile Application and Web Design may be met by completing 45 units of Required Courses with a “C” or better along with General Education units. Information on the General Education unit requirements may be found in the catalog under Graduation Requirements.

REQUIRED COURSES

<table>
<thead>
<tr>
<th>SEMESTER I</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIGLMD 100</td>
<td>Introduction to Digital Video</td>
</tr>
<tr>
<td>DIGLMD 101</td>
<td>Fundamentals of Digital Media</td>
</tr>
<tr>
<td>DIGLMD 103</td>
<td>Fundamentals of Digital Audio</td>
</tr>
<tr>
<td>DIGLMD 104</td>
<td>Digital Media Entrepreneurship</td>
</tr>
</tbody>
</table>
137  Graduation Requirements, Pathways and Programs of Study

**SEMESTER II**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIGLMD 105</td>
<td>Visual Design for Digital Media</td>
<td>3</td>
</tr>
<tr>
<td>DIGLMD 152</td>
<td>Digital Art</td>
<td>3</td>
</tr>
<tr>
<td>DIGLMD 116</td>
<td>Introduction to Web Page Design</td>
<td>3</td>
</tr>
<tr>
<td>DIGLMD 117</td>
<td>Intermediate Web Page Design</td>
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**SEMESTER III**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>DIGLMD 118</td>
<td>Image Manipulation for Multimedia</td>
<td>3</td>
</tr>
<tr>
<td>DIGLMD 150</td>
<td>Introduction to Mobile Applications</td>
<td>3</td>
</tr>
<tr>
<td>DIGLMD 151</td>
<td>Introduction to Interface Design</td>
<td>3</td>
</tr>
<tr>
<td>DIGLMD 153</td>
<td>2D Animation</td>
<td>3</td>
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**SEMESTER IV**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>DIGLMD 155</td>
<td>Mobile Application Production</td>
<td>3</td>
</tr>
<tr>
<td>COINFO 042</td>
<td>Video Game Programming</td>
<td>3</td>
</tr>
<tr>
<td>COINFO 742</td>
<td>Web Development Using PHP MySQL</td>
<td>3</td>
</tr>
</tbody>
</table>

**DIGITAL MEDIA MOBILE APPLICATION AND WEB DESIGN**

Certificate of Achievement
Major Units: 45

A Certificate of Achievement in Digital Media Mobile Application and Web Design may be earned by completing 45 units of Required Courses listed under the Associate degree in Digital Media Mobile Application and Web Design with a "C" or better in each course.

**FASHION**

<table>
<thead>
<tr>
<th>Award Title</th>
<th>Academic Plan</th>
<th>Award Type</th>
<th>GE Units</th>
<th>Required Course Units</th>
<th>Major Elective Units</th>
<th>Major Units</th>
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</thead>
<tbody>
<tr>
<td>Fashion Design* (day only)</td>
<td>T02825C</td>
<td>AA</td>
<td>21</td>
<td>46</td>
<td>2</td>
<td>48</td>
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<tr>
<td>Fashion Design* (day only)</td>
<td>T021865D</td>
<td>C</td>
<td>21</td>
<td>46</td>
<td>2</td>
<td>48</td>
</tr>
<tr>
<td>Fashion Technology*</td>
<td>T008501C</td>
<td>A.A.</td>
<td>21*</td>
<td>36</td>
<td>6</td>
<td>42</td>
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<tr>
<td>Fashion Technology*</td>
<td>T021866D</td>
<td>C</td>
<td>28</td>
<td>-</td>
<td>-</td>
<td>28</td>
</tr>
</tbody>
</table>

At least 60 degree applicable units are required to earn an Associate degree.

*This Associate Degree is eligible for a reduction of General Education requirements from 21 to 18 units; please consult with a counselor for more details. These programs are Financial Aid Eligible.

**PROGRAM OVERVIEW**

The Los Angeles Trade Technical College Fashion Design and Fashion Technology programs prepare students for careers in all areas of apparel manufacturing from assistant designers to production management.

**PROGRAM LEARNING OUTCOMES (PLOs)**

Upon completion of the Degree/Certificate program, students are able to:

- Design and construct apparel, from conception to finished garment, using industry standard tools.
- Develop industry recognized documents and technical specifications for production and product development of apparel.

**FASHION DESIGN**

Associate in Arts Degree
Major Units: 48

Requirements for the Associate in Arts degree in Fashion Design may be met by completing 46 units of Required Courses and 2 units of Major Electives with a "C" or better along with General Education units. Information on the General Education unit requirements may be found in the catalog under Graduation Requirements.

The daytime fashion design classes are part of a structured program, which each student are strongly advised take in sequential order. Each semester is divided into two segments, and classes meet five days per week.
REQUIRED COURSES

SEMESTER I

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>FASHDSN 111</td>
<td>Clothing Construction</td>
<td>5</td>
</tr>
<tr>
<td>FASHDSN 112</td>
<td>Basic Fashion Art and Design</td>
<td>5</td>
</tr>
<tr>
<td>FASHDSN 119A</td>
<td>History of Costume I</td>
<td>1.5</td>
</tr>
</tbody>
</table>

SEMESTER II

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>FASHDSN 120</td>
<td>Basic Pattern Making &amp; Design</td>
<td>5</td>
</tr>
<tr>
<td>FASHDSN 122</td>
<td>Grading and Marker Making</td>
<td>5</td>
</tr>
<tr>
<td>FASHDSN 125A</td>
<td>Textiles</td>
<td>1.5</td>
</tr>
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</table>

SEMESTER III

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>FASHDSN 130</td>
<td>Draping &amp; Design</td>
<td>5</td>
</tr>
<tr>
<td>FASHDSN 132</td>
<td>Advanced Patterns and Design</td>
<td>5</td>
</tr>
<tr>
<td>FASHDSN 264</td>
<td>Apparel Computer Analysis</td>
<td>1</td>
</tr>
</tbody>
</table>

SEMESTER IV

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>FASHDSN 139</td>
<td>Coordinated Sportswear</td>
<td>2</td>
</tr>
<tr>
<td>FASHDSN 141</td>
<td>Advanced Design</td>
<td>5</td>
</tr>
<tr>
<td>FASHDSN 142</td>
<td>Manufacturing Production</td>
<td>5</td>
</tr>
</tbody>
</table>

MAJOR ELECTIVES

Select at least 2 units from the courses below

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>FASHDSN 118</td>
<td>Advanced Clothing Construction</td>
<td>2</td>
</tr>
<tr>
<td>FASHDSN 119B</td>
<td>History of Costume II</td>
<td>1.5</td>
</tr>
<tr>
<td>FASHDSN 125B</td>
<td>Textile Science</td>
<td>1.5</td>
</tr>
<tr>
<td>FASHDSN 126</td>
<td>Manufacturing and Design Room Processes</td>
<td>1</td>
</tr>
<tr>
<td>FASHDSN 137</td>
<td>Bustier Creation</td>
<td>2</td>
</tr>
<tr>
<td>FASHDSN 140</td>
<td>Advanced Draping and Design</td>
<td>2</td>
</tr>
<tr>
<td>FASHDSN 147</td>
<td>Fashion Show Production</td>
<td>2</td>
</tr>
<tr>
<td>FASHDSN 148</td>
<td>Active Wear Design</td>
<td>2</td>
</tr>
<tr>
<td>FASHDSN 151</td>
<td>Advanced Arts and Design</td>
<td>2</td>
</tr>
<tr>
<td>FASHDSN 941</td>
<td>Cooperative Education- Fashion Design</td>
<td>4</td>
</tr>
<tr>
<td>FASHMER 001</td>
<td>Entrepreneurial Fashion</td>
<td>3</td>
</tr>
<tr>
<td>FASHMER 020</td>
<td>Apparel Product Development</td>
<td>3</td>
</tr>
<tr>
<td>FASHMER 025</td>
<td>Fashion and Industry Interchange</td>
<td>3</td>
</tr>
<tr>
<td>FASHMER 050</td>
<td>International Fashion Business</td>
<td>3</td>
</tr>
</tbody>
</table>

FASHION DESIGN

Certificate of Achievement

Major Units: 48

A Certificate of Achievement in Fashion Design may be earned by completing 46 units of Required Courses and 2 units of Major Electives listed under the Associate degree in Fashion Design with a "C" or better in each course.

FASHION TECHNOLOGY

Associate in Arts Degree

Major Units: 42

Requirements for the Associate in Arts degree in Fashion Technology may be met by completing 36 units of Required Courses and 6 units of Major Electives with a "C" or better along with General Education units. Information on the General Education unit requirements may be found in the catalog under Graduation Requirements.

The Fashion Technology Associate in Arts degree is designed for those students attending in the evening and on Saturday. Since the structure of the evening courses does not allow for extensive lab experience, the department has a comprehensive internship program offered through the Cooperative Education Office, which allows students to obtain valuable on the job experience.

PROGRAM LEARNING OUTCOMES (PLOs)

Upon completion of the Degree/Certificate program, students are able to:

- Design and construct apparel, from conception to finished garment, using industry standard tools.
- Develop industry recognized documents and technical specifications for production and product development of apparel.
- Use technology related design applications a level commensurate with apparel industry standards.

REQUIRED COURSES

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>FASHDSN 225</td>
<td>Pattern Making and Design I</td>
<td>2</td>
</tr>
<tr>
<td>FASHDSN 226</td>
<td>Pattern Making and Design II</td>
<td>2</td>
</tr>
<tr>
<td>FASHDSN 227</td>
<td>Pattern Making and Design III</td>
<td>2</td>
</tr>
<tr>
<td>FASHDSN 228</td>
<td>Pattern Grading and Design I</td>
<td>2</td>
</tr>
<tr>
<td>FASHDSN 229</td>
<td>Pattern Grading and Design II</td>
<td>2</td>
</tr>
<tr>
<td>FASHDSN 236</td>
<td>Fashion Sketching and Design I</td>
<td>2</td>
</tr>
<tr>
<td>FASHDSN 237</td>
<td>Fashion Sketching and Design II</td>
<td>2</td>
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<tr>
<td>FASHDSN 238</td>
<td>Fashion Sketching and Design III</td>
<td>2</td>
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<tr>
<td>FASHDSN 239</td>
<td>Gown Draping and Design I</td>
<td>2</td>
</tr>
<tr>
<td>FASHDSN 240</td>
<td>Gown Draping and Design II</td>
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<tr>
<td>FASHDSN 241</td>
<td>Gown Draping and Design II</td>
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<tr>
<td>FASHDSN 941</td>
<td>Cooperative Education – Fashion Design</td>
<td>8</td>
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</tbody>
</table>

AND

Select 6 units from one of the options below:

OPTION 1: SAMPLE MAKING AND DESIGN

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>FASHDSN 222</td>
<td>Sample Making and Design I</td>
<td>2</td>
</tr>
<tr>
<td>FASHDSN 223</td>
<td>Sample Making and Design II</td>
<td>2</td>
</tr>
<tr>
<td>FASHDSN 224</td>
<td>Sample Making and Design III</td>
<td>2</td>
</tr>
</tbody>
</table>

OPTION 2: TAILORING TECHNIQUES

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Units</th>
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<tbody>
<tr>
<td>TAILRNG 250</td>
<td>Tailoring Techniques I</td>
<td>2</td>
</tr>
<tr>
<td>TAILRNG 251</td>
<td>Tailoring Techniques II</td>
<td>2</td>
</tr>
<tr>
<td>TAILRNG 252</td>
<td>Tailoring Techniques III</td>
<td>2</td>
</tr>
<tr>
<td>TAILRNG 253</td>
<td>Tailoring Techniques IV</td>
<td>2</td>
</tr>
</tbody>
</table>
MAJOR ELECTIVES

Select at least 6 units from courses below

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
</tr>
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<tbody>
<tr>
<td>FASHDSN 244</td>
<td>2</td>
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<tr>
<td>FASHDSN 255</td>
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<tr>
<td>FASHDSN 256</td>
<td>2</td>
</tr>
<tr>
<td>FASHDSN 257</td>
<td>2</td>
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<tr>
<td>FASHDSN 250</td>
<td>2</td>
</tr>
<tr>
<td>FASHDSN 258</td>
<td>2</td>
</tr>
<tr>
<td>FASHDSN 270</td>
<td>2</td>
</tr>
</tbody>
</table>

NOTE: Courses offered for the Fashion Design, Associate in Arts degree may be substituted for courses required for the Fashion Technology, Associate in Arts degree.

FASHION TECHNOLOGY

Certificate of Achievement

Major Units: 28

A Certificate of Achievement in Fashion Technology may be earned by completing 28 units of Required Courses with a “C” or better in each course.

A full range of condensed lab courses in clothing construction, sketching, grading, draping and pattern making are offered during the evening and on Saturdays. These courses may be taken in any order, and lead to a Certificate in Fashion Technology.

By fulfilling the program requirements, students are proficient in construction and assembly methods, illustration, both technical and fashion, pattern making, grading, and draping techniques. These courses will prepare students for apparel computer courses where they will apply skills using the latest computer technology.

REQUIRED COURSES

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>FASHDSN 225</td>
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<tr>
<td>FASHDSN 226</td>
<td>2</td>
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<tr>
<td>FASHDSN 227</td>
<td>2</td>
</tr>
<tr>
<td>FASHDSN 228</td>
<td>2</td>
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<tr>
<td>FASHDSN 229</td>
<td>2</td>
</tr>
<tr>
<td>FASHDSN 236</td>
<td>2</td>
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<tr>
<td>FASHDSN 237</td>
<td>2</td>
</tr>
<tr>
<td>FASHDSN 238</td>
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<tr>
<td>FASHDSN 239</td>
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<tr>
<td>FASHDSN 241</td>
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AND

Select six units from one of the options below:

OPTION 1: SAMPLE MAKING AND DESIGN

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<tr>
<th>Course</th>
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</tr>
</thead>
<tbody>
<tr>
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<td>FASHDSN 223</td>
<td>2</td>
</tr>
<tr>
<td>FASHDSN 224</td>
<td>2</td>
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</table>

OPTION 2: TAILORING TECHNIQUES

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
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<td>2</td>
</tr>
<tr>
<td>TAILRNG 251</td>
<td>2</td>
</tr>
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<td>TAILRNG 252</td>
<td>2</td>
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<tr>
<td>TAILRNG 253</td>
<td>2</td>
</tr>
</tbody>
</table>

FASHION MERCHANDISING

<table>
<thead>
<tr>
<th>Award Title</th>
<th>Academic Plan</th>
<th>Award Type</th>
<th>GE Units</th>
<th>Required Course Units</th>
<th>Major Elective Units</th>
<th>Major Units</th>
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<tbody>
<tr>
<td>Fashion Merchandising</td>
<td>T008653C</td>
<td>A.S.</td>
<td>21*</td>
<td>45</td>
<td>-</td>
<td>45</td>
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<tr>
<td>Fashion Merchandising</td>
<td>T021867D</td>
<td>C</td>
<td>45</td>
<td>-</td>
<td>45</td>
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</table>

At least 60 degree applicable units are required to earn an Associate degree.

*This Associate Degree is eligible for a reduction of General Education requirements from 21 to 18 units; please consult with a counselor for more details. These programs are Financial Aid Eligible.

PROGRAM OVERVIEW

Fashion Merchandising is the planning, organization, and development of fashion products to be sold at a profit. The program at LATTC is unique in that it offers instruction covering both manufacturing processes and retail expertise. Computer technology plays an important role in the program offering instruction on AIMS software.

Retail is a major industry in Southern California and fashion constitutes one of its largest segments. Retail positions range from major department stores to specialty outlets, and from personal stylists to employment in wholesale manufacturing. Los Angeles has taken the lead as the largest apparel manufacturing center in the United States, and the Fashion Merchandising curriculum is designed to provide specialized training in fashion trends, and consumer demand, as well as wholesale concepts.

Upon completion of the program, students will understand the cultural aspects of fashion in history, entrepreneurial opportunities in the fashion industry, and how to communicate the latest fashion trends and styling. Students will also be proficient in international business processes preparing them for the global apparel market.

PROGRAM LEARNING OUTCOMES (PLOs)

Upon completion of the Degree/Certificate program, students are able to:

- Students will develop operational and promotional activities necessary to launch and sell brands / private labels for a retail or wholesale business.
FASHION MERCHANDISING

Associate in Science Degree
Major Units: 45

Requirements for the Associate in Science degree in Fashion Merchandising may be met by completing 45 units of Required Courses with a "C" or better along with General Education units. Information on the General Education unit requirements may be found in the catalog under Graduation Requirements.

REQUIRED COURSES

<table>
<thead>
<tr>
<th>SEMESTER I</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>FASHMER 010 Retail Merchandising</td>
<td>3</td>
</tr>
<tr>
<td>FASHMER 025 Fashion and Industry Interchange</td>
<td>3</td>
</tr>
<tr>
<td>FASHMER 021 Cultural Perspectives of Dress</td>
<td>3</td>
</tr>
<tr>
<td>CAOT 082 Microcomputer Software Survey in the Office</td>
<td>3</td>
</tr>
<tr>
<td>-or- CO INFO 701 Introduction to Computers &amp; Their Uses (3)</td>
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</table>

<table>
<thead>
<tr>
<th>SEMESTER II</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>FASHMER 020 Apparel Product Development</td>
<td>3</td>
</tr>
<tr>
<td>FASHMER 035 Fashion Promotion</td>
<td>3</td>
</tr>
<tr>
<td>FASHMER 040 Modern Merchandising Math</td>
<td>3</td>
</tr>
<tr>
<td>CAOT 085 Microcomputer Office Applications: Spreadsheet</td>
<td>3</td>
</tr>
<tr>
<td>-or- CAOT 084 Microcomputer Office Applications: Word Processing (3)</td>
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<tr>
<td>-or- BUS 001 Introduction to Business (3)</td>
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</table>

<table>
<thead>
<tr>
<th>SEMESTER III</th>
<th>UNITS</th>
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</thead>
<tbody>
<tr>
<td>FASHMER 030 Wholesale Merchandising</td>
<td>3</td>
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<tr>
<td>FASHMER 050 International Fashion Business</td>
<td>3</td>
</tr>
<tr>
<td>FASHDSN 244 Photoshop for Fashion Design</td>
<td>2</td>
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<tr>
<td>-or- VISCOM 129 Digital Photo Manipulation (2)</td>
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<tr>
<td>-or- FASHDSN 270 Illustrator for Fashion Design (2)</td>
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<tr>
<td>COMM 101 Public Speaking</td>
<td>3</td>
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</table>

<table>
<thead>
<tr>
<th>SEMESTER IV</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>FASHMER 001 Entrepreneurial Fashion</td>
<td>3</td>
</tr>
<tr>
<td>FASHMER 027 Advanced Retail Merchandising</td>
<td>3</td>
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<tr>
<td>-or- FASHMER 041 Fashion Merchandise Buying (3)</td>
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<tr>
<td>FASHMER 041 Cooperative Education – Fashion Merchandising</td>
<td>4</td>
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</tbody>
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FASHION MERCHANDISING

Certificate of Achievement
Major Units: 45

Requirements for the Certificate of Achievement in Fashion Merchandising may be met by completing 45 units of Required Courses listed under the Associate degree in Fashion Merchandising with a "C" or better in each course.

SIGN GRAPHICS

<table>
<thead>
<tr>
<th>Award Title</th>
<th>Academic Type</th>
<th>Course Type</th>
<th>GE Units</th>
<th>Required Course Units</th>
<th>Major Elective Units</th>
<th>Major Units</th>
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<tbody>
<tr>
<td>Sign Graphics</td>
<td>AA</td>
<td>T002921C</td>
<td>21</td>
<td>40</td>
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<td>Sign Graphics</td>
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<td>T021862D</td>
<td>40</td>
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At least 60 degree applicable units are required to earn an Associate degree.

This Associate Degree is eligible for a reduction of General Education requirements from 21 to 16 units; please consult with a counselor for more details.

These programs are Financial Aid Eligible.

PROGRAM OVERVIEW

Sign makers design and produce signs to advertise and identify businesses, industries, public services, entertainment, as well as other areas. Students learn how to design and execute a wide variety of signs including temporary signs such as posters and paper banners plus permanent signs on wood, metal, canvas, vehicles, walls and glass. Students learn the fundamentals of lettering, design, composition, and color, while practicing hand and eye coordination. Students also learn to both draw and brush a diverse set of alphabets and a variety of interior and exterior signs. In addition, students study how to design and execute signs on sign specific software including patterns, vinyl lettering, and vinyl application plus how to use plotters, scanners, and clip art images.

Many sign makers are self-employed, work freelance or are employed in a commercial sign shop. Employment opportunities are competitive and only those with good hand skills and knowledge have the best chance for employment. Specialty skill instruction like dimensional letters, sandblasted signs, gold leaf and high-end layout and design are offered to advanced students. Advanced students participate in a business module for pricing and eventual self-employment.

By fulfilling the program requirements, students are proficient in basic hand lettering, sign design and layout, the production of temporary signs, exterior permanent signs, window signs and specialty signs, computer operation including printing, cutting and applying vinyl lettering and general production skills needed to complete a successful sign. Students will also understand basic pricing and sales techniques, record keeping or small business operation, and obtaining licenses.

Elective courses in silk screening and mural painting are also offered in this program. Silk screening is a printing method for multiple or large number jobs. The student will learn how to make a screen, cut a variety of stencils, prepare the screen and print an image. Proper ink usage and clean-up will be taught. Students will print on a variety of substrates including multicolor prints on T-shirts.

In the mural painting course, techniques for producing large format murals are taught using a variety of methods including the grid method. Students will learn layout and design, pattern making and transferring artwork to the wall. Surface preparation, paints, tools and brushes will also be covered.

PROGRAM LEARNING OUTCOMES (PLOs)

Upon completion of the Degree/Certificate program, students are able to:
- Design and produce signs to industry standards using hand lettering techniques and the latest digital printing options.
SIGN GRAPHICS

Associate in Arts Degree
Major Units: 44

Requirements for the Associate in Arts degree in Sign Graphics may be met by completing 40 units of Required Courses and 4 units of Major Electives with a “C” or better along with General Education units. Information on the General Education unit requirements may be found in the catalog under Graduation Requirements.

REQUIRED COURSES

<table>
<thead>
<tr>
<th>SEMESTER I</th>
<th>UNITS</th>
</tr>
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<tbody>
<tr>
<td>SGNGRPH 101 Individual Lettering</td>
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<table>
<thead>
<tr>
<th>SEMESTER II</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>SGNGRPH 102 Exterior Display Signs</td>
<td>10</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>SEMESTER III</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>SGNGRPH 103 Window Signs</td>
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<table>
<thead>
<tr>
<th>SEMESTER IV</th>
<th>UNITS</th>
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<tbody>
<tr>
<td>SGNGRPH 104 Advanced Computer and Design</td>
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MAJOR ELECTIVES

Select at least 4 units from the courses below

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<tr>
<th>UNITS</th>
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<tbody>
<tr>
<td>SGNGRPH 201 Fundamentals of Mural Painting</td>
</tr>
<tr>
<td>SGNGRPH 203 Screen Printing I</td>
</tr>
<tr>
<td>SGNGRPH 205 Screen Printing Computer Techniques</td>
</tr>
<tr>
<td>SGNGRPH 212 Sign Design and Layout</td>
</tr>
</tbody>
</table>

SIGN GRAPHICS

Certificate of Achievement
Major Units: 44

A Certificate of Achievement in Sign Graphics may be earned by completing 40 units of Required Courses and 4 units of Major Electives listed under the Associate degree in Sign Graphics with a “C” or better in each course.

TAILORING

Certificate of Achievement
Major Units: 20

A Certificate of Achievement in Tailoring may be earned by completing 12 units of Required Courses and 8 units of Major Electives listed, with a “C” or better in each course.

REQUIRED COURSES

<table>
<thead>
<tr>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>TAILRNG 250 Tailoring Techniques I</td>
</tr>
<tr>
<td>TAILRNG 251 Tailoring Techniques II</td>
</tr>
<tr>
<td>TAILRNG 252 Tailoring Techniques III</td>
</tr>
<tr>
<td>TAILRNG 253 Tailoring Techniques IV</td>
</tr>
<tr>
<td>TAILRNG 255 Men's Pattern Drafting I</td>
</tr>
<tr>
<td>TAILRNG 256 Men's Pattern Drafting II</td>
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</table>
MAJOR ELECTIVES

Select at least 8 units from the courses below

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<th>Course Title</th>
<th>Units</th>
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<tbody>
<tr>
<td>FASHDSN 118</td>
<td>Advanced Clothing Construction</td>
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</tr>
<tr>
<td>FASHDSN 126</td>
<td>Manufacturing and Design Room Process</td>
<td>1</td>
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<tr>
<td>FASHDSN 137</td>
<td>Basting Creation</td>
<td>2</td>
</tr>
<tr>
<td>FASHDSN 138</td>
<td>Tailoring Techniques for Ready To Wear</td>
<td>2</td>
</tr>
<tr>
<td>FASHDSN 140</td>
<td>Advanced Draping and Design</td>
<td>2</td>
</tr>
<tr>
<td>FASHDSN 147</td>
<td>Fashion Show Production</td>
<td>2</td>
</tr>
<tr>
<td>FASHDSN 148</td>
<td>Activewear Design</td>
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<tr>
<td>FASHDSN 151</td>
<td>Advanced Fashion Art and Design</td>
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<td>FASHDSN 941</td>
<td>Cooperative Education-Fashion Design</td>
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<td>FASHMER 001</td>
<td>Entrepreneurial Fashion</td>
<td>3</td>
</tr>
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<td>FASHMER 020</td>
<td>Apparel Product Development</td>
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</tr>
<tr>
<td>FASHMER 025</td>
<td>Fashion and Industry Interchange</td>
<td>3</td>
</tr>
<tr>
<td>FASHMER 030</td>
<td>Wholesale Merchandising</td>
<td>3</td>
</tr>
<tr>
<td>FASHMER 050</td>
<td>International Fashion Business</td>
<td>3</td>
</tr>
<tr>
<td>FASHDSN 222</td>
<td>Sample Making And Design I</td>
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<td>FASHDSN 223</td>
<td>Sample Making And Design II</td>
<td>2</td>
</tr>
<tr>
<td>FASHDSN 224</td>
<td>Sample Making And Design III</td>
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<td>FASHDSN 225</td>
<td>Pattern Making And Design I</td>
<td>2</td>
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<tr>
<td>FASHDSN 226</td>
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<td>FASHDSN 227</td>
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<td>Fashion Sketching And Design III</td>
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<td>FASHDSN 239</td>
<td>Gown Draping And Design I</td>
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</tr>
<tr>
<td>FASHDSN 240</td>
<td>Gown Draping And Design II</td>
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<td>FASHDSN 241</td>
<td>Gown Draping And Design III</td>
<td>2</td>
</tr>
<tr>
<td>FASHDSN 244</td>
<td>Photoshop for Fashion Design</td>
<td>2</td>
</tr>
<tr>
<td>FASHDSN 250</td>
<td>Beginning Computer Apparel Systems</td>
<td>2</td>
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<td>FASHDSN 255</td>
<td>Computerized Product Design</td>
<td>2</td>
</tr>
<tr>
<td>FASHDSN 256</td>
<td>CAD Apparel Pre-Production Techniques</td>
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</tr>
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<td>FASHDSN 257</td>
<td>Apparel Pattern Design Systems</td>
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</tr>
<tr>
<td>FASHDSN 258</td>
<td>Computer-Aided Pattern Systems Applications</td>
<td>2</td>
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<td>FASHDSN 264</td>
<td>Apparel Computer Systems Analysis</td>
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<td>FASHDSN 270</td>
<td>Illustrator For Fashion Design</td>
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<tr>
<td>FASHDSN 285</td>
<td>Directed Study - Fashion Design</td>
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VISUAL COMMUNICATIONS

<table>
<thead>
<tr>
<th>Award Title</th>
<th>Academic Plan</th>
<th>Award Type</th>
<th>GE Units</th>
<th>Required Course Units</th>
<th>Major Elective Units</th>
<th>Major Units</th>
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</thead>
<tbody>
<tr>
<td>Visual Communications*</td>
<td>A.A.</td>
<td>21*</td>
<td>46</td>
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<tr>
<td>Visual Communications</td>
<td>C</td>
<td></td>
<td>46</td>
<td>2</td>
<td>48</td>
<td></td>
</tr>
</tbody>
</table>

At least 60 degree applicable units are required to earn an Associate degree.

*This Associate Degree is eligible for a reduction of General Education requirements from 21 to 18 units; please consult with a counselor for more details.

These programs are Financial Aid Eligible.

PROGRAM OVERVIEW

The Visual Communications program at LATTC is the starting point for exciting careers in animation, art direction, digital imaging, graphic design, illustration, multi-media, web design and other related fields. The fast paced two-year program begins with fundamentals: color, design, drawing, prepress and typography. Advanced levels create finished portfolios on a Macintosh computer, utilizing industry standard digital software. Student portfolios demonstrate creativity and discipline, displaying dynamic art sensibilities and creating visual solutions for problems of marketing and publishing. The Visual Communications program focuses on four core areas:

- **GRAPHIC DESIGN:** Beginning levels will study the areas of layout and design, typography, and advertising concepts. Advanced levels will develop logos and corporate identity programs, design brochures with extended text, and create original magazine advertising, which is directed to specific audience demographics. Problem solving, brainstorming and computer training will receive equal emphasis. Graduating student portfolios incorporate a wide variety of projects showcasing the student’s ability to conceptualize, design and use typography as a communication tool.

- **DRAWING:** Beginning levels will study freehand observational drawing, perspective and the principles of light and shade. Black and white mediums will be explored in pencil, markers and ink. Advanced levels create comprehensive layouts in color marker and pencil as preliminary development. Finished designs and illustrations for advertising and on-line usage are then created traditionally or digitally and serve as portfolio samples.

- **DIGITAL PREPRESS:** Thorough study of the preparation of art, graphics, photography, and typography for reproduction in print. Beginning levels concentrate on understanding the mechanics of color separations and print specifications. This knowledge is then applied as students create digital files that utilize specific print requirements. Advanced levels prepare complex graphic computer files for output at commercial printers.

- **COMPUTER GRAPHICS:** The creation of art and design on the computer requires mechanical know-how and considerable familiarization with the workings of several graphic software applications. The Visual Communications program offers instruction in Adobe Creative Suites: Acrobat, Dreamweaver, Flash, Fireworks, Illustrator, InDesign and Photoshop and HTML. Graduating student portfolios demonstrate familiarization with each of these software applications and an ability to manipulate each for specific uses and creative affects.
Today’s commercial marketplace for artists has never been more available. Flash motion graphics and web design have initiated new and creative directions. Traditional artists and conventional designers continue as before but have incorporated digital software within their accomplished collection of talents. This blending of tradition and technology is the primary emphasis within the Visual Communications program.

By fulfilling the program requirements, students can pursue many different creative careers. While it is advisable for students to continue higher education, many graduates have entered the workplace upon completion of the Visual Communications program alone, realizing creative and financial success. Graduating students acquire visual sensitivities with respect to type, images and graphics; they are trained in the visual software used by industry, and understand marketing as it applies to commercial art. Additionally, graduates market their work appropriately to specific audiences for freelance opportunities.

PROGRAM LEARNING OUTCOMES (PLOs)

Upon completion of the Degree/Certificate program, students are able to:

- Students will be able to design original layouts utilizing creative marketing concepts that reflect Graphic Design and related industry standards.
- Students will be able to use advanced traditional and digital artist tools with technical proficiency, aesthetic sensitivity, and refinement.

VISUAL COMMUNICATIONS

Associate in Arts Degree

Major Units: 48

Requirements for the Associate in Arts degree in Visual Communication may be met by completing 46 units of Required Courses and 2 units of Major Electives with a “C” or better along with General Education units. Information on the General Education unit requirements may be found in the catalog under Graduation Requirements.

REQUIRED COURSES

<table>
<thead>
<tr>
<th>SEMESTER I</th>
<th>UNITS</th>
</tr>
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<tbody>
<tr>
<td>VISCOM 100 Graphic Design I</td>
<td>2</td>
</tr>
<tr>
<td>VISCOM 103 Basic Computer Systems</td>
<td>2</td>
</tr>
<tr>
<td>VISCOM 105 Digital Prepress I</td>
<td>2</td>
</tr>
<tr>
<td>VISCOM 106 Drawing I</td>
<td>2</td>
</tr>
<tr>
<td>VISCOM 108 2D Design Fundamentals</td>
<td>2</td>
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<tr>
<td>VISCOM 118 Digital Drawing</td>
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<table>
<thead>
<tr>
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<tbody>
<tr>
<td>VISCOM 112 Digital Prepress II</td>
<td>2</td>
</tr>
<tr>
<td>VISCOM 114 Digital Typesetting</td>
<td>2</td>
</tr>
<tr>
<td>VISCOM 115 Graphic Design II</td>
<td>2</td>
</tr>
<tr>
<td>VISCOM 116 Advertising Concepts</td>
<td>2</td>
</tr>
<tr>
<td>VISCOM 119 Digital Page Layout</td>
<td>2</td>
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<tr>
<td>VISCOM 129 Digital Photo Manipulation</td>
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<thead>
<tr>
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<tbody>
<tr>
<td>VISCOM 120 Drawing II</td>
<td>2</td>
</tr>
<tr>
<td>VISCOM 124 Computer Illustration I</td>
<td>2</td>
</tr>
<tr>
<td>VISCOM 126 Portfolio Development I</td>
<td>2</td>
</tr>
<tr>
<td>VISCOM 127 Digital Prepress III</td>
<td>2</td>
</tr>
<tr>
<td>VISCOM 128 Designing Logos and Trademarks</td>
<td>2</td>
</tr>
<tr>
<td>VISCOM 135 Web Graphics - Preproduction for Websites</td>
<td>2</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>SEMESTER IV</th>
<th>UNITS</th>
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</thead>
<tbody>
<tr>
<td>VISCOM 130 Drawing III</td>
<td>2</td>
</tr>
<tr>
<td>VISCOM 131 Computer Illustration II</td>
<td>2</td>
</tr>
<tr>
<td>VISCOM 132 Portfolio Development II</td>
<td>2</td>
</tr>
<tr>
<td>VISCOM 133 Digital Portfolio Preparation</td>
<td>2</td>
</tr>
<tr>
<td>VISCOM 134 Graphic Design Business Practices</td>
<td>2</td>
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</table>

MAJOR ELECTIVES

Select at least 2 units from the courses below

<table>
<thead>
<tr>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>VISCOM 204 Flash Motion Graphics (Beginning Level)</td>
</tr>
</tbody>
</table>

VISUAL COMMUNICATIONS

Certificate of Achievement

Major Units: 48

A Certificate of Achievement in Visual Communication may be earned by completing with a “C” or better 46 units of Required Courses and 2 units of Major Electives listed under the Associate degree in Visual Communication with a “C” or better in each course.
ABOUT THE PATHWAY
The Health & Related Sciences Pathway (HRS) offers programs of study that enable students to gain the competencies needed to build credentials for lifelong career success as they prepare to enter the workforce in Healthcare and Kinesiology related fields. The Pathway consists of the areas of Nursing, Kinesiology, Health, Health Occupations, Biology, Anatomy, Physiology and Micro-Biology.

LATTCC’s Nursing programs host external pre-licensure nursing education approval from the California Board of Registered Nurses (BRN). The nursing program also has a Bachelor’s of Science in Nursing (BSN) collaborative with CSU Los Angeles, CSU Fullerton, and CSU Northridge. The Kinesiology AA Degree allows you to transfer to a four-year institution and continue your studies toward a Bachelor’s Degree.

PATHWAY TEAM
Dean: Dr. Ann Hamilton  Email: Hamiltae@lattc.edu
Chair: Angela Gee ~ Email: GeeAl@lattc.edu
Nursing Director: Dr. Carolyn Washington -Email: WashinCA@lattc.edu
Counselor: Phyllis Braxton ~ Email: BRAXTOPD@lattc.edu

CONTACT US
NURSING
Email: Nursing@lattc.edu
Phone number: (213) 763-5381
Hours of operation: 8:00 am – 4:30 pm
Office Staff: Angel Rodrigues ~ Email: RodrigAL@lattc.edu
Office Location: Magnolia Hall (MH/A) - Room 165
Pathway Website: http://pathways.lattc.edu/catalog-programs/hrs/

ALL OTHER PATHWAY AREAS
Email: Health@lattc.edu
Phone number: (213) 763-3727
Hours of operation: 6:30 AM – 3:30 PM
Office Staff: Tracy Hale ~ Email: HaleTY@lattc.edu

PATHWAY CERTIFICATES AND DEGREES

<table>
<thead>
<tr>
<th>PROGRAM OF STUDY</th>
<th>AWARD</th>
<th>PROGRAM OF STUDY</th>
<th>AWARD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kinesiology</td>
<td>AAT</td>
<td>LVN to RN 30-Unit Option</td>
<td>--</td>
</tr>
<tr>
<td>Nursing, Registered</td>
<td>AS</td>
<td>Senior Care Technician</td>
<td>C</td>
</tr>
<tr>
<td>Nursing, Registered - LVN-RN Career Ladder</td>
<td>AS</td>
<td></td>
<td></td>
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</tbody>
</table>
KINESIOLOGY

Graduation Requirements, Pathways and Programs of Study

KINESIOLOGY FOR TRANSFER (AA-T)
Associate in Arts for Transfer Degree
Major Units: 20-23

Requirements for the Associate in Arts degree in Kinesiology for Transfer (AA-T) may be met by completing 20-23 units of coursework with a “C” or better along with general education courses meeting IGETC or CSU Requirements.

REQUIRED CORE
Select 11 units from the courses below

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>KIN MAJ 100</td>
<td>3</td>
</tr>
<tr>
<td>ANATOMY 001</td>
<td>4</td>
</tr>
<tr>
<td>PHYSIOL 001</td>
<td>4</td>
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</tbody>
</table>

AND

Movement Based Courses (3 Units). Take a minimum of one unit from any of the following three categories: Aquatics, Fitness, and Team Sports

AQUATICS

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>KIN 300-1</td>
<td>1</td>
</tr>
<tr>
<td>KIN 303-1</td>
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FITNESS

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>KIN 329-1</td>
<td>1</td>
</tr>
<tr>
<td>KIN 350-1</td>
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</table>

TEAM SPORTS

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>KIN 387</td>
<td>1</td>
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</tbody>
</table>

RESTRICTED ELECTIVES
Select courses (minimum 6 units) from the following (6-9 total units):

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 225</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 051</td>
<td>5</td>
</tr>
<tr>
<td>PHYSICS 006</td>
<td>4</td>
</tr>
<tr>
<td>KIN MAJ 101</td>
<td>3</td>
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</tbody>
</table>

Major Required Minimum Subtotal 20-23 units
CSU or IGETC for CSU GE Pattern 37-39 units
CSU Transferable Elective units (as needed to reach 60 units)
TOTAL CSU transferrable units 60 units

PROGRAM OVERVIEW
The Associate in Arts in Kinesiology for Transfer (AA-T) program is designed to prepare students for CSU transfer to complete a bachelor’s degree in Kinesiology, Exercise Science, Physical Education, pre-Physical Therapy, Athletic Training and other related allied health professions. Interested students may also pursue careers as personal trainers.

Students completing the AA-T in Kinesiology are guaranteed admission to the California State University system, although not necessarily to a particular campus or major of choice. Students should consult with a counselor for more information on university admission and transfer requirements as this AA-T in Kinesiology degree may not be the best option for students intending to transfer to a particular CSU campus or to a college or university that is not part of the CSU system.

The Associate in Arts in Kinesiology for Transfer (AA-T) degree will be awarded upon completion of the following:
- Completion of 60 transferable semester units to the California State University
- Obtainment of a minimum grade point average of 2.0 in all transferable coursework.
- Full completion of one the following General education patterns
  - The Intersegmental General Education Transfer Curriculum (IGETC), with “C” or better in all coursework AND completion of Area 1C Oral communication (CSU admission requirement)
  - California State University General Education – Breadth Requirements (CSU GE). Areas A1, A2, A3, & B4 must be completed with a grade of “C” or better (CSU admission requirement)
- A minimum of 20 semester units required for the major
- All courses in the major must be completed with a grade of “C” or better or a “P” if the course is taken on a “Pass-No Pass” basis (Title 5 § 55063).

PROGRAM LEARNING OUTCOMES (PLOs)
Upon completion of the Degree program, students are able to:
- Describe the fundamental principles of Kinesiology, including anatomy and physiology, movement, health promotion, physiological response to exercise, mechanics, and how they relate to career choices.
- Discuss the importance of lifelong participation in a fitness program as related to overall health and well-being.
- Identify physical fitness concepts, healthy living practices, lifelong wellness, appropriate stress reduction techniques, sport, and physical skill development.

PROGRAM LEARNING OUTCOMES (PLOs)
Upon completion of the Degree program, students are able to:
- Describe the fundamental principles of Kinesiology, including anatomy and physiology, movement, health promotion, physiological response to exercise, mechanics, and how they relate to career choices.
- Discuss the importance of lifelong participation in a fitness program as related to overall health and well-being.
- Identify physical fitness concepts, healthy living practices, lifelong wellness, appropriate stress reduction techniques, sport, and physical skill development.
NURSING, REGISTERED

<table>
<thead>
<tr>
<th>Award Title</th>
<th>Academic Plan</th>
<th>Award Type</th>
<th>GE Units</th>
<th>Required Course Units</th>
<th>Major Elective Units</th>
<th>Major Units</th>
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</thead>
<tbody>
<tr>
<td>Nursing, Registered*</td>
<td>T002922C</td>
<td>A.S.</td>
<td>21</td>
<td>42</td>
<td>-</td>
<td>42</td>
</tr>
<tr>
<td>Nursing, Registered:</td>
<td>T008498C</td>
<td>A.S.</td>
<td>21</td>
<td>32</td>
<td>-</td>
<td>32</td>
</tr>
<tr>
<td>30-Unit Option</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

At least 60 degree applicable units are required to earn an Associate degree.

*This Associate Degree is eligible for a reduction of General Education requirements from 21 to 18 units; please consult with a counselor for more details.

These programs are Financial Aid Eligible, except the Nursing, Registered 30-Unit Option.

PREREQUISITE COURSES

A GPA of 2.5 or better must be earned in all college level courses and a 2.5 grade point average in the science prerequisites.

Please note: You must be accepted into the Nursing Program before you can enroll in these classes. Once accepted enrollment will be done by the department. You cannot enroll online.

PROGRAM OVERVIEW

The Registered Nursing (RN) Program at LATTC combines nursing and general education courses with selected laboratory experiences during which students provide nursing care to clients in hospitals and other health care facilities. Nursing courses include medical surgical nursing, geriatric nursing, maternal child health nursing, pediatric nursing, psychiatric nursing, pharmacology, and nursing management and leadership and preceptorship. The program is designed to be completed within four semesters after admission.

Applicants must meet health as well as other requirements mandated by the program and affiliating hospitals/clinic prior to entry. Candidates are admitted to the program in the Fall and Spring semesters. Candidates must enter the program with a minimum overall 2.5 grade point average in all college level courses and a 2.5 grade point average in the science prerequisites. A candidate may file an application only after all prerequisites have been completed. At that time, the student will be eligible to take the nursing entrance examination called TEAS (Test of Essential Academic Skills). If the student achieves a passing score on the TEAS, he or she will be placed on the waiting list. If a student does not achieve a passing score on the TEAS, he or she will be provided with remediation opportunities and permitted to retake the exam. Students may retake the entrance exam once.

The Nursing Program is approved by the California Board of Registered Nursing (BRN). Current valid California LVN license, plus the following:

- At least 60 degree applicable units are required to earn an Associate degree.
- A GPA of 2.5 or better must be earned in all college level courses and a 2.5 grade point average in the science prerequisites.

Programs are Financial Aid Eligible, except the Nursing, Registered 30-Unit Option.

PROGRAM LEARNING OUTCOMES (PLOs)

Upon completion of the Degree program, students are able to:

- Provide effective nursing care to patients according to recognized industry standards.
- Apply scientific and social theories to nursing practice.

NURSING, REGISTERED

<table>
<thead>
<tr>
<th>Plan</th>
<th>Type</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>42</td>
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</table>

Requirements for the Associate in Science degree in Nursing, Registered may be met by completing 42 units of Required Courses with a "C" or better along with General Education units. Information on the General Education unit requirements may be found in the catalog under Graduation Requirements.

PREREQUISITES

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
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<tbody>
<tr>
<td>ANATOMY 001</td>
<td>Introduction to Human Anatomy</td>
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</tr>
<tr>
<td>MICRO 001</td>
<td>Introductory Microbiology</td>
<td>5</td>
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<tr>
<td>PHYSiol 001</td>
<td>Introduction to Human Physiology</td>
<td>4</td>
</tr>
<tr>
<td>PSYCH 001</td>
<td>General Psychology I</td>
<td>3</td>
</tr>
<tr>
<td>PSYCH 041</td>
<td>Life-Span Psychology: From Infancy to Old Age</td>
<td>3</td>
</tr>
<tr>
<td>ENGLISH 101</td>
<td>College Reading and Composition</td>
<td>3</td>
</tr>
<tr>
<td>TEAS EXAM</td>
<td>(passing grade 62%)</td>
<td></td>
</tr>
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</table>

REQUIRED COURSES

Nursing courses must be taken in sequence and completed with a grade of "C" or better.

<table>
<thead>
<tr>
<th>Winter or Summer Session</th>
<th>Units</th>
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<tbody>
<tr>
<td>REGNRS 113</td>
<td></td>
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<tr>
<td>REGNRS 120</td>
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<tr>
<td>REGNRS 121</td>
<td></td>
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<tr>
<td>REGNRS 122</td>
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<td>REGNRS 123</td>
<td></td>
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<tr>
<td>REGNRS 124</td>
<td></td>
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<tr>
<td>REGNRS 125</td>
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<tr>
<td>REGNRS 126</td>
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<tr>
<td>REGNRS 127</td>
<td></td>
</tr>
<tr>
<td>REGNRS 128</td>
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<thead>
<tr>
<th>Semester I</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>REGNRS 119</td>
<td>Introduction to Nursing</td>
</tr>
<tr>
<td>REGNRS 121</td>
<td>Fundamentals of Nursing</td>
</tr>
<tr>
<td>REGNRS 122</td>
<td>Introduction to Medical Surgical Nursing</td>
</tr>
<tr>
<td>REGNRS 123</td>
<td>Nursing Process and Communication</td>
</tr>
<tr>
<td>REGNRS 125</td>
<td>Nursing Pharmacology</td>
</tr>
<tr>
<td>REGNRS 134</td>
<td>Nursing Simulation Lab</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Semester II</th>
<th>Units</th>
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<tbody>
<tr>
<td>REGNRS 126</td>
<td>Medical-Surgical Nursing I</td>
</tr>
<tr>
<td>REGNRS 129</td>
<td>Gerontology and Community Based Nursing</td>
</tr>
<tr>
<td>REGNRS 130</td>
<td>Psychiatric Mental Health Nursing</td>
</tr>
<tr>
<td>REGNRS 136</td>
<td>Nursing Simulation Lab Intermediate</td>
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</table>

<table>
<thead>
<tr>
<th>Semester III</th>
<th>Units</th>
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<tbody>
<tr>
<td>REGNRS 127</td>
<td>Medical-Surgical Nursing II</td>
</tr>
<tr>
<td>REGNRS 131</td>
<td>Reproductive Nursing and Women’s Health</td>
</tr>
<tr>
<td>REGNRS 137</td>
<td>Nursing Simulation Lab Advanced</td>
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</table>

<table>
<thead>
<tr>
<th>Semester IV</th>
<th>Units</th>
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<tbody>
<tr>
<td>REGNRS 128</td>
<td>Medical-Surgical Nursing III</td>
</tr>
<tr>
<td>REGNRS 132</td>
<td>Care of Children and Family</td>
</tr>
<tr>
<td>REGNRS 133</td>
<td>Nursing Leadership and Management</td>
</tr>
</tbody>
</table>
NURSING, REGISTERED: LVN TO RN
CAREER LADDER
Associate in Science Degree
Major Units: 32

Requirements for the Associate in Science degree in Nursing, Registered: LVN to RN Career Ladder may be met by completing 32 units of Required Courses with a “C” or better along with General Education units. Information on the General Education unit requirements may be found in the catalog under Graduation Requirements.

PROGRAM OVERVIEW

Nursing is a field that is in high demand and is one that is personally rewarding and constantly stimulating. The Career Ladder Program at Los Angeles Trade-Technical College is approved by the Board of Registered Nursing. It combines nursing theory with selected laboratory experiences and general education courses. Program courses are sequenced from simple to complex. Nursing courses include medical surgical nursing, reproductive and women’s health, nursing of children and families, psychiatric nursing, geriatric and community nursing, leadership and preceptorship. The graduate of the Career Ladder program is eligible to apply for the State Board of Registered Nursing Licensing Examination (NCLEX) once all nursing program and Associate in Science Degree requirements are satisfactorily met.

Applicants with a valid VN license may enter into second semester after completing the LVN to RN Bridge course (RN 135) and passing the pharmacology exam and dosage calculation examination. Students have the option of challenging Medical Surgical Nursing I, RN 126, Reproductive and Women’s Health Nursing, RN 131, and RN 132, Nursing Care of Children and Families. This may be done after completing 12 units at LATTC and after being accepted into the Career Ladder program.

PROGRAM LEARNING OUTCOMES (PLOs)

Upon completion of the Certificate program, students are able to:
- Students entering at the intermediate level will provide effective nursing care to patients according to recognized industry standards.
- Students entering at the intermediate level will apply scientific and social theories to nursing practice.

Please note: Students enter in 2nd semester and take all courses in the generic RN Program. Career Ladder students may challenge RN 131 and RN 132.

PREREQUISITES

Current valid California LVN license, plus the following:
- ANATOMY 001 Introduction to Human Anatomy 4
- MICRO 001 Introductory Microbiology 5
- PHYSIOL 001 Introduction to Human Physiology 4
- PSYCH 001 General Psychology I 3
- PSYCH 041 Life-Span Psychology: From Infancy to Old Age 3
- ENGLISH 101 College Reading and Composition I 3
- TEAS EXAM (passing grade 62%)
- TRANSITION FROM LVN TO RN 2

REQUIRED COURSES

<table>
<thead>
<tr>
<th>SEMESTER II</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>REGNRSG 126 Medical-Surgical Nursing I</td>
<td>5</td>
</tr>
<tr>
<td>REGNRSG 129 Gerontology and Community Based Nursing</td>
<td>2</td>
</tr>
<tr>
<td>REGNRSG 130 Psychiatric Mental Health Nursing</td>
<td>3</td>
</tr>
<tr>
<td>REGNRSG 136 Nursing Simulation Lab Intermediate</td>
<td>1</td>
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<table>
<thead>
<tr>
<th>SEMESTER III</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>REGNRSG 127 Medical-Surgical Nursing II</td>
<td>5</td>
</tr>
<tr>
<td>REGNRSG 131 Reproductive Nursing and Women’s Health</td>
<td>3.5</td>
</tr>
<tr>
<td>REGNRSG 137 Nursing Simulation Lab Advanced</td>
<td>1</td>
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<table>
<thead>
<tr>
<th>SEMESTER IV</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>REGNRSG 128 Medical-Surgical Nursing III</td>
<td>3</td>
</tr>
<tr>
<td>REGNRSG 132 Care of Children and Family</td>
<td>3.5</td>
</tr>
<tr>
<td>REGNRSG 133 Nursing Leadership and Management</td>
<td>3</td>
</tr>
</tbody>
</table>

LVN TO RN 30-UNIT OPTION
Major Units: 28-30

The 30 unit option is offered to applicants with a valid VN license. Those applicants take 2 courses in second semester and all courses in third and fourth semester. They are then eligible to take the NCLEX-RN licensing exam. This option does not lead to a degree. In addition, students who wish to return to LATTC and obtain an AS degree may not apply these courses to their major.

NOTE: This educational option may not be recognized in states outside of California. Check with an individual state BRN for more information.

PREREQUISITES

A grade of “C” or better must be obtained in all courses. High school graduate or GED, U.S. university degree or A.S./A.A. degree is required.

<table>
<thead>
<tr>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>MICRO 020 General Microbiology 4</td>
</tr>
<tr>
<td>ANATOMY 001 Introduction to Human Anatomy 4</td>
</tr>
<tr>
<td>PHYSIOL 001 Introduction to Human Physiology 4</td>
</tr>
<tr>
<td>TEAS 5.0 EXAM (passing grade 62%)</td>
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<tr>
<td>REGNRSG 135 Transition from LVN to R.N. 2</td>
</tr>
</tbody>
</table>

REQUIRED COURSES

<table>
<thead>
<tr>
<th>SEMESTER II</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>REGNRSG 129 Gerontology and Community Based Nursing</td>
<td>2</td>
</tr>
<tr>
<td>REGNRSG 130 Psychiatric Mental Health Nursing</td>
<td>3</td>
</tr>
<tr>
<td>REGNRSG 136 Nursing Simulation Lab Intermediate</td>
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<table>
<thead>
<tr>
<th>SEMESTER III</th>
<th>UNITS</th>
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<tbody>
<tr>
<td>REGNRSG 127 Medical-Surgical Nursing II</td>
<td>5</td>
</tr>
<tr>
<td>REGNRSG 131 Reproductive Nursing and Women’s Health</td>
<td>3.5</td>
</tr>
<tr>
<td>REGNRSG 137 Nursing Simulation Lab Advanced</td>
<td>1</td>
</tr>
</tbody>
</table>
SENIOR CARE TECHNICIAN

A Certificate of Achievement in Senior Care Technician may be earned by completing 16.5 units of Required Courses with a “C” or better in each course.

PROGRAM OVERVIEW

The Senior Care Technician certificate is intended to prepare students for a new role in agencies that provide care to elderly at various levels of independence. The role combines basic nursing skills, psychosocial skills, resource management and administrative skills needed to provide holistic care to seniors who require services that allow them to live as independently as possible in a structured environment.

The Senior Care Technician will be able to provide direct and indirect services to seniors and be a valuable resource for the senior, the facility and the community in which the seniors are located. The Senior Care Technician will have a skill set to deal with dementia and other difficult behaviors and help develop and transfer these skills to the direct care staff. In conclusion, the Senior Care Technician will have assessment and care skills that are over and above those of Certified Nurse Aids but below those of Licensed Vocational Nurses. They will fill a niche in senior services.

PROGRAM LEARNING OUTCOMES (PLOs)

Upon completion of the Certificate program, students are able to:

- Students will be able to assess and provide proper patient care techniques, including physical and psychosocial, for the elderly in a variety of health and patient care settings in accordance with industry legal, ethical, and medical standards and regulations.
- Students will be able to demonstrate interpersonal behaviors supportive of the development and maintenance of safe, respectful, ethical, and culturally sensitive peer and patient relationships.
ABOUT THE PATHWAY
The Liberal Arts and Transfer Prep Pathway (LA) offers programs of study that enable students to gain the competencies needed to build credentials for lifelong career success as they prepare to transfer to a 4-year institution and/or earn a two-year degree.

PATHWAY TEAM
Dean: Dr. Henan L. Joof ~ Email: joofhl@lattc.edu

Chair(s):
(Behavioral/Social Sciences) Freddy McClain ~ Email: Mcclaif@lattc.edu
(English) Jennifer Ortiz ~ Email: ORTIZJI@lattc.edu
(Language Arts & Humanities) Deirdre McDermott ~ Email: WoodDA@lattc.edu
(Math) Tayebeh Meftagh ~ Email: MeftagT@lattc.edu

Counselor: Eboni McDuffie ~ Email: Mcduffe@lattc.edu
Office Staff: Aaron Chan ~ Email: ChanaT@lattc.edu

CONTACT US
Office Location: Aspen Hall (AH/TE) - Room 516
Email: Libarts@lattc.edu
Phone number: (213) 763-3923
Hours of operation: Monday – Thursday: 8am to 6pm, Friday: 8am to 3pm
Website: http://pathways.lattc.edu/catalog-programs/la/

PATHWAY CERTIFICATES AND DEGREES

<table>
<thead>
<tr>
<th>PROGRAM OF STUDY</th>
<th>AWARD</th>
<th>PROGRAM OF STUDY</th>
<th>AWARD</th>
</tr>
</thead>
<tbody>
<tr>
<td>American Sign Language</td>
<td>C</td>
<td>Intersegmental General Education Transfer Curriculum (IGETC)</td>
<td>C</td>
</tr>
<tr>
<td>CSU General Education (CSU-GE-Breadth)</td>
<td>C</td>
<td>Liberal Arts: Behavioral &amp; Social Sciences</td>
<td>AA</td>
</tr>
<tr>
<td>English</td>
<td>AAT</td>
<td>Mathematics</td>
<td>AST</td>
</tr>
<tr>
<td>Interdisciplinary Studies: Arts &amp; Sciences</td>
<td>AA</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
AMERICAN SIGN LANGUAGE

Certificate of Achievement
Major Units: 18

Requirements for the American Sign Language Certificate of Achievement may be met by completing 18 units of Required Courses with a “C” or better in each course.

REQUIRED COURSES

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>A S L 001</td>
<td>American Sign Language I</td>
</tr>
<tr>
<td>A S L 002</td>
<td>American Sign Language II</td>
</tr>
<tr>
<td>A S L 003</td>
<td>American Sign Language III</td>
</tr>
<tr>
<td>A S L 004</td>
<td>American Sign Language IV</td>
</tr>
<tr>
<td>A S L 030</td>
<td>Finger Spelling I</td>
</tr>
</tbody>
</table>

CSU GENERAL EDUCATION (CSU-GE-BREADTH)

Award Title | Academic Plan | Award Type | GE Units | Required Course Units | Major Elective Units | Major Units |
--- | --- | --- | --- | --- | --- | --- |
CSU General Education (CSU-GE-Breadth) | T036134D | C | 39 | - | - | 39 |

This program is not Financial Aid Eligible.

PROGRAM OVERVIEW

The Certificate of Achievement in CSU General Education (CSU-GE-Breadth) is a program designed for students planning to transfer to either the California State University (CSU) system. It offers students a program of study which meets CSU general education transfer requirements. Although the certificate recognizes the completion of CSU general education requirements, it does not guarantee admission to a specific campus within the CSU system nor does it guarantee admission to a specific major. Some majors and colleges may require a different lower division preparation and/or a higher GPA than is necessary for this certificate.

Students who intend to transfer must meet all current CSU general education transfer requirements including minimum GPA and eligibility for certification. Students are strongly advised to meet with a counselor to discuss transfer requirements and lower division major preparation that is needed for their intended transfer school.

PROGRAM LEARNING OUTCOMES (PLOs)

Upon completion of the Certificate program, students are able to:
• Communicate effectively, both verbally and in writing.
• Critically analyze and solve problems using the appropriate technique for the issue at hand, including appropriate use of logic, mathematics, multi-disciplinary, and cultural considerations where applicable.
**CSU GENERAL EDUCATION (CSU-GE-BREADTH)**

**Certificate of Achievement**
Major Units: 39

Requirements for the CSU General Education (CSU-GE-Breadth) of Achievement may be met by completing 39 units of Required Courses listed under the California State University General Education Check Sheet with a “C” or better in each course. Please consult with a counselor for more details.

**ENGLISH**

<table>
<thead>
<tr>
<th>Award Title</th>
<th>Academic Plan</th>
<th>Award Type</th>
<th>GE Units</th>
<th>Required Course Units</th>
<th>Major Elective Units</th>
<th>Major Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>T032905G</td>
<td>AA-T</td>
<td>CSU/IGETC</td>
<td>6</td>
<td>12</td>
<td>18</td>
</tr>
</tbody>
</table>

This program is Financial Aid Eligible.

**PROGRAM OVERVIEW**

The Associate in Arts Degree in English for Transfer (AA-T) is for students who intend to complete a bachelor’s degree in English at a California State University. Core course work explores primarily British and American writers through an array of literary traditions, providing opportunities for students to express their understanding and appreciation of the literary world through analysis, research and composition.

This degree provides lower division preparation for students planning to transfer into English programs. Students will take courses in English as well as related fields required for English majors. Students who complete this degree will be guaranteed admission with junior status to the California State University, though not a particular campus or major, and will be given priority admission to our local CSU campus.

The Associate in Arts in English for Transfer (AA-T) degree will be awarded upon completion of the following:
- Completion of 60 transferable semester units to the California State University
- Obtainment of a minimum grade point average of 2.0 in all transferable coursework
- Full completion of one the following General education patterns

**PROGRAM LEARNING OUTCOMES (PLOs)**

Upon completion of the Degree program, students are able to:
- Write coherent college-level essays with clear syntax and varied sentence formats.
- Conduct and present research, conforming to Modern Language Association (MLA) Standards.
- Analyze and evaluate a diverse body of literature in a variety of presentation formats.

**ENGLISH FOR TRANSFER (AA-T)**

**Associate in Arts for Transfer**
Major Units: 18

Requirements for the Associate in Arts Transfer degree in English may be met by completing 6 units of Required Courses and 12 units of Major electives with a “C” or better along with general education courses meeting IGETC or CSU Requirements.

**REQUIRED COURSES**

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGLISH 102</td>
<td>3</td>
</tr>
<tr>
<td>ENGLISH 103</td>
<td>3</td>
</tr>
</tbody>
</table>

**MAJOR ELECTIVES**

<table>
<thead>
<tr>
<th>List A: Select any two (2) of the following (6 units)</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGLISH 203  World Literature I</td>
<td>3</td>
</tr>
<tr>
<td>ENGLISH 205  English Literature I</td>
<td>3</td>
</tr>
<tr>
<td>ENGLISH 206  English Literature II</td>
<td>3</td>
</tr>
<tr>
<td>ENGLISH 207  American Literature I</td>
<td>3</td>
</tr>
<tr>
<td>ENGLISH 208  American Literature II</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>List B: Select any one (1) course. Any course not used in LIST A or one course from this list (3 units)</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGLISH 127 Creative Writing</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>List C: Select any one (1) course not already used in LISTS A or B or one of the following courses (3 units)</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGLISH 212 Poetry</td>
<td>3</td>
</tr>
<tr>
<td>ENGLISH 215 Shakespeare I</td>
<td>3</td>
</tr>
<tr>
<td>HUMAN 001 Cultural Patterns of Western Civilization</td>
<td>3</td>
</tr>
</tbody>
</table>
IGETC (INTERSEGMENTAL GENERAL EDUCATION TRANSFER CURRICULUM)

<table>
<thead>
<tr>
<th>Award Title</th>
<th>Academic Plan</th>
<th>Award Type</th>
<th>GE Units</th>
<th>Required Course Units</th>
<th>Major Elective Units</th>
<th>Major Units</th>
</tr>
</thead>
</table>

This program is not Financial Aid Eligible.

PROGRAM OVERVIEW

The Certificate of Achievement in Intersegmental General Education Transfer Curriculum (IGETC) is a program designed for students planning to transfer to either the California State University (CSU) or University of California (UC) system. It offers students a program of study which meets IGETC general education transfer requirements. Although the certificate recognizes the completion of IGETC general education requirements, it does not guarantee admission to a specific campus within the CSU or UC system nor does it guarantee admission to a specific major. Some majors and colleges may require a different lower division preparation and/or a higher GPA than is necessary for this certificate.

Students who intend to transfer must meet all current IGETC general education transfer requirements including minimum GPA and eligibility for certification. Students are strongly advised to meet with a counselor to discuss transfer requirements and lower division major preparation that is needed for their intended transfer school.

PROGRAM LEARNING OUTCOMES (PLOs)

Upon completion of the Certificate program, students are able to:

- Communicate effectively, both verbally and in writing.
- Critically analyze and solve problems using the appropriate technique for the issue at hand, including appropriate use of logic, mathematics, multi-disciplinary, and cultural considerations where applicable.
- Critically examine the function, media, subject matter, organization, aesthetic, style, and relative excellence of representative examples of the arts, literature, philosophy, and foreign languages including approaches from various historical, cultural, and gender-based origins.
- Develop an understanding of the information available, the perspectives and approaches of the physical, biological, social and behavioral sciences, appreciating the power and limits of these methods of inquiry and both individual, ethical, and societal responsibilities.
- Organize and present information in person in a logical and understandable manner.

IGETC (INTERSEGMENTAL GENERAL EDUCATION TRANSFER CURRICULUM)

Certificate of Achievement
Major Units: 37-39

Requirements for the IGETC Certificate of Achievement may be met by completing 37-39 units of Required Courses listed under the IGETC CSU/UC General Education Check Sheet with a “C” or better in each course. Please consult with a counselor for more details.

LIBERAL ARTS

<table>
<thead>
<tr>
<th>Award Title</th>
<th>Academic Plan</th>
<th>Award Type</th>
<th>GE Units</th>
<th>Required Course Units</th>
<th>Major Elective Units</th>
<th>Major Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interdisciplinary Studies: Arts and Sciences*</td>
<td>T018856C</td>
<td>A.A.</td>
<td>21*</td>
<td>33</td>
<td>16</td>
<td>49</td>
</tr>
<tr>
<td>Liberal Arts: Behavioral and Social Sciences</td>
<td>T033815C</td>
<td>A.A.</td>
<td>21</td>
<td>9</td>
<td>15</td>
<td>24</td>
</tr>
</tbody>
</table>

At least 60 degree applicable units are required to earn an Associate degree.

*This Associate Degree may be eligible for a reduction of General Education requirements from 21 to 18 units; please consult with a counselor for more details.

These programs are Financial Aid Eligible.

PROGRAM OVERVIEW

Students planning to transfer to a four-year college or university may choose the Associate in Arts degree with a major in Liberal Arts and Sciences by choosing one of the options listed below.

The Liberal Arts degree is designed for students who desire a broad base of knowledge in the liberal arts and sciences. The Liberal Arts degree is one option for students who plan to transfer to a four-year university, including the California State University (CSU) or the University of California (UC).

NOTE: Students need to complete additional units to meet the required 60 units for the Associate of Arts degree.

Students should be aware that not all courses on this list are offered every semester.

PROGRAM LEARNING OUTCOMES (PLOs)

Upon completion of the Degree program, students are able to:

- Apply scientific principles, theories, and/or models to explain or predict the behavior of natural physical phenomena.
- Apply scientific knowledge and reasoning to evaluate the human interaction with the natural world and identify major issues impacting society.
- Apply and construct written, verbal, numeric or non-verbal expression to convey logical thought, analyze arguments and self-express.
- Critically evaluate communication in a symbol system appropriate to the academic discipline.
- Articulate the human condition through language, reasoning, artistic and/or cultural creation.
• Examine the perspectives, principles, theories, methods, and core concepts of the social and behavioral sciences within their contemporary, historical, cultural and geographical contexts.
• Compare and contrast the values, attitudes, modes of creative expression, and/or dynamics of interpersonal interactions of people from diverse cultural and societal backgrounds.

INTERDISCIPLINARY STUDIES: ARTS AND SCIENCES

Associate in Arts Degree

Major Units: 49

Requirements for the Associate in Arts degree in Interdisciplinary Studies may be met by completing 33 units of Required Courses and 16 units of Major Electives with a "C" or better along with General Education units. Information on the General Education unit requirements may be found in the catalog under Graduation Requirements.

Students planning for transfer are cautioned that this curriculum may not provide for the completion of lower division requirements for transfer. Students should consult with a counselor for specific information regarding an intended major if transfer to a four-year university is a goal.

REQUIRED COURSES

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGLISH 101</td>
<td>3</td>
</tr>
<tr>
<td>ENGLISH 102</td>
<td>3</td>
</tr>
<tr>
<td>ENGLISH 103</td>
<td>3</td>
</tr>
<tr>
<td>COMM 101</td>
<td>3</td>
</tr>
<tr>
<td>MATH 125</td>
<td>5</td>
</tr>
<tr>
<td>BIOLOGY 003</td>
<td>4</td>
</tr>
<tr>
<td>GEOLOGY 001</td>
<td>3</td>
</tr>
<tr>
<td>HISTORY 011</td>
<td>3</td>
</tr>
<tr>
<td>HISTORY 086</td>
<td>3</td>
</tr>
<tr>
<td>POL SCI 001</td>
<td>3</td>
</tr>
</tbody>
</table>

CORE ELECTIVE COURSES (MINIMUM REQUIRED 16 UNITS):

Complete at least one course from each area plus any additional elective units to meet the 49 unit requirement.

LANGUAGE ARTS AND CRITICAL REASONING 3 UNITS

Select at least 3 units from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGLISH 203</td>
<td>3</td>
</tr>
<tr>
<td>ENGLISH 205</td>
<td>3</td>
</tr>
<tr>
<td>PHILOS 008</td>
<td>3</td>
</tr>
<tr>
<td>CO INFO 701</td>
<td>3</td>
</tr>
</tbody>
</table>

MATH 225 Introductory Statistics 3
- or MATH 227 Statistics (4)

MATH 235 Finite Mathematics 5
MATH 236 Calculus for Business and Social Sciences 5
MATH 240 Trigonometry 3
MATH 245 College Algebra 3
MATH 260 Pre Calculus 5
MATH 265 Calculus with Analytic Geometry I 5
MATH 266 Calculus with Analytic Geometry II 5
MATH 267 Calculus with Analytic Geometry III 5
MATH 270 Linear Algebra 3
MATH 275 Ordinary Differential Equations 3
ASTRON 001 Elementary Astronomy 3
ASTRON 005 Fundamentals of Astronomy Laboratory 1
ENV SCI 001 The Human Environment: Physical Processes 3
GEOG 001 Physical Geography 3
GEOLOGY 006 Physical Geology Laboratory 2
PHYSICS 011 Introductory Physics 4
PHYSICS 012 Physics Fundamentals 3

ARTS & HUMANITIES 3 UNITS

Select at least 3 units from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>A S L 001</td>
<td>4</td>
</tr>
<tr>
<td>A S L 002</td>
<td>4</td>
</tr>
<tr>
<td>ART 101</td>
<td>3</td>
</tr>
<tr>
<td>ART 103</td>
<td>3</td>
</tr>
<tr>
<td>FRENCH 001</td>
<td>5</td>
</tr>
<tr>
<td>FRENCH 002</td>
<td>5</td>
</tr>
<tr>
<td>MUSIC 111</td>
<td>3</td>
</tr>
<tr>
<td>PHILOS 001</td>
<td>3</td>
</tr>
<tr>
<td>SPANISH 001</td>
<td>5</td>
</tr>
<tr>
<td>SPANISH 002</td>
<td>5</td>
</tr>
<tr>
<td>SPANISH 035</td>
<td>5</td>
</tr>
<tr>
<td>SPANISH 036</td>
<td>5</td>
</tr>
<tr>
<td>THEATER 100</td>
<td>3</td>
</tr>
</tbody>
</table>

SOCIAL SCIENCE 3 UNITS

Select at least 3 units from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CH DEV 001</td>
<td>3</td>
</tr>
<tr>
<td>GEOG 002</td>
<td>3</td>
</tr>
<tr>
<td>HISTORY 012</td>
<td>3</td>
</tr>
<tr>
<td>HISTORY 087</td>
<td>3</td>
</tr>
<tr>
<td>PSYCH 001</td>
<td>3</td>
</tr>
<tr>
<td>ANTHRO 101</td>
<td>3</td>
</tr>
<tr>
<td>SOC 001</td>
<td>3</td>
</tr>
</tbody>
</table>

LIBERAL ARTS: BEHAVIORAL AND SOCIAL SCIENCES

Associate in Arts Degree

Major Units: 24

The LATTC Liberal Arts: Behavioral and Social Sciences AA Degree Program is designed to meet the needs of students who wish to complete their education in a community college, and also to provide sufficient critical thinking skills to students who wish to find employment.
Requirements for the Associate in Arts degree in Liberal Arts: Behavioral and Social Sciences may be met by completing 9 units of Required Courses and 15 units of Major Electives with a “C” or better along with General Education units. Information on the General Education unit requirements may be found in the catalog under Graduation Requirements.

PROGRAM LEARNING OUTCOMES (PLOs)

Upon completion of the Degree program, students are able to:

- Examine the perspectives, principles, theories, methods, and core concepts of the social and behavioral sciences within their contemporary, historical, cultural and geographical contexts.
- Apply and construct written, verbal, numeric or non-verbal expression to convey logical thought, analyze arguments and self-express.
- Compare and contrast the values, attitudes, modes of creative expression, and/or dynamics of interpersonal interactions of people from diverse cultural and societal backgrounds.

REQUIRED COURSES

Select at least 9 units

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>HISTORY 011</td>
<td>Political &amp; Social History of the US I</td>
<td>3</td>
</tr>
<tr>
<td>- or HISTORY 012</td>
<td>Political &amp; Social History of the US II (3)</td>
<td></td>
</tr>
<tr>
<td>- or HISTORY 041</td>
<td>The African American in the History of the US I (3)</td>
<td></td>
</tr>
<tr>
<td>- or HISTORY 042</td>
<td>The African American in the History of the US II (3)</td>
<td></td>
</tr>
<tr>
<td>MATH 225</td>
<td>Introductory Statistics</td>
<td>3</td>
</tr>
<tr>
<td>- or MATH 227</td>
<td>Statistics (4)</td>
<td></td>
</tr>
<tr>
<td>POL SCI 001</td>
<td>The Government of the United States</td>
<td>3</td>
</tr>
</tbody>
</table>

CORE ELECTIVE COURSES:

Select at least 15 units

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTHRO 102</td>
<td>Human Ways of Life: Cultural Anthropology</td>
<td>3</td>
</tr>
<tr>
<td>ECON 001</td>
<td>Principles of Economics I</td>
<td>3</td>
</tr>
<tr>
<td>ECON 002</td>
<td>Principles of Economics II</td>
<td>3</td>
</tr>
<tr>
<td>GEOG 002</td>
<td>Cultural Elements of Geography Introduction</td>
<td>3</td>
</tr>
<tr>
<td>HISTORY 086</td>
<td>to World Civilization I Introduction to World</td>
<td></td>
</tr>
<tr>
<td>HISTORY 087</td>
<td>Civilization II</td>
<td>3</td>
</tr>
<tr>
<td>POL SCI 002</td>
<td>Modern World Governments Contemporary</td>
<td>3</td>
</tr>
<tr>
<td>POL SCI 007</td>
<td>World Affairs</td>
<td>3</td>
</tr>
<tr>
<td>PSYCH 001</td>
<td>General Psychology I</td>
<td>3</td>
</tr>
<tr>
<td>PSYCH 014</td>
<td>Abnormal Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PSYCH 032</td>
<td>Psychology of Women</td>
<td>3</td>
</tr>
<tr>
<td>PSYCH 041</td>
<td>Lifespan Psychology; from Infancy to Old Age</td>
<td></td>
</tr>
<tr>
<td>PSYCH 069</td>
<td>Psychology in Film</td>
<td>3</td>
</tr>
<tr>
<td>SOC 001</td>
<td>Introduction to Sociology</td>
<td>3</td>
</tr>
<tr>
<td>SOC 002</td>
<td>American Social Problems</td>
<td>3</td>
</tr>
<tr>
<td>SOC 028</td>
<td>The Family: A Sociological Approach</td>
<td>3</td>
</tr>
</tbody>
</table>

This program is Financial Aid Eligible.

PROGRAM OVERVIEW

The Associate in Science for Transfer in Mathematics prepares a student for transfer into the CSU system for further study in pure or applied mathematics. Earning a 4-year degree in mathematics prepares students for careers in which mathematical skills are in great demand, such as science, technology, engineering, computer science, business, industry, medicine, education or government. The goal of this degree is to provide a clear pathway for transfer students applying to
the California State University (CSU). Completion of the Associate in Science in Mathematics for Transfer (AST) ensures transfer students will complete the lower division general education requirements as well as the articulated lower division major requirements for the bachelor’s degree in Mathematics prior to transferring.

The Associate in Science in Mathematics for Transfer (AS-T) degree will be awarded upon completion of the following:

- Completion of 60 transferable semester units to the California State University
- Obtainment of a minimum grade point average of 2.0 in all transferable coursework.
- Full completion of one of the following General education patterns
  - The Intersegmental General Education Transfer Curriculum (IGETC), with “C”s or better in all coursework AND completion of Area 1C Oral communication (CSU admission requirement)
  - California State University General Education – Breadth Requirements (CSU GE). Areas A1, A2, A3, & B4 must be completed with a grade of “C” or better (CSU admission requirement)
- A minimum of 23 semester units required for the major
- All courses in the major must be completed with a grade of “C” or better or a “P” if the course is taken on a “Pass-No Pass” basis (Title 5 § 55063).

PROGRAM LEARNING OUTCOMES (PLOs)

Upon completion of the Degree program, students are able to:

- Apply techniques of Differential and Integral Calculus to solve problem in mathematics, statistics and applied sciences.
- Analyze data using methods of differential or integral calculus or statistics.
- Apply techniques of linear differential equations and systems of differential equations to develop mathematical models for application problems.

MATHEMATICS

Associate in Science for Transfer Degree
Major Units: 21-22

Requirements for the Associate in Science Transfer degree in Mathematics may be met by completing 15 units of Required Courses and 6-7 units of Major Electives with a “C” or better along with general education courses meeting IGETC or CSU Requirements.

REQUIRED COURSES:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 265</td>
<td>Calculus with Analytic Geometry I</td>
<td>5</td>
</tr>
<tr>
<td>MATH 266</td>
<td>Calculus with Analytic Geometry II</td>
<td>5</td>
</tr>
<tr>
<td>MATH 267</td>
<td>Calculus with Analytic Geometry III</td>
<td>5</td>
</tr>
</tbody>
</table>

MAJOR ELECTIVES:

Select at least 6-7 units from the courses below

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 270</td>
<td>Linear Algebra</td>
<td>3</td>
</tr>
<tr>
<td>MATH 275</td>
<td>Ordinary Differential Equations</td>
<td>3</td>
</tr>
<tr>
<td>MATH 227</td>
<td>Statistics</td>
<td>4</td>
</tr>
</tbody>
</table>

MAJOR REQUIRED MINIMUM SUBTOTAL 23 units

CSU or IGETC for CSU GE Pattern 37-39 units

CSU Transferable Elective units (as needed to reach 60 units)

TOTAL CSU transferrable units 60 units
APPRENTICESHIP EDUCATION

APPRENTICESHIP EDUCATION

Department Chair: William (Bill) Elarton, Room SQ-122
(213) 763-3701, cdm@lattc.edu

NOTE: Open to Registered Apprentices ONLY
Prerequisites: Registered Apprenticeship.

EDUCATIONAL PROGRAMS AND COURSES

- Electrical Lineman
- Engineer: Operating/Maintenance

LATTC’s Apprenticeship Education program offers classes to students who are indentured to learn a trade under agreement with the State of California Division of Apprenticeship Standards, and are required to attend college classes during their indenture ship. The LATTC Apprenticeship Education program is part of a state approved industrial plan for training skilled workers. It is enabled nationally by the Federal Apprenticeship Law (known as the Fitzgerald Act of 1937) and on the state level by the Shelley-Maloney Labor Standards Act of 1939. The program is authorized and supported by the California Apprenticeship Council under the supervision of the joint Apprenticeship Committee (equal employer and employee representation) for each trade under standards approved by the State of California.

Apprentices training under the cooperative direction of the college and Apprenticeship committees for their trade may petition to receive credit toward the Associate in Arts degree or the Associate in Science degree for all courses successfully completed. A Certificate of Completion will be awarded when the proper application is made and the student has successfully completed all the apprenticeship assigned in their discipline. Additional courses may be substituted with the approval of the apprenticeship coordinator. Substitutions will be limited to 50%.

There are two primary parts to the training of an apprentice: (1) on-the-job training and instruction in the manipulative processes, and (2) in-school training which involves instruction in technical subjects related to the on-the-job training. On-the-job training is comprised of 40 hours per week of supervised work experience and instruction wherein an apprentice rotates through a series of sequential work experiences which are designed to develop the all-around skills of the trade.

State apprenticeship law requires that state and local boards responsible for vocational education administer related and supplemental instruction for apprentices. College offerings provide the apprentice with a study of technical subjects, subject to regular class attendance for the duration of the apprenticeship training period. An example of topics studied, which are generally applicable to a majority of trades, includes applied math and science, blueprint reading and drawing, materials, equipment, processes, and health and safety.

Los Angeles Trade Technical College plays no part in the apprenticeship selection process. For further information about apprenticeship programs operating in California and the possibility of becoming an indentured apprentice in any trade, contact the California State Division of Apprenticeship Standards at 8th floor, Room 8000,320 West Fourth Street, Los Angeles, California 90012. Their phone number is (213) 576-7750 or go to Apprenticeship Program Information Guide.

For more information about LATTC Apprenticeship Program visit the website at https://college.lattc.edu/cmu/program/apprenticeship-programs/, come see us in Sequoia Hall, Room SQ-122, or call at (213) 763-7151.

ELECTRICAL LINEMAN APPRENTICESHIP

Certificate of Achievement

Prerequisites: Students enrolling in these classes must have been accepted into a California Indentured Apprenticeship Program. Student apprentices will be monitored and evaluated during this program by the joint apprenticeship committee for their trade and will gain the skills necessary to perform as a journeyman in their trade. A Certificate of Achievement may be awarded when a student completes 24 units in this program.

PROGRAM LEARNING OUTCOMES (PLOs)

Upon completion of the Certificate program, students are able to:

- Use hand and power tools to perform basic utility power-line work such as; hammers, saws, chain-saw, wrenches, and other related equipment.
- Perform calculations and measurements commiserate to entry level power-line work.
- Pole Climbing Competencies (Climbing with Confidence), demonstration of things such as; string and transfer overhead wire, set and remove utility poles, hang transformers, hang and remove cross-arms, install and remove cut-outs, etc.

See “Course Descriptions” Section for detail course information for the following -

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>701A</td>
<td>Electrical Lineman Apprenticeship IA</td>
<td>3</td>
</tr>
<tr>
<td>701B</td>
<td>Electrical Lineman Apprenticeship IB</td>
<td>3</td>
</tr>
<tr>
<td>702A</td>
<td>Electrical Lineman Apprenticeship IIA</td>
<td>3</td>
</tr>
<tr>
<td>702B</td>
<td>Electrical Lineman Apprenticeship IIB</td>
<td>3</td>
</tr>
<tr>
<td>703A</td>
<td>Electrical Lineman Apprenticeship IIIA</td>
<td>3</td>
</tr>
<tr>
<td>703B</td>
<td>Electrical Lineman Apprenticeship IIIB</td>
<td>3</td>
</tr>
<tr>
<td>704A</td>
<td>Electrical Lineman Cable Splicer IA</td>
<td>3</td>
</tr>
<tr>
<td>704B</td>
<td>Electrical Lineman Cable Splicer IB</td>
<td>3</td>
</tr>
<tr>
<td>Elective(s):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>709</td>
<td>Electrical Craft Helper</td>
<td>4</td>
</tr>
</tbody>
</table>
OPERATION MAINTENANCE ENGINEER APPRENTICES

Certificate of Achievement

Prerequisites: Students enrolling in these classes must have been accepted into a California Indentured Apprenticeship Program. A Certificate of Achievement may be awarded for completion of a combination of 36 units in this program and the A/C Refrigeration Mechanic program. Student apprentices will be monitored and evaluated during this program by the joint apprenticeship committee for their trade and will gain the skills necessary to perform as a journeyman in their trade.

PROGRAM LEARNING OUTCOMES (PLOs)

Upon completion of the Certificate program, students are able to:

• Use hand and power tools to perform stationary engineer operations.
• Perform calculations and measurements related to stationary engineer work.
• Work independently & interdependently to safely accomplish shared professional outcomes.

See “Course Descriptions” Section for detail course information for the following -

100  O.S.H.A. Based Safety Standards: Construction & Industry  2
703  Energy Management  4
704  Motor Control I  2
720  HVACR - I  2
724  Fundamentals of Electricity  2
727  Industrial Mechanics  2
739  Locksmithing and Security Systems for Apprentices  4
740  Tenant Relations and Reports for Apprentices  4
744  HVACR - Conditioning Controls  2
745  Plumbing Code I  4
746  Plumbing Code Principles and Practices  2
747  Electrical Trouble Shooting  2
748  Electrical Codes & Ordinances (NEC)  2
749  HVACR II  2
750  Indoor Air quality  4
751  Print Reading  3
753  Boilers for Apprentices  4
Pre-professional educational pathways

Cooperative Work Experience Education

Contact: Christie Dam
213.763.7075, DamMC@lattc.edu

Program Overview

Cooperative Work Experience Education (CWEE) combines on-the-job experience with regular classroom instruction. It is designed to expand students’ skills and knowledge, and to improve self-understanding by integrating classroom study with supervised work experience.

CWEE is based on the principle that well educated individuals develop most effectively through the incorporation of related education and work experience. By monitoring structured work experiences in business, industry, government and human services settings, LATTC provides enrichment to college studies which enhance the student’s total development.

In the Cooperative Work Experience Education program, an individual student’s educational objectives are carefully planned and coordinated between the College, the student, and the employer to ensure a positive and realistic employment experience.

Cooperative Work Experience Education has the following objectives:

- To provide opportunity for the student to secure employment on a part-time or full-time basis.
- To gain realistic work experience that is meaningfully related to the student’s college study program.
- To provide the student the opportunity to acquire knowledge, skills, and attitudes essential for successful employment.

A student enrolled in Cooperative Work Experience Education:

- Has the opportunity to learn or improve employment skills under actual working conditions.
- Gains perspective on career goals through application of classroom theory to “real life experience.”
- Builds self-identity and confidence as a worker through individual attention given by instructor/coordinators and employers.
- Has opportunities to test personal abilities in work environments.
- Has a more realistic approach to the Job market.
- May refer to work experience education in future job applications.
- Benefits financially while learning, and can begin a career earlier.

Student Qualifications

General Work Experience (195, 295, 395)

- Hours by arrangement: 1-3 units
- Prerequisite: Approval of Work Experience Coordinator

This is a program where supervised employment is intended to assist students in acquiring desirable work habits, attitudes, and career awareness. The work experience need not be related to the students’ educational goals. The course may be repeated for a maximum of 6 total units, subject to a maximum of 3 units per one enrollment period in general work experience education.

Students employed in a job not related to their major should enroll in:

COOP ED General Course(s): 195, 295 or 395

Section: See schedule

Units: 1-3

Room: Cedar Hall/K-225

Occupational Work Experience (911, 921, 931, 941)*

- Hours by arrangement: 1-4 units
- Prerequisite: Employment in a field related to the students’ program of study as verified and approved by the Cooperative Work Experience Coordinator.

This is a program of supervised training conducted in the form of on-the-job training in an employment area related to students’ occupationally oriented program of study that will enhance the students’ educational goals on campus. The course may be repeated for a maximum of 16 total units, subject to a maximum of 3 units during one enrollment period in occupational work experience education.

* Title 5, section 55253 states that a student may earn up to a maximum of 16 semester units or 24 quarter units of General & Occupational work experience education combined (Board Rule 6405.10).

Transferability: Please consult www.assist.org for transfer major related work experience coursework.

Students employed in a job related to their major should enroll in:

Discipline Specific Courses: 911, 921, 931 or 941

Section: See schedule

Units: 1-4

Room: Cedar Hall/K-225
Courses within the following disciplines provide Occupational Work Experience Education credit:

- Accounting (ACCTG)
- Automotive Collision Repair (AUTOCOR)
- Automotive and Related Technology (AUTORTK)
- Business (BUS)
- Building Construction Techniques (BLDGCTQ)
- Carpentry (CRPNTRY)
- Child Development (CH DEV)
- Culinary Arts (CLN ART)
- Diesel and Related Technology (DIESLTK)
- Electrical Construction and Maintenance (ECONMT)
- Electronics Technology (ELECTRN)
- Fashion Design (FASHDSN)
- Fashion Merchandising (FASHMER)
- Health Occupations (HLTHOCC)
- Management (MGMT)
- Plumbing (PLUMBNG)
- Professional Baking (PROFBKG)
- Refrigeration and Air Conditioning Mechanics (REF A/C)
- Solid Waste Management Technology (SWM TEK)
- Supervision (SUPV)
- Supply Water Technology (WATER)
- Welding/Gas and Electric (WELDG/E)

CALIFORNIA STATE UNIVERSITY: APPROVED COOPERATIVE EDUCATION SUBJECT AREAS

Los Angeles Community College District policy provides that a maximum of eight (8) semester units in cooperative education courses completed in the subject areas listed below may be applied toward the California State University.

Cooperative Education

The following courses provide Cooperative Work Experience Education credit:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Description</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>195</td>
<td>Work Experience General I</td>
<td>(1)</td>
</tr>
<tr>
<td>295</td>
<td>Work Experience General I</td>
<td>(2)</td>
</tr>
<tr>
<td>395</td>
<td>Work Experience General I</td>
<td>(3)</td>
</tr>
<tr>
<td>911</td>
<td>Work Experience in Major I</td>
<td>(1)</td>
</tr>
<tr>
<td>921</td>
<td>Work Experience in Major I</td>
<td>(2)</td>
</tr>
<tr>
<td>931</td>
<td>Work Experience in Major I</td>
<td>(3)</td>
</tr>
<tr>
<td>941</td>
<td>Work Experience in Major I</td>
<td>(4)</td>
</tr>
</tbody>
</table>

Prerequisite: Employment in a field related to the students’ program of study as verified by the signature of the cooperative education advisor. Supervised training is conducted in the form of on-the-line job training in an employment area that will enhance the students’ educational goals on campus.

Please consult www.assist.org for transferability of major related work experience coursework.
## Noncredit - Certificates

### College Readiness

<table>
<thead>
<tr>
<th>Award Title</th>
<th>Academic Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Certificate of Competency</td>
<td>T024218E</td>
</tr>
</tbody>
</table>

**Program Overview**

This certificate prepares students for success in college. Students will obtain the basic skills needed to successfully transition to college classes and start working towards their certificate, degree, or transfer goals.

**Program Learning Outcomes (PLOs)**

- Utilize the basic speaking and listening skills necessary for success in obtaining employment and/or advancement in the workplace.
- Demonstrate the basic reading and writing skills necessary for success in obtaining employment and/or advancement in the workplace.

**Required Courses**

<table>
<thead>
<tr>
<th>BSICSKL 002 CE</th>
<th>Basic English Skills</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSICSKL 023 CE</td>
<td>College and Scholastic Assessment Prep</td>
<td>0</td>
</tr>
<tr>
<td>BSICSKL 035 CE</td>
<td>Basic Math Skills</td>
<td>0</td>
</tr>
<tr>
<td>BSICSKL 060 CE</td>
<td>Basic Computer Literacy</td>
<td>0</td>
</tr>
<tr>
<td>BSICSKL 075 CE</td>
<td>Introduction to Post-Secondary Education</td>
<td>0</td>
</tr>
</tbody>
</table>

### English Literacy and Civics

<table>
<thead>
<tr>
<th>Award Title</th>
<th>Academic Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>English Literacy and Civics</td>
<td>T024029E</td>
</tr>
</tbody>
</table>

**Program Overview**

Courses in this program are designed to help students advance their English proficiency.

**Required Courses**

<table>
<thead>
<tr>
<th>ESLNC 001 CE</th>
<th>English as a Second Language- Beginning 1</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESLNC 008 CE</td>
<td>English as a Second Language-2</td>
<td>0</td>
</tr>
<tr>
<td>ESLELCVCS 010 CE</td>
<td>ESL and Civics -1</td>
<td>0</td>
</tr>
</tbody>
</table>

### English as a Second Language: Beginning

<table>
<thead>
<tr>
<th>Award Title</th>
<th>Academic Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>English as a Second Language: Beginning</td>
<td>T024459E</td>
</tr>
</tbody>
</table>

**Program Overview**

Students who earn this certificate will receive instruction in speaking, listening, reading and writing and the basic skills necessary for success in obtaining employment and/or advancement in the workforce.

**Program Learning Outcomes (PLOs)**

- Demonstrate accuracy and proficiency in describing career options.
- Demonstrate accuracy and proficiency in the selection of tools and PPE.
REQUIRED COURSES

BSICSKL 073CE Industry Overview and Career Opportunities 0
BSICSKL 077CE Fundamentals of Workplace Success - Teamwork 0
VOC ED 259CE (O.S.H.A.) Safety Standards: Construction & Industry 0
VOC ED 257CE Craft Helper 0
VOC ED 255CE Significant Changes to Industry Codes 0

LIFEGUARD TRAINING

Award Title | Academic Plan
--- | ---
Lifeguard Training | T036617E

PROGRAM OVERVIEW

Successful completion of this certificate provides candidates with recognized vocational certification for employment at: swimming pools, splash parks, aquatic parks, hotels and resorts as a lifeguard, shallow water lifeguard and/or aquatic attraction lifeguard. Successful completion of the required courses leads to the American Red Cross certificates in Lifeguard Training, Shallow Water Lifeguard or Aquatic Attraction Lifeguard.

PROGRAM LEARNING OUTCOMES (PLOs)

- Complete the first aid, CPR/AED certificate for either the American Red Cross or the American Heart Association.
- Complete the American Red Cross certificate for Lifeguard training, Waterfront/Waterpark, Shallow Water lifeguarding, and/or Aquatic attraction lifeguarding.

REQUIRED COURSES

VOC ED 311CE Workplace Safety: First Aid/CPR Basics 0
VOC ED 312CE Workplace Safety: Water Safety 0

RECREATION AND COMMUNITY SERVICES ASSISTANT

Award Title | Academic Plan
--- | ---
Recreation and Community Services Assistant | T024048E

PROGRAM OVERVIEW

This program is designed to train students to perform paraprofessional work assisting in organizing and conducting recreation, sports, cultural, and leisure activities. Work may include: assisting with developing, planning, and evaluating activities and events; providing basic skill instruction; performing handling procedures, commodities and maintaining records, directing group activities; and maintaining facilities, equipment and supplies.

REQUIRED COURSES

VOC ED 311CE Workplace Safety: First Aid/CPR Basics 0
VOC ED 312CE Workplace Safety: Water Safety 0
VOC ED 313CE Workplace Fitness and Conditioning 0

SEWING OPERATOR

Award Title | Academic Plan
--- | ---
Sewing Operator | T036615E

PROGRAM OVERVIEW

This program will provide instruction on all basic industry machinery operation as well as apparel construction, special fabric handling.

PROGRAM LEARNING OUTCOMES (PLOs)

- Student will be able to construct apparel using industry-recognized machinery.
- Student will be able to alter garments for proper fit.

REQUIRED COURSES

VOC ED 504CE Sewing Machine Basics 0
VOC ED 506CE Sewing Special Fabrics 0

UTILITIES AND CONSTRUCTION PREPARATION

Award Title | Academic Plan
--- | ---
Utilities and Construction Preparation | T024132E

PROGRAM OVERVIEW

The program focuses on preparing students for entry into the construction trades and/or utilities sectors.
REQUIRED COURSES

- BSICSKL073CE Industry Overview and Career Opportunities
- BSICSKL074CE Employment Test Preparation
- BSICSKL077CE Fundamentals of Workplace Success-Teamwork
- BSICSKL078CE Fundamentals of Workplace Success II-Effective Communication and Lead
- VOC ED 252CE Exploration of Construction and Maintenance Careers
- VOC ED 311CE Workplace Safety: First Aid/CPR Basics
- VOC ED 313CE Workplace Fitness and Conditioning

WATER SAFETY INSTRUCTOR

Certificate of Completion

<table>
<thead>
<tr>
<th>Award Title</th>
<th>Academic Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Safety Instructor</td>
<td>T036686E</td>
</tr>
</tbody>
</table>

PROGRAM OVERVIEW

Employment preparation as a certified American Red Cross Swimming and Water Safety Instructor with expertise in swimming and water safety instruction for all ages and abilities, water fitness, including fitness swimming, pre-swim team, water aerobics and beginning spring board diving.

PROGRAM LEARNING OUTCOMES (PLOs)

Students will be able to:

- Complete the first aid, CPR/AED certificate for either the American Red Cross or the American Heart Association.
- Complete the American Red Cross certificate for Lifeguard training, Waterfront/Waterpark, Shallow Water lifeguarding, and/or Aquatic attraction lifeguarding.
- Complete the American Red Cross Water Safety Instruction Certification.

REQUIRED COURSES

- VOC ED 311CE Workplace Safety: First Aid/CPR Basics
- VOC ED 312CE Workplace Safety: Water Safety
- VOC ED 314CE Workplace Safety Instruction

WORKPLACE READINESS

Certificate of Completion

<table>
<thead>
<tr>
<th>Award Title</th>
<th>Academic Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Workplace Readiness</td>
<td>T024163E</td>
</tr>
</tbody>
</table>

PROGRAM OVERVIEW

This program will provide students with the skills to successfully search for, obtain and maintain employment.

- Demonstrate the necessary computer literacy skills to successfully search for, obtain, and maintain employment.
- Utilize pre-employment / consumer training skills to successfully search for, obtain, and maintain employment.
- Demonstrate job search skills to successfully search for, obtain, and maintain employment.
- Employ effective image, etiquette, and interpersonal communication skills to successfully obtain and maintain employment.

REQUIRED COURSES

- BSICSKL 041 CE Softskills Basic 1A - Job Search Planning
- BSICSKL 042 CE Softskills Basic 1B - The Successful Job Search
- BSICSKL 045 CE Microsoft Office Application Basics
- BSICSKL 055 CE Softskills Basic 3B - Image, Etiquette and Interpersonal Communication
- VOC ED 008CE Pre-Employment Skills/Consumer Training
GRADUATION REQUIREMENTS, PATHWAYS AND PROGRAMS OF STUDY

ACCOUNTING

ACCTG 001 INTRODUCTORY ACCOUNTING I (5) UC/CSU
Lecture: 5 hours
Advisory: Business 38.

Introduces the fundamental principles and concepts of accounting as a basis for financial communication in business. This includes the procedures for maintaining records in business transactions and the preparation of financial statements for the sole proprietorship in a service and merchandising firm. Procedures and techniques for internal control, deferrals and accruals, inventory, plant assets, accounts receivable, accounts payable, and payroll are included.

Student Learning Outcome(s):
1. Analyze and record financial transactions and post to ledgers. 2. Analyze and prepare year-end adjustments using worksheets and completing the accountable cycle. 3. Analyze and prepare basic financial statements. Evaluate economic situations of the business by using simple financial ratios.

ACCTG 002 INTRODUCTORY ACCOUNTING II (5) UC/CSU
Lecture: 5 hours
Prerequisite: Accounting 1.


Student Learning Outcome(s):
1. Students will Journalize and post transactions involving sale of stock, changes in retained earnings, declaration of cash and stock dividends, sales and early redemption of bonds. 2. Students will prepare statements of cash flows using the indirect method.

ACCTG 003 INTERMEDIATE ACCOUNTING I (3) CSU
Lecture: 3 hours
Advisory: Accounting 2 and Business 38.

This course provides complete analytical application and an advanced review of topics discussed in Accounting I and II. Topics include assets (current, fixed, and intangible), investments, financial statements, income taxes, liabilities, stockholders equity, revenue recognition, asset acquisition and leases. This course places a high emphasis on financial reporting standards.

Student Learning Outcome(s):
Students will demonstrate skills and knowledge of income statement preparation and presentation.

ACCTG 011 COST ACCOUNTING (3) CSU
Lecture: 3 hours
Advisory: Accounting 1; Accounting 2; Business 38.

This course covers both managerial and cost accounting, with emphasis on cost and non-systems; types of cost; elements of cost; cost behavior; variances for labor, materials and overhead; indirect expenses; allocation of cost to by-products; standard cost and budgets.

Student Learning Outcome(s):
Student will be able to use cost-volume-profit (CVP) analysis to analyze decisions.

ACCTG 015 TAX ACCOUNTING I (3) CSU
Lecture: 3 hours

This course is a study of Federal Income Taxes as they apply to individuals and sole proprietors and a analysis of appropriated tax laws. Consideration of applicable accounting procedures and preparation of reports and returns are emphasized.

Student Learning Outcome(s):
1. Students will learn how to complete an individual income tax return. 2. Students will learn how to calculate gross income with exclusions.

ACCTG 018 COMPUTERIZED PAYROLL ACCOUNTING (3)
Lecture: 2 hours / Lab: 2 hours
Advisory: Accounting 1.

This course will cover procedures and practices involved in a manual or automated payroll system. Students will become familiar with current Federal and California laws affecting payroll, computation of payroll taxes and preparation of required payroll tax returns/forms.

Student Learning Outcome(s):
Students will demonstrate competency in computing federal and state liabilities for employer’s payroll taxes.

ACCTG 021 BOOKKEEPING AND ACCOUNTING I (3) UC/CSU
Lecture: 3 hours
Advisory: Business 38.

This course includes fundamentals of double entry bookkeeping; preparation of the trial balance; worksheets and financial statement; use of controlling accounts; the control of cash and bank reconciliation statements.

Student Learning Outcome(s):
1. Analyze financial transactions and prepare the appropriate journal entries to document the transaction in the accounting records. 2. Analyze and prepare basic financial statements such as trial balances, journal entries income statements. 3. Evaluate the post-closing trial balance and prepare the necessary post-closing entries for the opening trial balance for subsequent periods.
ACCTG 025 AUTOMATED ACCOUNTING METHODS AND PROCEDURES (3) CSU
Lecture: 3 hours

This course emphasizes the hands-on use of popular computer software applications to accounting and business, with special reference to the general ledger, billing, accounts receivable, accounts payable, payroll, and inventory control.

Student Learning Outcome(s):

Students will demonstrate the application of the accounting software to record various types business transactions and prepare standard financial reports for a service business.

ACCTG 921 COOPERATIVE EDUCATION - ACCOUNTING (2)
Lab: 6 hours

Cooperative Education is a work experience program involving the employer, the student-employee and the college to ensure that the student receives on the job training and the unit credit for work experience or volunteer work/internship. Students must be able to identify employment or volunteer internship placement in order to participate in program. Completion of two in-person, campus seminars, online work, and 120-150 field hours by the end of the course is required.

Student Learning Outcome(s):

The student will develop at least three learning objectives to be accomplished on the job. The objectives will be related to the educational/occupational goals of the student in the field of Accounting.

ADMINISTRATION OF JUSTICE

ADM JUS 001 INTRODUCTION TO ADMINISTRATION OF JUSTICE (3) UC/CSU
Lecture: 3 hours

Philosophy, history, and theories of the criminal justice system, including the origins and evolution of criminal law and due process, the roles and functions of the local, state, and federal jurisdictions, and the interrelationships among criminal justice agencies: law enforcement, courts, and corrections; crime causation, analysis and the social impact of crime. The conceptual approach utilized in this course recognizes that criminal justice is itself a distinct academic discipline rather than an interdisciplinary course of study. Three hours lecture per week.

Student Learning Outcome(s):

SLO #1 Gather information on the various components of the criminal justice system. SLO #2 Critically analyze and then organize information on the criminal justice system. SLO #3 Properly apply the English language to write an explanatory paper about the criminal justice system.

ADM JUS 002 CONCEPTS OF CRIMINAL LAW (3) UC/CSU
Lecture: 3 hours

This course deals with the structure of law, definitions, and the most frequently used sections of the California Penal Code. Topics include origins of federal and state laws, interpretation and application of laws, identifying elements of property crimes and criminal liability.

Student Learning Outcome(s):

1. Explain the major historical steps leading to the development of U.S. criminal law patterns. 2. Explain the elements, conduct, results of conduct, and attendant circumstances of certain crimes. 3. Explain the sources of development in the case law of significant criminal law matters.

ADM JUS 003 LEGAL ASPECTS OF EVIDENCE (3) CSU
Lecture: 3 hours

Students will be able to locate, develop and lift fingerprints from crime scenes; a must for those students interested in law enforcement as a police officer or evidence specialist or private investigations.

This course provides instruction in the origins, development and philosophy of criminal evidence. This course looks at the many different types of evidence brought into the justice system. Also covered are the rules governing the admissibility of evidence in court.

Student Learning Outcome(s):

1. Explain the origins, development and philosophy of criminal evidence. 2. Explain the types of criminal evidence utilized by our courts. 3. Explain rules regarding the use of evidence in our court system.

ADM JUS 004 PRINCIPLES AND PROCEDURES OF THE JUSTICE SYSTEM (3) UC/CSU
Lecture: 3 hours

A detailed study of the role and responsibilities of the American court system and its purpose, an examination of the philosophy, history, structure, operation, concepts and services related to the judiciary; a study of case law methodology and case research and their impact on society; an examination of the legal process from pre-arrest through trial, sentencing options and correctional procedures.

Student Learning Outcome(s):

SLO 1: List historical and conceptual significance of the court system, administration, and management. SLO 2: Discuss the criminal trial process and the specific roles and responsibility of each member. SLO 3: Evaluate the judicial process and its effect on society.

ADM JUS 005 CRIMINAL INVESTIGATION (3) CSU
Lecture: 3 hours

Fundamentals of the theories, concepts, and methodology of criminal investigation. This course will look at the investigative procedures from the crime scene to the courtroom, inclusive of legal constraints, ethics, and types of evidence; techniques and procedures for basic interview and interrogation procedures; identification of proper crime scene management, follow-up, case preparation and organization.

Student Learning Outcome(s):

1. Describe all the steps involved in a criminal investigation. 2. Identify classify, collect and preserve physical evidence.

ADM JUS 008 JUVENILE PROCEDURES (3) CSU
Lecture: 3 hours

This course covers the juvenile justice system and related juvenile justice issues. Topics include an overview of the juvenile justice system, treatment and prevention programs, history, theories, methodology, and special areas and laws unique to juveniles.

Student Learning Outcome(s):

SLO 1: Discuss the histories and philosophies of the juvenile justice system. SLO 2: Identify and compare the legislative policies related to juvenile offenders and the procedures for implementation. SLO 3: Describe the impact
of legislative change on the development of national standards for juvenile justice.

ADM JUS 014  REPORT WRITING FOR PEACE OFFICERS (3)  
CSU
Lecture: 3 hours

This course provides instruction in the practice of various types of technical writing commonly used in police agencies, the appropriateness of different styles in different contexts and the conceptualization of the material, and the utilization of machine tabulation in reports and methods of reporting criminal statistics.

Student Learning Outcome(s):
1. Write clear and concise law enforcement reports. 2. Improve basic grammar and apply the grammar rules to writing police reports.

ADM JUS 041  OFFICER SAFETY (3)  
CSU
Lecture: 3 hours

The study of techniques of protection against persons armed with dangerous and deadly weapons. Students examine the moral aspects, legal provisions, safety precautions and restrictions covering the use of firearms and other weapons.

Student Learning Outcome(s):
1. List safety hazards that pose threats to officers. 2. Describe the operation and application of safety equipment used to protect officers. 3. List the many factors that should be considered when approaching a dangerous situation.

ADM JUS 053  FORENSIC FINGERPRINT EVIDENCE (3)  
Lecture: 3 hours

Students will be able to locate, develop and lift fingerprints from crime scenes; a must for those students interested in law enforcement as a police officer or evidence specialist or private investigations.

Student Learning Outcome(s):
1. Define technical terminology used in fingerprint processing work. 2. Explain and interpret fingerprint patterns and classifications. 3. Explain fingerprint searching & filing procedures. 4. Classify fingerprint cards.

ADM JUS 062  FINGERPRINT CLASSIFICATION (3)  
CSU
Lecture: 3 hours

This is a practical course which covers the technical terminology of fingerprinting, pattern interpretation, and classification of fingerprints, the taking of fingerprints, searching and filing procedures and laboratory work in the classroom.

Student Learning Outcome(s):
1. Define technical terminology used in fingerprint processing work. 2. Explain and interpret fingerprint patterns and classifications. 3. Explain fingerprint searching & filing procedures. 4. Classify fingerprint cards.

ADM JUS 067  COMMUNITY RELATIONS I (3)  
UC/CSU
Lecture: 3 hours

Examination of the complex relationship between the community and the justice system with emphasis on the challenges of dealing with the role of race, ethnicity, gender relations, sexual orientation, social class, language, and culture in shaping these relations.

ADM JUS 073  LAW AND MINORITY GROUPS (3)  
CSU
Lecture: 3 hours

This course examines the growing crises of race, ethnicity, and gender discrimination within the American Justice System. Myths and realities about crime and minorities are analyzed. Racism, and inequities within the legal structures including court trials, corrections and the death penalty are discussed. Changes in criminal justice administration advocated by minority groups are reviewed.

Student Learning Outcome(s):
1. Analyze and evaluate how myths about race, ethnicity and crime have influenced our Criminal Justice System. 2. Compare and contrast the crime rates within and without minority communities. 3. Analyze, evaluate and describe the factors that have influenced race-based differences in the crime rate. Propose steps to be implemented for the reduction or eradication of race based criminal justice disparities.

ADM JUS 075  INTRODUCTION TO CORRECTIONS (3)  
CSU
Lecture: 3 hours

This course surveys the total correctional cycle and the relationships of its components, including historical, theoretical and philosophical explanations of criminal behavior; statistics and research findings; employment opportunities; and employment requirements. This course will also examine the basic nature of correctional work; aims and objectives of correctional administration; probation and parole; skills; knowledge and attitudes required for employment in this field.

Student Learning Outcome(s):
1. Identify the components of the U.S. Corrections system and its history of development. 2. Understand the procedures used in jails and prisons and their effect on inmates. 3. Compare and contrast the various alternatives to incarceration and for which populations each are best suited.

ADM JUS 501  AN A TO Z GUIDE TO CRIMINAL JUSTICE CAREERS (3)  
CSU
Lecture: 3 hours

This course reviews the hot jobs in the criminal justice arena and outlines a method for the student to decide on their career path. Hiring process and interview skills will be explored. Fitness for duty and other physical and physiological characteristics will be discussed. An A to Z guide to Local, State, and Federal Criminal Justice Careers will be presented.

Student Learning Outcome(s):
1. List career opportunities. 2. Develop a self career map/plan.

ADM JUS 502  INTRODUCTION TO FORENSIC PSYCHOLOGY (3)  
CSU
Lecture: 3 hours

This is a basic course dealing with the nature of Psychology within the criminal justice system. The aims and objectives of Forensic Psychology as applied to corrections, probation practices, institutions, services, and inmate supervision will be discussed.
AMERICAN SIGN LANGUAGE

A S L 001 AMERICAN SIGN LANGUAGE I (4) UC/CSU
Lecture: 4 hours

This is an introductory course designed to develop basic conversational skills using the manual alphabet and American Sign Language. It is planned to assist in communicating with deaf individuals and have a better understanding of deaf culture. This course develops basic vocabulary and grammar of American Sign Language. Its emphasis is placed on comprehension skills and vital aspects of the Deaf culture and community.

Student Learning Outcome(s):
1. Distinguish between Deaf and Hearing Culture. 2. Student will prepare and present a Formal ASL Presentation incorporating expressive and receptive ASL language skills.

A S L 002 AMERICAN SIGN LANGUAGE II (4) UC/CSU

Prerequisite: American Sign Language I.

Lecture: 4 hours

This is an intermediate course in American Sign Language with special emphasis on vocabulary, grammar dialog, and on the improvement of expressive and receptive skills. This course includes exposure to deaf culture and the history of sign languages.

Student Learning Outcome(s):
1. The student will demonstrate comprehension of ASL vocabulary and grammar. 2. The student will demonstrate ASL conversational fluency on an intermediate level. 3. The student will demonstrate use of descriptive classifiers, personal and possessive pronouns.

A S L 003 AMERICAN SIGN LANGUAGE III (4) UC/CSU

Prerequisite: A S L 002.

Lecture: 4 hours

Intermediate course with continued development of American Sign Language vocabulary, grammar, and beginning conversational fluency with special emphasis on idiomatic constructions. Further development of conversational techniques focusing on receptive and expressive skills. Expanded study of Deaf cultural issues. (Overview of topics include: language functions, such as, giving reasons, making requests, asking where, giving specific directions, correcting and confirming information, complaining, making suggestions, asking for permission, expressing concern, declining/explaining, asking forgiving definitions, describing objects, describing weekend activities, telling about disrupted plans; grammatical structures, such as, topic-comment, weak hand referencing, locatives, temporal aspect modulations, verb inflections, role shifting, conditional sentences, contrastive structure, classifier types, non-manual markers, number functions; and discourse structures, such as, presenting informative speeches using ASL).

Student Learning Outcome(s):
1 Receptive skills: Able to understand the meaning of a signed message produced at a normal rate of speed. 2. Expressive skills: Able to express particular interests and varied experiences with reasonable ease. 3. Grammar/Culture: Able to show a satisfactory knowledge of proper grammar/culture rules.

A S L 004 AMERICAN SIGN LANGUAGE IV (4) UC/CSU
Lecture: 4 hours

Prerequisite: ASL 003

In this course students focus on advanced vocabulary and grammar and further develop and refine communicative skills and fluency through spontaneously generated conversations that accentuate various aspects of Deaf culture and community.

Student Learning Outcome(s):
1. Receptive skills: can understand most conversations within the range of his/her experience with a high degree of fluency. 2. Expressive skills: Able to use ASL with a high degree of fluency and accuracy for most topics and levels of communication. 3. Grammar/Culture: Able to show a satisfactory knowledge of proper grammar/culture rules.

A S L 030 FINGER SPELLING I (1) CSU
Lab: 2 hours

Develops skills in expressive and receptive use of the Manual Alphabet. Deals with specific individual problems and techniques for corrections. [Overview of topics include: hand positioning (location and angle), handshapes, rhythm, fluency, spelling, and numbers; reception of fingerspelled handshapes, patterns and pauses/Transitions. O/P MEDI-CAL B]

Student Learning Outcome(s):

ANATOMY

ANATOMY 001 INTRODUCTION TO HUMAN ANATOMY (4) UC/CSU
Lecture: 3 hours / Lab: 3 hours

Prerequisite: Biology 003 or 005 or 006

A detailed study of structures and systems of the human body. Laboratory work includes microscopy, mammalian dissections, and use of anatomical models.
**ANTHROPOLOGY**

**ANTHRO 101**  
**HUMAN BIOLOGICAL EVOLUTION (3) UC/CSU**  
*Lecture: 3 hours*  
*Advisory: English 28.*

This course is an introduction to the field of biological anthropology. Topics covered include genetic inheritance, the mechanisms of evolution, the biology and behavior of living primates, the history of human evolution as seen in the fossil record, and modern human biological variation.

**Student Learning Outcome(s):**

Students will understand human beings as the result of a natural evolutionary process.

**ANTHRO 102**  
**HUMAN WAYS OF LIFE: CULTURAL ANTHROPOLOGY (3) UC/CSU**  
*Lecture: 3 hours*  
*Advisory: English 28.*

This course provides a comparative survey of human culture, including the study of human society, language, religion, political and economic organization, with examples drawn from contemporary preliterate, peasant, and urban societies.

**Student Learning Outcome(s):**

Students will develop comprehension and appreciation of human cultural variation and diversity.

**ANTHRO 111**  
**LABORATORY IN HUMAN BIOLOGICAL EVOLUTION (0) UC/CSU**  
*Lecture: 1 hour(s) / Lab: 2 hour(s)*

This course is a hands-on laboratory experience in selected topics related to human evolution that may include: molecular, Mendelian, and population genetics; modern human variation; geological time and fossilization; comparative primate anatomy; modern primate behavior; human fossil record; and forensic analysis.

**Student Learning Outcome(s):**

Students will understand human beings as the result of a natural evolutionary process.

a. Comprehend the basics of modern evolutionary theory and Mendelian genetics

b. Compare and contrast human beings with our closest living relatives, the non-human primates

c. Examine the fossil record of human evolution

d. Critically analyze human variation and its relationship to the concept of “race” and its practical applications.

**ARCHITECTURAL INTERIORS**

**INT 200**  
**RESIDENTIAL PLANNING (3) CSU**  
*Lecture: 2 hour / Lab: 3 hours*

Using sustainable Design strategies, standards and geospatial tools (CADD/BIM/GIS), the student will learn how to participate in the interior design profession as a “viewer and a doer” for the entire life cycle of a building and focusing on interior residential planning. Basic concepts will be covered in class to understand the fundamentals variables that determine interior spaces: lights, air, circulation, texture, pattern, geometry, experience, styles, natural resources, energy efficiency, form, materials, thermal/moisture protection and others. A study is made using a “small house project” layout, livability, functionality, size, orientation, cost, furnishing, equipment, and ornamentation and future inhabitants. The “small house project” is put in context through a brief history of American shelters—their construction types and styles. At this point the student is ready for developing, retrofitting, adding and remodeling the “small house project” including basic interior construction details and finishes. Residential construction problems are explored with an emphasis placed in functional design.

**Student Learning Outcome(s):**

1. Student designs and builds a tensegrity/triangulated structure, as he or she locates and compares the theoretical, practical, and contextual issues that influence sustainable interior design with the consideration of accountability, durability and responsibility in fulfilling personal, community, and workplace roles. 2.- Student understands and presents a CAD/BIM tool commands that applies to interior design, as he/she communicates information and ideas effectively to multiple audiences using a sender-receiver model. 3.- Student designs a product or a building for interior design by using mathematics and geometry found in nature through a collaboration with industry experts and learn work.

**ARCHITECTURE**

**ARC 130**  
**HISTORY OF ARCHITECTURE I (2) UC/CSU**  
*Lecture: 2 hours*

This course covers the study of architecture history from the prehistoric times to the Renaissance, the development of place and function as it is influenced by the geographical, climatic, religious, social, economic and historical forces. This course analyzes the difference between world architecture history and western architecture history, including the characteristics of Latin America, Islamic and Asia. The history of architecture is seen through a perspective of how the built environment has responded to nature forces and resources; air, water, air and land. In addition each period explores technological innovation that characterized the historical roots in numerous civilizations.

**Student Learning Outcome(s):**

1. From Pre-historic to the Renaissance time, the student draws a manual sketch of a building or city, as he/she identifies and locates materials, technology, socioeconomic forces, math/geometry, sustainable strategies and design principles that shaped it. 2. Student creates a report and summary for each period of time including all concepts and discoveries discussed in class, as he/she compares the relationship between architecture and the external environment. 3. Student develops a final architectural and environmental design project from a particular period of time and applies a skill tool like CAD/BIM, to a physical/digital/3D printing model or infographic.
ARC 131 HISTORY OF ARCHITECTURE II (2) UC/CSU  
Lecture: 2 hours

This course covers the study of architecture history from the Renaissance to our current times, the development of place and function as it is influenced by the geographical, climatic, religious, social, economic and historical forces. This course analyzes the difference between world architecture history and western architecture history, including the characteristics of Latin America, Islamic and Asia. The history of architecture is seeing through a perspective of how the built environment has responded to nature forces and resources; air, water, air and land. In addition each period identifies technological innovation that characterized the historical roots in numerous civilizations.

Student Learning Outcome(s):
1. From the Renaissance to our time, the student draws a manual sketch of a building or city, as he/she identifies and locates materials, technology, socioeconomic forces, math/geometry, sustainable strategies and design principles that shaped it. 2. Student creates a written summary for each period of time derived from all the concept and discoveries discussed in class, as he/she compares the relationship between architecture and the external environment. 3. Student develops a final architecture and environmental design project from a particular period of time and applies a skill tool like CAD/BIM, to a physical/digital/3D printing model or infographic.

ARC 151 MATERIALS OF CONSTRUCTION (3) UC/CSU  
Lecture: 1 hour / Lab: 4 hours

This course covers materials and methods of construction in the field of architecture, engineering and construction: wood, concrete, steel and masonry. This course analyzes each material characteristics, methods of construction, testing requirements, allowable uses, energy transfer capacity, structural behavior and their use in multiple construction assemblies. Materials and methods of constructions are covered in this class in alignment with sustainable standards, government agencies regulations, local incentives, carbon footprint and geospatial simulations.

Student Learning Outcome(s):
1. Using sustainable strategies and mathematical skills, the student understands each construction material: wood, metal, masonry, concrete, plastic and glass, as well as their relationship between architecture, engineering and construction. 2. Student understands and uses tools like CAD/BIM to draw details for each construction materials; wood, metal, masonry, concrete, plastic and glass, as it relates to standards and building codes. 3. Student locates technical information, as he or she interprets information to draw conclusions, based on the best analysis, to make informed decisions for a formula or a table for each construction material: wood, metal, masonry, concrete, plastic and glass.

ARC 152 EQUIPMENT OF BUILDINGS (3) CSU  
Lecture: 2 hour / Lab: 3 hours

Using geospatial tools and sustainable strategies this course applies the basic principles of design, selection and operation of equipment in buildings. Building equipments are systems that integrate architectural design with water distribution, water recycling and harnessing, air circulation, natural air flow, air heating and cooling, natural light, and acoustics. Passive and solar strategies are integrated into equipment as well as new technologies.

Student Learning Outcome(s):
1. Using sustainable strategies and mathematical skills, the student understands each building system: water/plumbing, electrical/energy, air conditioning/HVAC, acoustics and fire as well as their relationship between architecture, engineering and construction. 2. Student understands and uses tools like CAD/BIM for each building system; water/plumbing, electrical/energy, air conditioning/HVAC, acoustics and fire as it relates to industry standards and building codes. 3. Student locates technical information and interprets information to draw conclusions, based on the best analysis, to make informed decisions for a formula or a table for each of the building systems: water/plumbing, electrical/energy, air conditioning/HVAC, acoustics and fire.

ARC 160 COMPUTERS FOR DESIGNERS (3) CSU  
Lecture: 2 hour / Lab: 3 hours

The student will learn how to become a designer and a technologist in three dimensional digital environments for architecture, urban and environmental design. The student will use the power of the tools to be inspired and to collaborate. This course is geared towards the built environment, ecological, entertainment and industrial designers. Students will learn how the space of a place affects the way we think, act and create. Emphasis is placed on how designers can optimize and understand the role of digital mediums in today's competitive edge and sustainable demands. Basic computer operations like operating systems, interfaces, print, view, export, file management, image manipulation are covered within the design exercises.

Student Learning Outcome(s):
1. Student designs an object transformation on a 3D modeling tool, as he or she uses system thinking to analyze how various components interact with each other to produce outcomes in a complex work environment. 2. Student designs a product or building using computer aided design and 3D printing technology, as he/she demonstrate health and safety procedures, regulations, and personal health practices and determine the meaning of symbols, key terms, and domain-specific words and phrases as related to the Engineering and Architecture sector workplace environment. 3. Following mathematical models student designs an interactive map using spatial information system from local, district, state, and federal regulatory agencies, entities, laws, and regulations.

ARC 172 ARCHITECTURAL DRAWING I (3) CSU  
Lecture: 2 hour / Lab: 3 hours

This is an architecture drawing class that will focus on construction documents for wood construction. The course will cover how these architectural drawings are documents that instruct all the stake holders how to use, build and maintain a high performance building. The course will explain how construction documents made out of wood are connected to the life cycle of a building. It covers an integrated building approach, as it identifies the deliverables for: programming (identify the need), design drawings (identify the solutions), construction documents (drawings used to build the building), operation/maintain (as built drawings) and assessment (analysis for upgrade and improvement). This course will also cover CAD, BIM, GIS tools, LEED Credits, Sustainable Standards and their relationship to a set of construction documents for wood construction. Fundamentals of architectural drafting, symbols, dimensioning, and methods of representation are also mastered during this course. The student will prepare a set of construction documents for a simple wood building structure.

Student Learning Outcome(s):
1. Using sustainable standards and contemporary tools like CAD/BIM 3D printing tools, the student understands and produces a set of construction documents (drawings and specification) for a wood/concrete building. 2. Student coordinates, plans and locates technical information for a project using site and building restrictions imposed by various entities for a masonry/concrete building and the production of maintenance and operations manuals that address project long term sustainability and resilient requirements. 3. Student understands and explores mathematical methods and details used to analyze simple structures, properties of materials, cost estimating, load transfer and strain-stress relationships for a masonry/concrete building.

ARC 173 ARCHITECTURAL DRAWING II (3) CSU  
Lecture: 2 hour / Lab: 3 hours

This is an architecture drawing class that will focus on construction documents for concrete and masonry construction. The course will cover how these architectural drawings are documents that instruct all the stake holders how to use, build and maintain a high performance building. The course will explain how construction documents made out of concrete and masonry are connected to the life cycle of a building. It covers an integrated
building approach as it identifies the deliverables for programming (identify the need), design drawings (identify the solutions), construction documents (drawings used to build the building), operation/maintenance (as built drawings) and assessment (analysis for upgrade and improvement). In addition this course will cover CAD, BIM, and GIS tools, LEED Credits, Sustainable Standards and their relationship to a set of construction documents for concrete and masonry construction. The student will develop a simple set of construction documents for concrete and masonry.

Student Learning Outcome(s):
1. Using sustainable standards and contemporary tools like CAD/BIM 3D printing tools, the student understands and produces a set of construction documents (drawings and specification) for a masonry/concrete building. 2. Student coordinates, plans and locates technical information for a project using site and building restrictions imposed by various entities for a masonry/concrete building and the production of maintenance and operations manuals that address project long term sustainability and resilient requirements. 3. Student understands and explores mathematical methods and details used to analyze simple structures, properties of materials, cost estimating, load transfer and strain-stress relationships for a masonry/concrete building.

ARC 185 DIRECTED STUDY - ARCHITECTURE (1) CSU
Lecture: 1 hour

This course allows students to pursue a directed study in the Architecture Technology field on a contract basis under the direction of a supervising instructor.

Student Learning Outcome(s):
1. The outcome will vary depending on the contract with the instructor. 2. The student will formulate a research paper based on a topic in Architecture Technology.

ARC 201 ARCHITECTURAL DESIGN I (3) UC/CSU
Lecture: 2 hour / Lab: 3 hours

This course will use sustainable strategies and geospatial tools to explore architecture design solutions. In this course students will work in a design laboratory studio exploring space and form. The solutions focus on analysis, proportion, solar passive, water conservation, biomimicry, planning layout, aesthetic, interpretation, and the nature of materials. Methods of presentations are studied, as well as design methodologies.

Student Learning Outcome(s):
1. Student designs and builds a tensile/structured space, as he or she locates and compares the theoretical, practical, and contextual issues that influence sustainable architecture design with the consideration of accountability, durability and responsibility in fulfilling personal, community, and workplace roles. 2. Student understands and presents a CAD/BIM tool commands that applies to architecture design, as he/she communicates information and ideas effectively to multiple audiences using a sender/receiver model. 3. Student designs a product or a building for urban design by using mathematics and geometry found in nature and through a collaboration with industry experts and team work.

ARC 202 ARCHITECTURAL DESIGN II (3) UC/CSU
Lecture: 2 hour / Lab: 3 hours

This course looks at space and form as a canvas for an architect, moving beyond abstraction language paradoxes, and formal gymnastics. Design and form integrates embodied energy of all resources, cognitive experiences, new materials, stronger social concerns and the need to react to location and space. It will see the creation of place and space, as a first act of human intention and use nature templates to solve holistic solutions. This course analyzes how the geometry of space influences how we communicate, behavior, think, create, and produce; as well as its influences in cognition and mental model.

ARC 261 COMPUTER-AIDED DESIGN FOR ARCHITECTURE I (3) UC/CSU
Lecture: 2 hour / Lab: 3 hours

This is a digital modeling course for space and form design. This course covers space modeling, energy simulation, solar paths, light analysis, texture, rendering and materials, as well as its relationship to BIM, CAD and geospatial tools.

Student Learning Outcome(s):
Students will submit the following according to standards: Renderings, Lighting Studies, Solar simulation, Walk through of any built environment (if applicable), Texture studies, ePortfolio.

ARC 271 ARCHITECTURAL DRAWING III (3) CSU
Lecture: 2 hour / Lab: 3 hours

This is an architecture drawing class that will focus on construction documents for steel construction. The course will cover how these architectural drawings are documents that instruct all the stake holders how to use, build and maintain a high performance building. The course will explain how construction documents made out of concrete and masonry are connected to the life cycle of a building. It covers an integrated building approach as it identifies the deliverables for: programming (identify the need), design drawings (identify the solutions), construction documents (drawings used to build the building), operation/maintain (as built drawings) and assessment (analysis for upgrade and improvement). The student will prepare a complete set of construction documents for a simple steel building structure. Appropriate reference material that focus on concrete and masonry will be covered in class like fastening, flashing, crack control and others.

Student Learning Outcome(s):
1. Using sustainable standards and contemporary tools like CAD/BIM 3D printing tools, the student understands and produces a set of construction documents (drawings and specification) for a steel/concrete building. 2. Student coordinates, plans and locates technical information for a project using site and building restrictions imposed by various entities for a masonry/concrete building and the production of maintenance and operations manuals that address project long term sustainability and resilient requirements. 3. Student understands and explores mathematical methods and details used to analyze simple structures, properties of materials, cost estimating, load transfer and strain-stress relationships for a masonry/concrete building.

ARC 285 DIRECTED STUDY - ARCHITECTURE (2) CSU
Lecture: 2 hours

This course allows students to pursue a directed study in the Architecture Technology field on a contract basis under the direction of a supervising instructor.

Student Learning Outcome(s):
1. The outcome will vary depending on the contract with the instructor.
The student will formulate a research paper based on a topic in Architecture Technology.

**ARC 341 GIS METROPOLITAN ACCESS PLANNING SYSTEMS I**
(3) CSU

Lecture: 1 hour / Lab: 4 hours

This course will cover the interconnection of BIM, CAD, GIS, spatial systems and online mapping in one construct. GIS technology and related geospatial technologies will explore intelligent building drawings as they connect to multiple environments: ecological, buildings and socio-economic forces. GIS are spatial drawings with multiple types of information associated with them: business, land use, roads, rivers, parcel maps, census, others. This course introduces fundamental concepts and functionality of spatial thinking and visual computation. The course uses the GIS analytical process to quantify and qualify multiple layers of spatial information applied to sustainable projects.

Student Learning Outcome(s):

1. The student understands how to create maps around their neighborhood and locates sector terminology and protocols to communicate effectively in oral, written, and multimedia formats. 2. The student learns the basic skill to obtain GIS tool Industry Certification, as he/she recognizes the role and function of professional organizations, industry associations, and organized labor in a productive society. 3. The student designs spatial information for architecture, urban planning and economic development using mathematical principles of pattern recognition.

**ARC 385 DIRECTED STUDY - ARCHITECTURE (3) CSU**

Lecture: 3 hours

This course allows students to pursue a directed study in the Architecture Technology field on a contract basis under the direction of a supervising instructor.

Student Learning Outcome(s):

1. The outcome will vary depending on the contract with the instructor. 2. The student will formulate a research paper based on a topic in Architecture Technology.

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**ART 101 SURVEY OF ART HISTORY I (3) UC/CSU**

Lecture: 3 hours

This course encompasses the historic study of architecture, painting and sculpture, with incidental references to the related minor arts. A survey is made of the chronological development of Western and non-European art from the Prehistoric to the Renaissance, with special emphasis upon the cultural factors that contributed to its evolution.

Student Learning Outcome(s):

Students will identify, compare, and analyze Western and Non-Western art and architecture from the Prehistoric to the Renaissance and demonstrate knowledge of art terminology and artistic styles through objective and essay exams, oral presentations and museum projects.

**ART 102 SURVEY OF ART HISTORY II (3) UC/CSU**

Lecture: 3 hours

A survey of the major visual arts of the Western world from the Early Renaissance to the present, linking art and architecture with social, economic, political and religious aspects of western and global cultures.

Student Learning Outcome(s):

Students will identify, compare, and analyze art and architectural styles, theories, and individual artistic expression from the Early Renaissance to present in the Western World while demonstrating knowledge of art terminology and artistic styles through objective and essay exams, oral presentations and museum projects.

**ART 103 ART APPRECIATION I (3) UC/CSU**

Lecture: 3 hours

This course is designed specifically for those students who desire to expand their visual awareness through training in visual perceptual skills. The course includes exploration of the basic elements of art; visual skills are enhanced by practice in drawing techniques based on perception. Students will acquire a broad understanding of the nature of art through study of selected works from art history.

Student Learning Outcome(s):

Students will identify and compare the various media and techniques of art as well as analyze the nature of art, the use of the elements and principles and identify selected works from art history.

**ART 201 DRAWING I (3) UC/CSU**

Lecture: 2 hours / Lab: 2 hours

Instruction is given in basic pencil drawing, charcoal, pastel, and other sketching media. Painting in wash, ink, and watercolor, from still life and outdoor assignments is included. This is a course for beginners and non art majors, as well as, a brush up course for artists.

Student Learning Outcome(s):

Students will create drawings in a variety of materials using line, shape, form and light logic.

**ART 300 INTRODUCTION TO PAINTING (3) UC/CSU**

Lecture: 2 hours / Lab: 2 hours

An introduction to various painting materials, media, and techniques. Emphasis is placed on color mixing, value, intensity and compositional organization.

Student Learning Outcome(s):

Students will create paintings in a variety of media using color theory, color mixing, value, and intensity. Students will demonstrate compositional organization and techniques in their paintings.
ASTRONOMY

ASTRON 001 ELEMENTARY ASTRONOMY (3) UC/CSU
Lecture: 3 hours

This course is a general introduction and overview of Astronomy and covers many topics including constellations, seasons, history of Astronomy, the electromagnetic spectrum, telescopes, the Earth and other planets of our solar system, the Sun, binary stars, the Milky Way Galaxy, properties of galaxies and the Big Bang Theory. Students are kept abreast of current developments in the field.

Student Learning Outcome(s):
1. To describe the origins of the Universe, the Big Bang Theory, and the present general structure of the Universe.
2. To recognize components and facts of the solar system, including planets, satellites, asteroids, comets, and theories of the origin of the solar system.
3. To examine the methods astronomers use to explore the natural phenomena of the universe including the scientific method, the nature of matter, energy, radiation and the historical development of astronomical ideas.
4. To describe the nature of stars, including star formation and evolution, stellar energy sources and how this is related to our sun.
5. To describe the nature of the Milky Way and other galaxies and their distribution in the universe and currently accepted theories of Cosmology.
6. To describe the current theory of the origin of life on Earth.

ASTRON 005 FUNDAMENTALS OF ASTRONOMY LABORATORY (1) UC/CSU
Lab: 3 hours
Corequisite: ASTRON 001

This course provides the laboratory work to accompany or follow Astronomy 1. This course uses astronomical instruments and laboratory equipment. Includes work with celestial sphere, sky charts, optical bench, telescopes, spectrosopes, and photometer. The course requires field trips for evening observations.

Student Learning Outcome(s):
1. Be able to set up and use an astronomical telescope to observe and identify features of selected astronomical bodies.
2. Be able to examine and analyze data from astronomical charts and images.
3. Be able to use and examine a planisphere and charts to identify constellations, stars and planets in the night sky, as demonstrated during evening viewing sessions.
4. Be able to identify constellations, stars, planets, and other objects in the night sky by direct observation.

AUTOMOTIVE COLLISION REPAIR

AUTOCOR 112 AUTO BODY CONSTRUCTION, REPAIR AND WELDING FUNDAMENTALS (9)
Lecture: 3 hours / Lab: 18 hours

This course covers basic auto body construction types, nomenclature, body adjustments, and repairs. Instruction includes welding on high strength steels, alloys, and plastic composites. Replacement of structural and non-structural auto body components is also covered.

Student Learning Outcome(s):
1. The student will be able to show proper tool usage and demonstrate welding techniques according to I-CAR standards.
2. The student will be able to analyze various types of structural and non-structural damage.

AUTOCOR 122 INTERMEDIATE COLLISION REPAIR-PARTS REPLACEMENT, METAL REPAIR, FRAME STRAIGHTENING & REFINISHING (9)
Lecture: 3 hours / Lab: 18 hours

This course offers instruction in auto body repair procedures and alignment. Various repairs of metals, plastics and composites along with frame straightening techniques and refinishing procedures will be covered.

Student Learning Outcome(s):
1. Student will be able to perform panel replacement. Student will be able to perform frame measuring and assess frame for damage.
2. Student will be able to prepare and refinish a panel.

AUTOCOR 132 UNITIZED BODY PANEL, SECTION, & FRAME; REPLACEMENT & ALIGNMENT (9)
Lecture: 3 hours / Lab: 18 hours

Instruction is given in bolt-on procedures and welding procedures of panel replacements and the use of pulling equipment for proper sheet metal alignment. Students will understand the techniques of outer body panel repairs, replacements, and adjustments. Students will repair, remove and replace steel / aluminum / SMC / plastic body panels, doors, deck lids, bumpers, and hoods. Students will adjust and align panels to manufacturer’s specifications. Instruction is given in body section replacement and structural sectioning, including removing and replacing mechanical parts, using manufacturer’s body repair manual and I-CAR recommendations. Measuring for cutting and proper alignment of sections is stressed. Students will understand the proper techniques of body/structural sectioning and anti-corrosion protection. Students learn proper frame alignment and the methods of straightening damaged frames and unitized body construction. Students learn to utilize computerized laser beam frame measuring equipment. Body shop practices are also covered.

Student Learning Outcome(s):
1. Students will utilize proper safety equipment when working in the lab.
2. Students will properly remove and replace body panels to OEM specifications.
3. Students will properly set up the Squeeze-type resistance spot welding machine.
4. Students will properly create spot welds to factory specifications.
5. Students will properly repair steel body panels.
6. Students will properly repair aluminum body panels.
7. Students will replace bolt-on aluminum body panels, riveted-bonded aluminum body panels, and adhesively bonded aluminum body panels.
8. Students will properly prepare plastics for repair and welding.
9. Students will be able to differentiate between High Strength Steel (HSS), Advanced High Strength Steel (AHSS), and Ultra High Strength Steel (UHSS).
10. Students will be able to repair and replace complete and partial unibody frame panels made of HSS, AHSS, and UHSS.
11. Students will be able to repair and replace complege and partial full-frame sections made of HSS, AHSS, and UHSS.
12. Students will be able to take corrosion precautions and apply corrosion preventing materials where needed.
13. Students will utilize proper safety precautions when measuring and straightening frames with equipment.
14. Students will identify proper measurements by examining Body Dimension Specifications from vehicle manufacturers.
15. Students will be able to evaluate the effects of impact forces through full-frame and unibody construction by measuring with specific gauge type measurements to OEM specification measurements found in Body Dimension Charts.
16. Students will be able to utilize various types of uni-body and full-frame straightening equipment to include in-floor straightening equipment, portable body and frame pullers, rack straightening systems and bench straightening.
<table>
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**Student Learning Outcome(s):**

- Students are taught collision analysis for body, frame and refinishing of damaged vehicles. Students create damage reports for customers and insurance companies. Students are given access to Mitchell University online instruction and certification website. Instruction is given in proper repair procedures, nomenclature, and terminology so students can clearly justify damage reports to customers, insurance adjusters, and technicians. This course provides training on the basics of UltraMate Premier Suite E Claim Manager, a tool that allows users to place all claim related data (estimates, images, etc.) into a single electronic claim folder. It will offer a review of auto collision repair techniques and includes lectures, demonstrations, and guest speakers. Advanced instruction is offered in inspection, paint repair and repaint to I-CAR and industry standards. The DuPont Certification for Compliant Coatings Rule 1151 is taught in this course. It will include paint application problems and solutions. Spot and panel paint options including color matching are taught. Certification testing for the DuPont Certificate is given and certificates are awarded to qualifying students.

**Student Learning Outcome(s):**

- Students will properly identify vehicles. 3. Students will properly set up the Squeeze-type resistance spot welding machine. 4. Students will properly create spot welds to factory specifications. 5. Students will properly repair steel body panels. 6. Students will properly repair aluminum body panels. 7. Students will be able to repair and replace complete and partial full-frame sections made of HSS, AHSS, and UHSS. 8. Students will be able to take corrosion precautions and apply corrosion preventing materials where needed. 9. Students will be able to evaluate the effects of impact forces through full-frame and unibody construction by measuring with specific gauge type measuring equipment and comparing the measurements to OEM specification measurements found in Body Dimension Charts. 10. Students will be able to utilize various types of unibody and full-frame straightening equipment to include in-floor straightening equipment, portable body and frame pullers, rack straightening systems and bench straightening systems.

**Student Learning Outcome(s):**

- Students will utilize proper safety equipment when working in the lab. 2. Students will properly remove and replace body panels to OEM specifications. 3. Students will properly set up the Squeeze-type resistance spot welding machine. 4. Students will properly create spot welds to factory specifications. 5. Students will properly repair steel body panels. 6. Students will properly repair aluminum body panels. 7. Students will be able to repair and replace complete and partial full-frame sections made of HSS, AHSS, and UHSS. 8. Students will be able to take corrosion precautions and apply corrosion preventing materials where needed. 9. Students will be able to evaluate the effects of impact forces through full-frame and unibody construction by measuring with specific gauge type measuring equipment and comparing the measurements to OEM specification measurements found in Body Dimension Charts. 10. Students will be able to utilize various types of unibody and full-frame straightening equipment to include in-floor straightening equipment, portable body and frame pullers, rack straightening systems and bench straightening systems.

**Student Learning Outcome(s):**

- Students receive instruction in the types and properties of paint, solvent and spot painting. Cause and effect relationships of paint and surface blemishes, paint application problems, repairs and final detailing as required to I-CAR and industry standards are introduced.

**Student Learning Outcome(s):**

- Students will properly remove and replace body panels to OEM specifications. 3. Students will properly set up the Squeeze-type resistance spot welding machine. 4. Students will properly create spot welds to factory specifications. 5. Students will properly repair steel body panels. 6. Students will properly repair aluminum body panels. 7. Students will be able to repair and replace complete and partial full-frame sections made of HSS, AHSS, and UHSS. 8. Students will be able to take corrosion precautions and apply corrosion preventing materials where needed. 9. Students will be able to evaluate the effects of impact forces through full-frame and unibody construction by measuring with specific gauge type measuring equipment and comparing the measurements to OEM specification measurements found in Body Dimension Charts. 10. Students will be able to utilize various types of unibody and full-frame straightening equipment to include in-floor straightening equipment, portable body and frame pullers, rack straightening systems and bench straightening systems.

**Student Learning Outcome(s):**

- Students receive instruction in the types and properties of paint, solvent and spot painting. Cause and effect relationships of paint and surface blemishes, paint application problems, repairs and final detailing as required to I-CAR and industry standards are introduced.
### Graduation Requirements, Pathways and Programs of Study

**AUTOCOR 285**  DIRECTED STUDY - AUTOMOTIVE COLLISION REPAIR (2)

**Lecture: 2 hours**

This course allows students to pursue a directed study in Automotive Collision Repair on a contract basis under the direction of a supervising instructor.

**Student Learning Outcome(s):**

The student will develop at least three learning objectives to be accomplished on the job. The objectives will be related to the educational/occupational goals of the student.

**AUTOCOR 385**  DIRECTED STUDY - AUTOMOTIVE COLLISION REPAIR (2)

**Lecture: 2 hours**

This course allows students to pursue a directed study in Automotive Collision Repair on a contract basis under the direction of a supervising instructor.

**Student Learning Outcome(s):**

The outcome will vary depending on the contract with the instructor. The student will formulate a research paper based on a topic in Automotive Collision Repair.

**AUTOCOR 285**  DIRECTED STUDY - AUTOMOTIVE COLLISION REPAIR (3)

**Lecture: 3 hours**

This course allows students to pursue a directed study in Automotive Collision Repair on a contract basis under the direction of a supervising instructor.

**Student Learning Outcome(s):**

The outcome will vary depending on the contract with the instructor. The student will formulate a research paper based on a topic in Automotive Collision Repair.

**AUTOCOR 341**  COOPERATIVE EDUCATION - AUTOMOTIVE COLLISION REPAIR (4)

**Lecture: 4 hours**

Cooperative Education is a work experience program involving the employer, the student-employee and the college to insure that the student receives on the job training and the unit credit for work experience or volunteer work/internship. Completion of at least seven units, including Cooperative Education, at the end of the semester is required. Students must be employed or volunteering/interning in order to participate in program.

**Student Learning Outcome(s):**

1. The student will develop at least three learning objectives to be accomplished on the job. 2. The objectives will be related to the educational/occupational goals of the student.

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**AUTOMOTIVE AND RELATED TECHNOLOGY**

**AUTORTK 100**  HEATING AND AIR CONDITIONING SYSTEMS THEORY, INSPECTION & RPR (REPAIR) (3)

**Lecture: 1 hour / Lab: 6 hours**

Instruction is offered in the area of (HVAC) heating, ventilation & air conditioning systems, with emphasis on function & testing of heater controls, heater cores, air conditioning compressors, clutch & controls.

**Student Learning Outcome(s):**

1. The students will be able to inspect and diagnose air conditioning components for damage, wear and performance using proper procedures and equipment. 2. The student will be able to install an air conditioning manifold gage set and analyze pressure readings to determine system performance. 3. The students will be able to operate various automotive scanners to communicate with air conditioning controllers (ECM,PCM,BCM etc.) retrieving repair codes to diagnose various components and sensors. 4. The students will be able to rebuild, repair, or replace as necessary various air conditioning components using proper equipment and procedures.

**AUTORTK 113**  DRIVE TRAIN COMPONENTS PRINCIPLES AND PRACTICES (3) CSU

**Lecture: 1 hour / Lab: 6 hours**

Instruction is offered in the, principles of operation, function and testing of manual/automatic transmissions and transaxles. Emphasis is placed on, power train systems, torque converter & planetary gear operation, gears & gear reduction. Laboratory instruction is offered in servicing of manual/automatic transmissions including, electronic shift controls, hydraulic fundamentals, fluids and sealing, clutches, and differentials.

**Student Learning Outcome(s):**

1. The student will trace, explain and demonstrate how various types of planetary gear sets work. 2. The student will disassemble/reassemble various automatic/manual transmissions sub assemblies and explain their operation. 3. The student will disassemble various automatic/manual transmissions, reassemble, make all required adjustments and test for proper operation.

**AUTORTK 114**  STEERING,SUSPENSION,BRAKES,PRINCIPLES AND PRACTICES (3) CSU

**Lecture: 1 hour / Lab: 6 hours**

This course provides instruction in the theory, design, principles, diagnostics, and proper system service of automotive brake, suspension, and steering systems.

**Student Learning Outcome(s):**

Identify, diagnose, troubleshoot and repair all components of various automotive braking systems Identify, diagnose, troubleshoot and repair all components of various automotive steering and suspension systems Perform wheel alignment.

**AUTORTK 121**  BASIC ENGINE THEORY INSPECTION AND REPAIR (3) CSU

**Lecture: 1 hour / Lab: 6 hours**

This course offers instruction in the types of operating principles and performance characteristics of automotive engines. Applied mathematics and related physics are emphasized throughout the course. Students will disassemble and assemble a complete engine and apply related theory to factory procedures.

**Student Learning Outcome(s):**

Define and explain the engine related components theory / operation and systematical method of troubleshooting system failures within the engine performance environment. Identify and describe component location / function and operation within their perspective systems. Identify the difference between component failure and lack of maintenance problems associated with engine related service, troubleshooting, test and repair. Charge a Battery and perform a load test to determine the condition of the Battery. Perform basic engine condition diagnosis and define basic principles of troubleshooting engine problems. Perform cranking vacuum, running vacuum, snap acceleration, exhaust restriction tests, power balance test, dry / wet compression test, and cylinder leakage test . Perform cooling system
pressure test and dye leakage test. Perform oil pressure test. Perform Fuel System Pressure and Volume Test on a Fuel Delivery System, determine the state of system and compare test results to manufacturers specifications and make the correct recommendations. Identify fuel injection system components describe basic theory and operation, and methods of testing and repair of components. Perform a fuel injection system tests, diagnose and service components and interpret the results. Identify basic fuel injection components and explain basic theory and operation of input and output devices. Identify common automotive tools and equipment used in fuel injection troubleshooting and repair. Demonstrate safe and proper use of equipment. Know and follow state, federal, EPA and OSHA guidelines and regulations. Complete a written quiz, which is similar in format to tests given by the Automotive Service Excellence (ASE) with a score of 70% or higher. Identify parts and components. Demonstrate proper tool usage and repair techniques. Practice safe methods of using hand and power tools. Remove and replace parts. Identify and use the different types and sizes of fasteners used on electrical and electronic components. Read trade and equipment manuals. Practice quality assurance standards. Use common sense. The student will be able to perform an engine vacuum test, compression test, cylinder power balance test, cylinder leak down test, oil leak & pressure test and exhaust restriction test.

**AUTORTK 122 ELECTRICAL/ELECTRONIC SYSTEMS THEORY, INSPECTION & REPAIR (3) CSU**

**Lecture: 1 hour / Lab: 6 hours**

Instruction on theory, inspection & repair of automotive electronic/electrical systems and components. Emphasis is placed on charging, battery/starting & ignition component inspection, diagnosis & repair. This course also offers instruction on electrical wiring diagram analysis.

**Student Learning Outcome(s):**

1. Troubleshoot, diagnose and repair of electrical and electronic systems using the appropriate test equipment such as scanners, DVOMs (Digital Volt Ohm Meters), ETMs (Electrical Troubleshooting Manuals) and wiring schematic circuit diagrams. 2. Diagnose automotive electrical problems, to include electrical principles, use of basic electrical test equipment, and how to interpret wiring diagrams, and to gather and analyze information. 3. Diagnose and repair automotive batteries, starting, and charging, lighting systems, advanced automotive electrical systems, to include body electrical accessories, and basic computer control.

**AUTORTK 123 FUEL & EMISSIONS SYSTEMS THEORY, INSPECTION & REPAIR (3) CSU**

**Lecture: 1 hour / Lab: 6 hours**

Instruction is offered on engine performance, diagnosis and repair. Emphasis is placed on ignition, fuel, and emission systems. Instruction is offered on related technologies of automotive fuel delivery systems, induction and scavenging systems. The proper use of test equipment and automotive engine evaluation procedures are stressed in this course.

**Student Learning Outcome(s):**

The student will complete appropriate NATEF task sheets provided in student work book accompanying text as related to fuel and ignition systems and tune-up.

**AUTORTK 130 ADVANCED AUTOMOTIVE DIAGNOSIS AND REPAIR I (3) CSU**

**Lecture: 1 hour / Lab: 6 hours**

Instruction is offered on the areas of advanced engine construction & use of engine diagnostic equipment, standard transmissions & clutches, with emphasis on diagnosis and repair procedures. Shop practice is offered on most areas of automotive repairs: engine, transmissions, drivability, brakes, suspension, steering, and automotive accessories.

**Student Learning Outcome(s):**

1. The student will be able to perform an engine vacuum test, compression test, cylinder power balance test, cylinder leak down test, oil leak & pressure test and exhaust paper test. 2. The student will be able to use engine condition and performance data to determine necessary engine repair procedures. 3. The student will be able to use industry standard tools and equipment to perform necessary engine repair procedures.

**AUTORTK 131 AUTOMOTIVE THEORY AND REPAIR II (3)**

**Lecture: 1 hour / Lab: 6 hours**

Instruction is offered on the areas of advanced emission systems diagnosis, with emphasis on diagnosis & repair procedures to prepare vehicles for the State of California smog test. Shop practice is offered on most areas of automotive repairs: engine, transmissions, drivability, brakes, suspension, steering, and automotive accessories.

**Student Learning Outcome(s):**

1. The students will be able to inspect and diagnose emission components for damage, ware and performance using proper procedures and equipment. 2. The students will be able to operate DSO/SDM’s to analyze emission control circuits for correct electrical signals and performance using proper procedures. 3. The students will be able to operate various automotive scanners to communicate with emission system controllers (ECM and PCM) retrieving repair codes to diagnose various components and sensors. 4. The students will be able to repair, or replace as necessary various emission control components using proper equipment and procedures.

**AUTORTK 135 COMPUTER CONTROL AND FUEL INJECTION (3) CSU**

**Lecture: 1 hour / Lab: 6 hours**

Instruction is offered in Automotive Computer Control and Fuel Injection Systems. Emphasis is placed on computer control electronic and fuel systems construction, function, inspection, component theory and operation, troubleshooting principles and engine condition diagnosis, testing.

**Student Learning Outcome(s):**

1. Students will utilize an automotive scan tool to retrieve Diagnostic Trouble Codes (DTC), and engine parameters/monitors. 2. Students will troubleshoot, service, and repair automotive fuel systems.

**AUTORTK 140 ADVANCED AUTOMOTIVE DIAGNOSIS AND REPAIR IV (3) CSU**

**Lecture: 1 hour / Lab: 6 hours**

Classroom lecture is offered in the areas of brake systems, front suspension systems, batteries, starting and charging systems, with emphasis on diagnosis and repair procedures. Shop practice is offered in most areas of automotive repairs: engine, transmissions, tune up, brakes, suspension, steering, and automotive accessories, and various other repairs using available vehicles.

**Student Learning Outcome(s):**

1. The students will be able to inspect and diagnose braking, suspension/steering and battery/starter components for damage, ware and performance using proper procedures and equipment. 2. The students will be able to operate DSO/SDM’s to analyze electrical braking, suspension/steering and battery/starter circuits for correct electrical signals and performance using proper procedures. 3. The students will be able to operate various automotive scanners to communicate with brake, suspension/steering, and battery/starter controllers retrieving repair codes to diagnose various components and sensors. 4. The students will be able to repair, rebuild or replace automotive components.

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replace as necessary various brake, suspension/steering, and battery/starter components using proper equipment and procedures.

**AUTORTK 141**  ADVANCED AUTOMOTIVE DIAGNOSIS AND REPAIR V (3) CSU

*Lecture: 1 hour / Lab: 6 hours*

Advanced instruction in theory, diagnosis, service and repair of electrical systems, charging systems and computer controlled systems. Instruction is offered on the use of diagnostic equipment, interpretation of wiring diagrams, engine computer controls and charging systems. Shop practice is offered on most areas of automotive repairs: engine, transmissions, drivability, brakes, suspension, steering, and automotive accessories.

Student Learning Outcome(s):

1. The students will be able to inspect and diagnose charging, ignition and computer control components for damage, ware and performance using proper procedures and equipment. 2. The students will be able to operate DSO/S/DMM/S to analyze electrical charging, ignition and computer control circuits for correct electrical signals and performance using proper procedures. 3. The students will be able to operate various automotive scanners to communicate with charging, ignition, and engine controllers (ECM, PCM, BCM etc.); retrieving repair codes to diagnose various components and sensors. 4. The students will be able to repair, or replace as necessary various charging, ignition, and computer control components using proper equipment and procedures.

**AUTORTK 142**  ADVANCED AUTOMOTIVE DIAGNOSIS AND REPAIR VI (3) CSU

*Lecture: 1 hour / Lab: 6 hours*

Advanced instruction in theory, diagnosis, service and repair of fuel injection, automatic transmission & heating, ventilation & air conditioning systems.

Student Learning Outcome(s):

1. The students will be able to inspect and diagnose fuel injection, automatic transmission and air conditioning system components for damage, ware and performance using proper procedures and equipment. 2. The students will be able to operate DSO/S/DMM/S to analyze electrical fuel injection, automatic transmission and air conditioning circuits for correct electrical signals and performance using proper procedures. 3. The students will be able to operate various automotive scanners to communicate with fuel injection, automatic transmission and air conditioning controllers retrieving repair codes to diagnose various components and sensors. 4. The students will be able to repair, rebuild or replace as necessary various fuel injection, automatic transmission and air conditioning components using proper equipment and procedures.

**AUTORTK 144**  CALIFORNIA STATE BUREAU OF AUTOMOTIVE REPAIR CLEAN AIR CAR (3)

*Lecture: 1 hour / Lab: 6 hours*

The course is designed to upgrade knowledge of the students who are currently employed in the automotive field. This course also prepares students for employment and licensing in the California State Smog Check Program and prepares them for the California State Smog License Examination. Materials and content comply with Bureau of Automotive Repair requirements.

Student Learning Outcome(s):

Level One Engine and Emission Control Training Components: Level Two Smog Check Training Inspection Procedures.

**AUTORTK 146**  CALIFORNIA STATE BUREAU OF AUTOMOTIVE REPAIR SPECIFIED DIAGNOSIS AND REPAIR (3)

*Lecture: 1 hour / Lab: 6 hours*

BAR Specified Diagnostic and Repair Training is intended to provide students a high level of competency in the diagnosis and repair of Smog Check failures. This training focuses on the areas of electrical/electronic systems and engine and emission control performance. Students with at least two years of engine performance repair experience and who successfully complete this training may qualify for the state licensing examination for the Smog Check Repair Technician License.

Student Learning Outcome(s):

1. Students will be able to troubleshoot, diagnose and repair of electrical and electronic systems using the appropriate test equipment such as scanners, DVMs (Digital Volt Ohm Meters), ETMs (Electrical Troubleshooting Manuals) and wiring schematic circuit diagrams.

2. Students will be able to describe theory, purpose, design and operation of emission control systems, including, but not limited to, crankcase controls, fuel evaporative controls, air injection, exhaust gas recirculation, catalyst and other exhaust gas after treatment systems, and integrated emission control management strategies, such as spark control and variable valve timing.

3. Students will be able to identify root or underlying causes of engine and emission control malfunctions and differentiate between mechanical, electrical/electronic and fuel system problems and determine appropriate repairs.

**AUTORTK 185**  DIRECTED STUDY - AUTOMOTIVE AND RELATED TECHNOLOGY (1)

*Lecture: 1 hour*

This course allows students to pursue a directed study in Automotive and Related Technology on a contract basis under the direction of a supervising instructor.

Student Learning Outcome(s):

The outcome will vary depending on the contract with the instructor. The student will formulate a research paper based on a topic in Automotive and Related Technology.

**AUTORTK 285**  DIRECTED STUDY - AUTOMOTIVE AND RELATED TECHNOLOGY (2)

*Lecture: 2 hours*

This course allows students to pursue a directed study in Automotive and Related Technology on a contract basis under the direction of a supervising instructor.

Student Learning Outcome(s):

The outcome will vary depending on the contract with the instructor. The student will formulate a research paper based on a topic in Automotive and Related Technology.

**AUTORTK 385**  DIRECTED STUDY - AUTOMOTIVE AND RELATED TECHNOLOGY (3)

*Lecture: 3 hours*

This course allows students to pursue a directed study in Automotive and Related Technology on a contract basis under the direction of a supervising instructor.
AUTORTK 941  COOPERATIVE EDUCATION - AUTOMOTIVE AND RELATED TECHNOLOGY (4) CSU
Lecture: 4 hours

Cooperative Education is a work experience program involving the employer, the student-employee and the college to insure that the student receives on the job training and the unit credit for work experience or volunteer work/internship. Completion of at least seven units, including Cooperative Education, at the end of the semester is required. Students must be employed or volunteering/interning in order to participate in program.

Student Learning Outcome(s):
1. The student will develop at least three learning objectives to be accomplished on the job. 2. The objectives will be related to the educational/occupational goals of the student.

PROFBKG 112  BAKING PROCESSES AND THEORY OF INGREDIENTS (4)
Lecture: 2 hours / Lab: 6 hours
Corequisite: Culinary Arts 112.

Course Covers the production of quick breads, introduction to puff pastry, laminated dough, and cookies with an emphasis placed on mixing methods. The role of leavening agents, starches, chemical reactions of ingredients and the effect on heat and cold on products. Recipe and menu development, including ingredient selection will be discussed.

Student Learning Outcome(s):
Student will identify beginning baking terminology and bakers math. Student will practice various baking methods of preparation. Student will evaluate and critique finished product.

PROFBKG 121  BEGINNING YEAST BREADS AND QUICKBREADS (6)
Lecture: 3.75 hours / Lab: 6.75 hours
Prerequisite: Professional Baking 112 and Culinary Arts 112.

Class introduces student to volume lean & rich yeast bread and quick bread production with an emphasis on flour usage, chemical and natural leavening agents, as well as fat and sugar ingredient identification. Speed, accuracy, and increased productivity are stressed along with preparation of a variety of bread products up to industry standards.

Student Learning Outcome(s):
Identify a wide variety of baking procedures. Demonstrate and apply methods of preparation for yeast, laminated and quick-breads. Compare and Contrast the various preparations and evaluate finished product.

PROFBKG 122  ARTESIAN BREADS, SPECIALTY BREADS (6)
Lecture: 3.75 hours / Lab: 6.75 hours
Prerequisite: Professional Baking 112, 121 and Culinary Arts 112.

Recognize formulas and demonstrate the ability to alter formulas in yeast, rolled-in, and quick bread formulas central to this class. View bread baking from an artisan’s prospective. Explore the fundamentals of baking science: How a formula works including changes of yields and altering percentages of ingredients in formulas to produce desired results are stressed. Work on increasing productivity, speed and accuracy is continued in this class.

Student Learning Outcome(s):

PROFBKG 131  PLATED RESTAURANT STYLE DESSERTS (6)
Lecture: 3.75 hours / Lab: 6.75 hours
Prerequisite: Professional Baking 112; Professional Baking 121; Professional Baking 122; Culinary Arts 112; 

The course covers a wide range of baking techniques and topics with concentration on the composition of restaurant style plated desserts made up of a number of components.

Student Learning Outcome(s):
Differentiate various baking preparation of doughs, cakes, fillings, sauces and garnishes. Demonstrate said preparations within a professional bakery setting. Assess finished products according to industry standard.

PROFBKG 132  MULTI-COMPONENT DESSERTS AND PASTRIES (6)
Lecture: 3.75 hours / Lab: 6.75 hours
Prerequisite: Professional Baking 112; Professional Baking 121; Professional Baking 122; Professional Baking 131 and Culinary Arts 112;

Students will discuss and demonstrate contemporary style multi-component plated restaurant style desserts. Topics include traditional composed desserts, modern menu fusion, international/ethnic and classical dessert combinations.

Student Learning Outcome(s):

PROFBKG 141  ADVANCED BAKING CENTERPIECE AND DECORATING TECHNIQUES (6)
Lecture: 3.75 hours / Lab: 6.75 hours
Prerequisite: Professional Baking 112; Professional Baking 121; Professional Baking 122; Professional Baking 131; Professional Baking 132; Culinary Arts 111; Culinary Arts 112;

This class applies procedures and techniques for preparing advanced decorative bakery items for display in a professional food service facility. Students will prepare and demonstrate various advanced techniques including: Molded and tempered chocolate show pieces, marzipan, nougatine, pastillage, pulled and molded sugar, wedding and other occasional cakes, rolled and poured fondant, and gum paste will be prepared and evaluated.
BAR 123 BARBERING JR. SALON I (6)
Lecture: 3 hours / Lab: 9 hours
Prerequisite: Barbering 124.
The students are instructed in advanced permanent waving, soft permanent wave, men hairpieces, thermal straightening and curling, hair cutting, clipper cutting and electricity.
Student Learning Outcome(s):
1. Students will be able to perform advanced cold waving, soft permanent waving. 2. Students will be able to perform chemical straightening. 3. Students will demonstrate competence in hair cutting. 4. Students will be able to demonstrate proper use of electricity.

BAR 134 BARBERING JR. SALON IV (6)
Lecture: 3 hours / Lab: 9 hours
Prerequisite: Barbering 133;
The course will cover basic, intermediate, and advanced hair coloring, bleaching, lighteners, facial hair color, and color correction techniques. Course will cover shaving techniques and soft perm waving. The subjects mentioned will be discussed.
Student Learning Outcome(s):
1. The students will be able to apply law of color in identifying and demonstrating the applications of basic and intermediate hair coloring, bleaching and toning. 2. Students will be able to apply shaving and hair sculpting techniques. Student will be able to apply permanent/soft waving techniques.

BAR 143 BARBERING SR. SALON I (6)
Lecture: 3 hours / Lab: 9 hours
Prerequisite: Barbering 124; Barbering 134.
The students will review all areas of cosmetology; Theory is focused on what is required by State Board and practical assignments related to services provided. There will be emphasis on communication, customer service, time management, booking of appointments and proper sales attitude.
Student Learning Outcome(s):
1. Student will be able to perform a chemical straightener. 2. Student will be able to demonstrate a resting facial. 3. Student will be able to list and describe the properties of the hair and scalp.

BAR 145 CROSSOVER COSMETOLOGY TO BARBERING (6)
Lecture: 3 hours / Lab: 9 hours
Prerequisite: Barbering 143.

The students will be introduced to clinic floor practicum and advanced client services. Mock State Board procedures for licensure will be employed. Business practices include: client services, effective communication, job search skills, networking, strategies for building a clientale, selling techniques, starting and operation a business.

Student Learning Outcome(s):
1. Student will model industry standard business practices including customer rapport, service planning, professional communication, client retention, referrals, marketing and cooperation with co-workers. 2. Student will review individual competency requirements, both skill and theory, and passing a mock examination, student will demonstrate readiness to pass the state certification exam.

BAR 144 BARBERING SR. SALON II (6)
Lecture: 3 hours / Lab: 9 hours
Prerequisite: Barbering 143.

The students will be introduced to clinic floor practicum and advanced client services. Mock State Board procedures for licensure will be employed. Business practices include: client services, effective communication, job search skills, networking, strategies for building a clientale, selling techniques, starting and operation a business.

Student Learning Outcome(s):
1. Students perform a razor shave using the 14 shaving techniques. 2. Students perform shaving and hair cutting techniques using clippers, and clipper shaving.

BIOLOGY

BIOLOGY 003 INTRODUCTION TO BIOLOGY (4) UC/CSU
Lecture: 3 hours / Lab: 3 hours

This is an introductory course dealing with the fundamental properties of living things. The structure and physiology of plants and animals, with emphasis on humans, are covered. Relationships between biological communities, genetics, and evolution are stressed.

Student Learning Outcome(s):
1. Be able to explain the cell theory, and discuss the structure and function of cell organelles and basic cell division processes. 2. Explain mechanisms of evolutionary changes. 3. Discuss the consequences of the evolutionary processes on biological diversity and adaptation patterns. 4. Describe patterns and processes of heredity (with emphasis on humans) using both classical and molecular genetics. 5. Relate the structure of organs and organ systems of multicellular organisms to their specific functions. 6. Discuss factors that affect the structure of biological communities and ecosystems. 7. Use basic biological (ecological) principles to analyze major environmental issues.

BIOLOGY 005 INTRODUCTION TO HUMAN BIOLOGY (4) UC/CSU
Lecture: 3 hours / Lab: 3 hours

The course includes basic biological principles as they apply to humans. The course will provide a foundation for advanced courses in Human Anatomy, Physiology, and Microbiology. Topics include chemical principles, the cell, heredity, human anatomy and physiology, microbiology, pathology, ecology, and bioethics.

Student Learning Outcome(s):
1. Student will apply the scientific method to understand biological principles. 2. Student will describe basic principles in human biology such as biochemistry and the cell. 3. Student will describe different types of bacteria, their staining methods, and how they cause disease. 4. Student will describe the anatomy and physiology of human organ systems.

BIOLOGY 006 GENERAL BIOLOGY I (5) UC/CSU
Lecture: 3 hours / Lab: 6 hours
Prerequisite: Chemistry 101

This is the first of a sequence of two General Biology courses designed for life science and pre-med majors. It deals with basic cellular processes within and between cells, metabolism, genetics and recombinant DNA technology.

Student Learning Outcome(s):
1. Discuss the cell theory. 2. Discuss how cell structure is related to its function. 3. Discuss metabolism, cell communication and cell division processes. 4. Describe patterns of inheritance and discuss processes of heredity using concepts in Mendelian and molecular genetics. 5. Solve genetic problems involving Mendelian traits. 6. Discuss basic principles and applications of DNA technology.

BIOLOGY 007 GENERAL BIOLOGY II (5) UC/CSU
Lecture: 3 hours / Lab: 6 hours
Prerequisite: Prerequisite: Biology 6;

This is the second of a sequence of two General Biology courses designed for life science and pre-med majors. It deals with basic concepts in evolution, systematics, anatomy, physiology and ecology of organisms.

Student Learning Outcome(s):
1. Explain mechanisms of evolutionary change. 2. Discuss consequences of evolution on biological diversity and adaptation patterns. 3. Reconstruct phylogeny and explain principles of phylogenetic reconstruction using morphological and molecular data. 4. Identify and classify major taxa using phylogenetic systematics and explain the basis of classification. 5. Describe the most important events in the history of life on earth. 6. Relate the structure of organs of multicellular eukaryotes (with emphasis on plants and animals) to their functions. 7. Discuss how abiotic and biotic factors affect individuals, populations, communities and ecosystems. 8. Use ecological principles to analyze human impact on environment.

BIOLOGY 185 DIRECTED STUDY - BIOLOGY (1) CSU
Lecture: 1 hour

This course allows students to pursue directed study in Biology on a contract basis under the direction of a supervising instructor.

Student Learning Outcome(s):
1. Student will acquire the critical thinking and problem solving skills necessary for the study of a relevant topic in biology. 2. Student will apply methods used by scientists while studying a selected topic in biology.
BIOTECHNOLOGY

BIOTECH 010 INTRODUCTION TO BIOMANUFACTURING I (4) CSU
Lecture: 3 hours / Lab: 3 hours
This course offers an introduction to the concepts and laboratory skills used in biomanufacturing. The process of biomanufacturing is explored. Students will investigate practices, facilities and techniques used by companies in producing biomanufactured products such as drugs.

Student Learning Outcome(s):
1. Students will demonstrate an understanding of the purpose, fundamentals and regulations of biomanufacturing. 2. Students will understand the science underlying biomanufacturing. 3. Students will apply techniques and procedures applicable to biomanufacturing.

BIOTECH 012 INTRODUCTION TO BIOMANUFACTURING II (4) CSU
Lecture: 3 hours / Lab: 3 hours
Prerequisite: BIOTECHNOLOGY 010
This course expands on concepts from Introduction to Biomanufacturing I. It focuses on cell cultures, proteins and separation techniques as it applies to manufacturing products. The course also emphasizes environmental control in the industry. Laboratory focuses on applying techniques in molecular biology and chemistry to produce and assess a final product.

Student Learning Outcome(s):
1. Students will explain relevant biology and chemistry concepts as it applies to biomanufacturing. 2. Students will apply techniques and procedures used in biomanufacturing to produce and assess a final product. 3. Students will demonstrate an understanding of the lab environment and current good manufacturing practices.

BUILDING CONSTRUCTION TECHNIQUES

BLDGCTQ 002 PRE-EMPLOYMENT -APPLIED TRADES CALCULATIONS AND MEASUREMENTS (3)
Lecture: 3 hours
This is an entry level course in applied calculations and measurements with special emphasis on application problems encountered in the utility, manufacturing, and construction industries.

Student Learning Outcome(s):
1. Student will add, subtract, multiply, and divide whole numbers, with and without a calculator. 2. Student will use a standard ruler, a metric ruler, and a measuring 3. Student will recognize some of the basic shapes used in the construction industry and apply basic geometry to measure them.

BLDGCTQ 007 WEATHERIZATION - PRACTICAL ENERGY EFFICIENCY TECHNIQUES (3)
Lecture: 3 hours
This course provides expertise advice on various techniques that can be used to weatherize homes and other structures. The course is suitable for application by a professional home or energy inspector. Homeowners would also benefit from the knowledge and application of the simpler techniques. Efficiency techniques related to: Energy basics, sealing, insulating, window replacement/installation, environmental air, water, appliance energy efficiency, and lighting are just some of the areas that will be covered.

Student Learning Outcome(s):
Students pass Basic Weatherization test.

BLDGCTQ 008 WEATHERIZATION-ENERGY EFFICIENCY PRACTICES (1)
Lab: 3 hours
This course provides laboratory exercises to build skills necessary for the effective application of energy techniques that can be used to weatherize homes and other structures. Course is suitable for application by a professional weatherization contractor training entry level workers or a homeowner looking to improve their own home. Efficiency practices related to: Energy basics, sealing, insulating, window replacement/installation, environmental air, water, appliance energy efficiency, and lighting are just some of the areas that will be covered.

Student Learning Outcome(s):
Students install the 6 basic weatherization measures: Attic insulation, caulking gaps, window repair and glass cutting, door weatherstripping, water heater blanket, and low flow shower head.

BLDGCTQ 009 ENERGY AUDITOR - RESIDENTIAL (3)
Lecture: 3 hours
A course focusing on residential energy requirements, loss and efficiency. How energy is used and lost will be discussed, along with the testing techniques and approaches to measure the amount of energy lost. Students will learn the components of an energy audit report and complete necessary forms.

Student Learning Outcome(s):
Students complete an energy audit form from testing data and take national certification test.

BLDGCTQ 010 ENERGY AND UTILITY INDUSTRY CAREERS (3)
Lecture: 3 hours
This course reviews the hot jobs in the energy and utility industry, and outlines a method for the student to decide on their career path. Hiring process and interview skills will be explored. Fitness for duty and other physical and physiological characteristics will be discussed. An A to Z guide to private, State, Federal, and international career opportunities will be presented.

Student Learning Outcome(s):
1. List career opportunities. 2. Develop a self-career map/plan.
BLDGCTQ 011  CADD FOR SUSTAINABLE LANDSCAPE DESIGN
(4)
Lecture: 3 hours / Lab: 3 hours
This course covers the use of computer Aided Design/Drafting (CADD) applications specific to landscape professionals, including the introduction to CADD skills, block functions, Internet applications, three-dimensional design, presentation drawings, building systems, working drawings, and working drawing coordination.

Student Learning Outcome(s):
Students will complete a set of Three Dimensional Models with Libraries, Metadata and Information using CAD MEP as the drawing tool for a sustainable landscape design project.

BLDGCTQ 012  ENERGY AUDITOR - RESIDENTIAL PRACTICES
(1)
Lab: 3 hours
A course focusing on the practical application of residential energy requirements, loss and efficiency. Testing techniques and measurement the amount of energy lost. Students will perform actual energy audits of simulated structures and complete necessary forms.

Student Learning Outcome(s):
Perform building measurements for an energy audit to include, Combustion analysis, draft test, blower door test and duct test.

BLDGCTQ 014  CARPENTRY AND CONSTRUCTION FOR RENEWABLE ENERGY INSTALLERS (4)
Lecture: 3 hours / Lab: 3 hours
This course covers the roof structure principles necessary for installation of solar panels. Construction techniques and principles of roof framing and construction will be emphasized. Roof covering and flashing will also be a focus of the course. The installation and mounting of different panel mounting systems will also be demonstrated and covered in class.

Student Learning Outcome(s):
Students construct and prepare a roof for Solar Panel installation.

BLDGCTQ 011  CONTRACT’S LICENSE LAW (3) CSU
Lecture: 3 hours
Contractor’s License Law is designed to prepare personnel in the construction industry on the California Law requirements for attaining a California State Contractor’s License. Topics covered are License Law, Mechanic’s Lien Law, Employment Regulations, Worker’s Compensation, Safety in Employment and Business Management.

Student Learning Outcome(s):
SLO #1: Complete a mock contractor’s license examination. SLO #2: Identify and interpret various Contractor’s Licensure regulations SLO #3: Identify and interpret mechanics lean laws and regulations.

BLDGCTQ 102  O.S.H.A. BASED SAFETY STANDARDS: CONSTRUCTION & INDUSTRY (2) RPT 3
Lecture: 2 hours
(Same as Electrical Construction Maintenance 100).
This course provides instruction on industry safety and health rules as it applies to workers and employers within the construction industry. Topics such as fall protection, lock-out tag-out procedures, PPE, excavations, etc. are covered. Participants that meet the required hourly attendance and successfully pass the final exam will be eligible to receive their OSHA (30 hr) safety-training certificate.

Student Learning Outcome(s):
1. Recognize appropriate training requirements and training methods. 2. Define OSHA specific construction terms such as; competent person, construction work, confined space, working space, general duty clause. 3. Select situational appropriate PPE.

BLDGCTQ 215  SMALL WIND ENERGY SYSTEMS PRINCIPLES AND PRACTICES (3)
Lecture: 1.5 hours / Lab: 4.5 hours
This course is designed for individuals that have the basic electrical and mechanical skills of an energy technician or electrician and are looking to expand into the small wind energy field. This class will help one to develop the fundamental knowledge and skill sets typically required for small wind system practitioners and to help ensure safety, quality and consumer acceptance of small wind installations.

Student Learning Outcome(s):
1. Discuss the history and development of wind energy. 2. List the regions of the globe where wind is a renewable option. 3. Install the components needed for various wind renewable energy sources.

BLDGCTQ 911  COOPERATIVE EDUCATION - BUILDING CONSTRUCTION TECHNIQUES (1)
Lecture: 1 hour
Cooperative Education is a work experience program involving the employer, the student-employee and the college to insure that the student receives on the job training and the unit credit for work experience or volunteer work/internship. Completion of at least seven units, including Cooperative Education, at the end of the semester is required. Students must be employed or volunteering/interning in order to participate in program.

Student Learning Outcome(s):
1. The student will develop at least (3) learning objectives to be accomplished on the job. 2. The objective will be related to the educational/occupational goals of the student.

BLDGCTQ 921  COOPERATIVE EDUCATION - BUILDING CONSTRUCTION TECHNIQUES (2) RPT 3
Lecture: 2 hours
Cooperative Education is a work experience program involving the employer, the student-employee and the college to insure that the student receives on the job training and the unit credit for work experience or volunteer work/internship. Completion of at least seven units, including Cooperative Education, at the end of the semester is required. Students must be employed or volunteering/interning in order to participate in program.
Student Learning Outcome(s):

The student will develop at least (3) learning objectives to be accomplished on the job. The objectives will be related to the educational/occupational goals of the student.

BUS 001 INTRODUCTION TO BUSINESS (3) UC/CSU
Lecture: 3 hours

Special emphasis is placed on the meaning and purpose of business in our society, the historical development of business, the general economic setting for business today, and the following business areas: forms of business organization, manufacturing, marketing, human relations, financing, accounting, budgeting, reports, government-based relations and the social responsibilities of people in business.

Student Learning Outcome(s):

Students will be able to explain and analyze different legal forms of business. Students will be able to identify various core concepts and tools of marketing, management, finance and accounting to develop and operate a business.

BUS 005 BUSINESS LAW I (3) UC/CSU
Lecture: 3 hours

Introductory course in civil law emphasizing laws relating to contracts, agency, personal property, business organizations, partnerships, corporations, security transactions, and torts. Students also explore logical reasoning and the application of rules of law to everyday business affairs.

Student Learning Outcome(s):

1. Identify laws, rules, and regulations that bound the exchange of goods and services between producers and consumers in the marketplace. 2. Assess consumer’s or producer’s rights pursuant to a claim for compensation for harm incurred as a result of another’s civil or criminal violation in the marketplace.

BUS 006 BUSINESS LAW II (3) UC/CSU
Lecture: 3 hours

This course presents the legal aspect of business relationships and transactions. Topics included are Alternative Dispute Resolution; Ethics; Intellectual Property; Internet Law, Social Media and Privacy concerns; Formation, Performance and Breach of Sales and Lease Contracts under the UCC; Warranties and Products Liability; Negotiable Instruments; Insurance, Wills and Trusts; Secured Transactions; Creditors’ Rights and Bankruptcy; Personal Property and Bailements; Real Property & Landlord and Tenant laws. Practice in the application of the legal principles and concepts to various business transactions are provided.

Student Learning Outcome(s):

1. Students will identify and apply general laws, rules and regulations to fact patterns that pertain to the UCC and the sale of goods between merchants. 2. Students will identify the legal issues and the duties and obligations of parties in disputes pertaining to Property, Wills and Trusts, Negotiable Instruments and Creditor Rights including the different types of Bankruptcy proceedings.

BUS 014 ORAL COMMUNICATIONS FOR CUSTOMER SERVICE (3)
Lecture: 3 hours

Instruction will focus on the key issues of positive and productive customer service communications, identifying customer needs and problems and finding viable solutions.

Student Learning Outcome(s):

1. Student will be able to relate customer service behaviors to profits and customer retention. 2. Student will be able to demonstrate positive customer service language and behaviors, and active listening techniques.

BUS 022 THE BUSINESS OF ELECTRONIC COMMERCE (3) CSU
Lecture: 3 hours

This comprehensive course emphasizes emerging online technologies and future trends with respect to e-commerce. In addition to the early development of e-commerce, strategies for e-commerce success, e-marketing, online payment methods, spamming, phishing, identity theft, and other e-commerce components will be explored.

Student Learning Outcome(s):

Students will be able to explore, research, analyze and critique electronic commerce business models.
BUS 032 BUSINESS COMMUNICATIONS (3) CSU
Lecture: 2 hours / Lab: 2 hours
The course emphasizes the concepts of successful written and oral communication skills in business in order to write effective business communications including letters, electronic communications, and short reports. This course also helps students develop the ability to create and present oral presentations.

Student Learning Outcome(s):
1. Students will become effective communicators to today's changing workplace. 2. Students will learn the writing process as it applies to e-mail messages and Memorandums.

BUS 033 TECHNICAL REPORT WRITING (3) CSU
Lecture: 3 hours
Advisory: English 67.
This course provides student with technical communication skills that help in finding and using information to share with others in the workplace. It also provides techniques that communicators use to analyze an audience and purpose, to create and find the best information on a subject, to arrange the information skillfully to meet the audience's needs and preferences, and to deliver the information effectively using the most appropriate software application.

Student Learning Outcome(s):
1. Students will plan and draft documents using templates and style in Microsoft application. 2. Students will learn how to write collaboratively in an office environment.

BUS 038 BUSINESS COMPUTATIONS (3) CSU
Lecture: 3 hours
This course provides the principles of mathematics, financial accounting and general business problems that include the following: Bank services including checking account and credit card account activity, payroll calculations, cash and trade discounts merchandise mark-up and inventory valuation, simple and compound interest, annuities, stock and bond transactions, business consumer loans, taxes and insurance, depreciation, financial statements, ratios, and business statistics.

Student Learning Outcome(s):
1. Students will demonstrate speed and accuracy in analyzing the fundamental processes of mathematics commonly used in making business calculations. 2. Students will demonstrate an understanding of mathematical skills required in other business subjects such as accounting, management, marketing, and computer operations. 4. Students will demonstrate an understanding of budgeting with respect to planning and the balanced scorecard. 5. Students will produce projected pro-forma financial statements and make forecasts based upon the data.

BUS 040 BUSINESS PROJECT MANAGEMENT (3) CSU
Lecture: 2 hours / Lab: 2 hours
This course will identify all phases of project management. Students will learn the tools for completing projects on time and within budget. Specific topics will include project life cycles, setting objectives, identifying activities and resources, work breakdown structures, work-flow, network analysis, contingency planning, scheduling, budgeting, work in progress and reporting. Special emphasis will be placed on MS project.

Student Learning Outcome(s):
Students will be able to develop project proposals in regards to identifying project scope, developing project schedules while utilizing efficient resources, determining cost in respect to project risk and effectively closing the proposed project while building strong relationships with customers and partners.

BUS 185 DIRECTED STUDY - BUSINESS (3) CSU
Lecture: 1 hour
This non-traditional course provides for challenging educational engagement through in-depth study and practice on an approved project-based or service-based topic within the business discipline under the direction of a supervising instructor. One purpose of this course is to assist the individual student or cohort of students to develop and enhance discipline-specific intellectual skills. The nature of directed study coursework is one of applied conceptualization and its level of rigor, intensity, and difficulty is commensurate with this expectation. The proposed project/subject matter may be contextualized within a specific industry and must have prior approval before commencing work under the instructor's direction.

Student Learning Outcome(s):
Student will demonstrate the ability to conceptualize, plan, initiate and execute a special project related to business.

BUS 285 DIRECTED STUDY - BUSINESS (2) CSU
Lecture: 2 hours
This non-traditional course provides for challenging educational engagement through in-depth study and practice on an approved project-based or service-based topic within the business discipline under the direction of a supervising instructor. One purpose of this course is to assist the individual student or cohort of students to develop and enhance discipline-specific intellectual skills. The nature of directed study coursework is one of applied conceptualization and its level of rigor, intensity, and difficulty is commensurate with this expectation. The proposed project/subject matter may be contextualized within a specific industry and must have prior approval before commencing work under the instructor's direction.

Student Learning Outcome(s):
Student will demonstrate the ability to conceptualize, plan, initiate and execute a special project related to business.

BUS 385 DIRECTED STUDY - BUSINESS (3) CSU
Lecture: 3 hours
This non-traditional course provides for challenging educational engagement through in-depth study and practice on an approved project-based or service-based topic within the business discipline under the direction of a supervising instructor. One purpose of this course is to assist the individual student or cohort of students to develop and enhance discipline-specific intellectual skills. The nature of directed study coursework is one of applied conceptualization and its level of rigor, intensity, and difficulty is commensurate with this expectation. The proposed project/subject matter may be contextualized within a specific industry and must have prior approval before commencing work under the instructor's direction.

Student Learning Outcome(s):
Student will demonstrate the ability to conceptualize, plan, initiate and execute a special project related to business.

BUS 385 DIRECTED STUDY - BUSINESS (3) CSU
Lecture: 3 hours
This non-traditional course provides for challenging educational engagement through in-depth study and practice on an approved project-based or service-based topic within the business discipline under the direction of a supervising instructor. One purpose of this course is to assist the individual student or cohort of students to develop and enhance discipline-specific intellectual skills. The nature of directed study coursework is one of applied conceptualization and its level of rigor, intensity, and difficulty is commensurate with this expectation. The proposed project/subject matter may be contextualized within a specific industry and must have prior approval before commencing work under the instructor's direction.

Student Learning Outcome(s):
Student will demonstrate the ability to conceptualize, plan, initiate and execute a special project related to business.

BUS 941 COOPERATIVE EDUCATION - BUSINESS (4) CSU
Lecture: 4 hours
Cooperative Education is a work experience program involving the employer, the student-employee and the college to insure that the student receives on the job training and the unit credit for work experience or volunteer work/internship. Completion of at least seven units, including Cooperative Education, at the end of the semester is required. Students must be employed or volunteering/interning in order to participate in program.
Graduation Requirements, Pathways and Programs of Study

CRPNTRY 105  CALCULATIONS AND MEASUREMENT FOR WOODWORKING STUDENTS I (3)
Lecture: 3 hours

This course covers the basic math skills needed to perform in the construction field. Emphasis is placed on the basic operations and how they are applied to carpentry. Measurement calculations will be performed in both standard and metric measurements.

Student Learning Outcome(s):

Students complete national certification test for Introduction to Construction Math.

CRPNTRY 111  CONSTRUCTION I (7) CSU
Lecture: 3 hours / Lab: 12 hours

This course covers use and operation of hand tools, machine tools, and portable electric tools commonly used in the construction trades. Fundamentals of residential foundation and wall construction, use of rough and finish hardware, glues and adhesives, federal, state, and local building codes and ordinances are studied.

Student Learning Outcome(s):

1. Students will use common power and hand tools to perform basic framing operations. 2. The student will calculate rafter lengths and cut the rafters to size using a Skill saw. 3. The student will fasten framing members together using hand nailing techniques. 4. The student will measure and cut framing members to length using the worm drive circular saw, power miter box and radial arm saws.

CRPNTRY 111A  CONSTRUCTION IA (3) CSU
Lecture: 3 hours

This course covers use and operation of hand tools, machine tools, and portable electric tools commonly used in the construction trades. Fundamentals of residential foundation and wall construction, use of rough and finish hardware, glues and adhesives, federal, state, and local building codes and ordinances are studied.

Student Learning Outcome(s):

Students identify parts of a wood framed structure and describe their purpose.

CRPNTRY 111B  CONSTRUCTION IB (2)
Lab: 6 hours

This is the second laboratory course in the Carpentry 111 sequence. This course covers the use and operation of hand tools, machine tools, and portable electric tools commonly used in the construction trades. Fundamentals of residential foundation and wall construction will be the focus of this course.

Student Learning Outcome(s):

1. Students will use common power and hand tools to perform basic framing operations. 2. The student will calculate rafter lengths and cut the rafters to size using a Skill saw. 3. The student will fasten framing members together using hand nailing techniques. 4. The student will measure and cut framing members to length using the worm drive circular saw, power miter box and radial arm saws.

CRPNTRY 111C  CONSTRUCTION IC (2)
Lab: 6 hours

This course covers use and operation of hand tools, machine tools, and portable electric tools commonly used in the construction trades. Fundamentals of wall construction, roof construction, and applications of federal, state, and local building codes and ordinances are studied.

Student Learning Outcome(s):

1. Students will use common power and hand tools to perform basic framing operations. 2. The student will calculate rafter lengths and cut the rafters to size using a Skill saw. 3. The student will fasten framing members together using hand nailing techniques. 4. The student will measure and cut framing members to length using the worm drive circular saw, power miter box and radial arm saws.

CRPNTRY 114  HAND AND POWER TOOL APPLICATION (4) CSU
Lab: 10 hours

This course focuses on the safe use of hand and power tools used in the carpentry and construction industry. Operation and safety instruction will be given on both portable and stationary power tools including skill saws, table saws, jointers, planers, band saws, etc. Students will use hand and power tools to complete woodworking and carpentry projects.

Student Learning Outcome(s):

Students demonstrate knowledge of safe use of hand and power tools.

CRPNTRY 115  BASIC BLUEPRINT READING AND CORE CONSTRUCTION SKILLS (3) CSU
Lab: 7 hours

Students will be familiarized with the basic terms for construction drawings, components, and symbols. Emphasis is placed on the different types of drawings and how to interpret and use the Information. Students will also complete core construction training in safety, hand tools, power tools, communications, materials handling, and material handling. Successful completion can lead to NCCER Core certification.

Student Learning Outcome(s):

1. Students identify information from blueprints such as dimensions, symbols and location. 2. Students complete 6 NCCER certification tests on Basic Safety, Introduction to Construction Math, Introduction to Hand tools, Introduction to Power Tools, Introduction to Construction Drawings, Basic Communication Skills, Basic Employability Skills, Introduction to Material Handling.

CRPNTRY 117  CONSTRUCTION MATERIALS (2)
Lab: 4 hours

This course focuses on building materials such as concrete, steel and a variety of woods used for exterior and interior carpentry finish: insulation, flashing, roof covering, interior and exterior wall covering, wood trim and other finish materials in residential construction; rough and finish hardware such as nails, screws, bolts, timber fasteners, gang nailing, power fastening, powder actuated fasteners, joist hangers, clips, etc.; methods of installation.
CRPNTRY 123  BASIC HOUSE CONSTRUCTION (6) CSU
Lab: 14 hours

This course covers the basic framing operations involved in residential construction. Students will complete the framing process using large scale models. Basic construction tool operations, and processes will be emphasized and tested.

Student Learning Outcome(s):
1. Students will use common power and hand tools to perform basic framing operations. 2. The student will calculate rafter lengths and cut the rafters to size using a Skill saw. 3. The student will fasten framing members together using hand nailing techniques. 4. The student will measure and cut framing members to length using the worm drive circular saw, power miter box and radial arm saws.

CRPNTRY 124 BLUEPRINT READING AND ESTIMATING I (3)
Lab: 7 hours

Students will learn blueprint reading through the process of estimation. Material take offs, detail methods, labor calculations, profit, overhead and bid procedures will be examined.

Student Learning Outcome(s):
Complete framing material take-off Calculate concrete requirements for a slab foundation

CRPNTRY 126  CONSTRUCTION II (6)
Lab: 12 hours

The course focuses on principles of estimating, quantity take-off, materials and labor costs, bidding procedures, for new construction, renovation for both residential and commercial construction.

Student Learning Outcome(s):
Students calculate construction materials, labor and business costs for a residential structure from a set of plans.

CRPNTRY 130  CALCULATIONS AND MEASUREMENT FOR WOODWORKING STUDENTS II (3)
Lecture: 3 hours

Students complete common woodworking and construction calculations with an emphasis on percentage, area and volume calculations, algebra, geometry and trigonometry as they apply to the carpentry and woodworking trades. Students calculate concrete volume, lumber requirements and material quantities, as well as perform length and size calculations.

Student Learning Outcome(s):
Students will apply basic mathematical operations to construction calculations such as area, volume diagonal length and roof angles.

CRPNTRY 132  APPLIED BLUEPRINT READING (3) CSU
Lab: 7 hours

This course focuses on construction documents used in the construction of residential and light commercial projects. Emphasis is placed on the interpretation of drawings, standards, specifications, and symbols used in construction. Gathering information for material requirements and estimates will be major component of the course.

Student Learning Outcome(s):
Identify architectural items, quantities, and specifications from construction drawings.

CRPNTRY 133  ADVANCED RESIDENTIAL ESTIMATING (3) CSU

Lecture: 3 hours

Students complete a comprehensive residential estimation project including materials, labor, overheads costs and expenses. Students perform materials take off using detailed and unit methods. Students estimate concrete and rebar requirements, lumber needs for floor, wall and roof construction as well as interior and exterior finishing materials. Labor costs are also calculated for common construction jobs. At the end of the course students will complete a comprehensive estimate for a residential construction project.

Student Learning Outcome(s):
Prepare a takeoff estimate of materials using a set of architectural plans.

CRPNTRY 134  ADVANCED RESIDENTIAL CONSTRUCTION (4) CSU
Lecture: 3 hours / Lab: 4 hours

This course is a continuation of Basic Construction. Students will complete framing operations involving floor, wall, ceiling and roof construction. In addition, this course goes into greater depth in the areas of rough in for the preparation of electrical, plumbing, heating and ventilation.

Student Learning Outcome(s):
Students will detail wall plates off architectural plans that includes layout for all holdowns, posts, windows, doors, channels, shear panels, studs and anchor bolts.

CRPNTRY 135  CONCRETE CONSTRUCTION (2) CSU
Lab: 4 hours

Students explore and experience concrete concepts and forming. Emphasis will be placed on slab on grade forms and construction and stem forming. Students will use leveling instruments to square, level and layout buildings and forms.

Student Learning Outcome(s):
Estimating cubic yardage of concrete for footings, foundations walls and slabs from architectural drawings.

CRPNTRY 144  RESIDENTIAL EXTERIOR FINISH (4) CSU
Lab: 10 hours

In this course, students will learn the tools, techniques, and principles of residential exterior finish. Students will install exterior finish materials such as siding, stucco and shingles. An emphasis will be placed on installation of roofing materials such as asphalt shingles.

Student Learning Outcome(s):
Students will assemble and install a door jamb, hang a door and install door stop.
CRPNTRY 145 RESIDENTIAL INTERIOR FINISH (5) CSU
Lab: 11 hours

The course will focus on the materials, practices, and principles of interior finish work for residential construction. Emphasis will be placed on drywall installation and finishing, installation of interior door, installation of door hardware. Students will also install door and window casing, baseboard, and crown molding. Stair layout and construction will also be reviewed.

Student Learning Outcome(s):
- Students complete door installation including the installation of lock set, casing, weatherstripping, threshold and door shoe.

CRPNTRY 148 COMPUTER ASSISTED ESTIMATING I (3) CSU
Lecture: 2 hours / Lab: 4 hours

Students receive instruction in using specialized software to generate 2D and 3D plans for residential construction. Emphasis will be placed on using the developed plans to generate estimation information including material and cut lists.

Student Learning Outcome(s):
- Students create a complete set of building documents including material lists.

CRPNTRY 149 COMPUTER ASSISTED ESTIMATING II (3) CSU
Lecture: 2 hours / Lab: 4 hours

This course includes instruction in advanced computer assisted estimating techniques. Students will learn to make design projects with emphasis on material applications, structural design, framing lumber, concrete reinforcement, producing a cost break down and bidding procedures.

Student Learning Outcome(s):
- Students will prepare complete cost estimates using software, including cost of materials and labor from outside sources.

CRPNTRY 170 INTRODUCTION TO CNC WOODWORKING MACHINING AND PROGRAMMING (3)
Lecture: 2 hours / Lab: 4 hours

This course presents an introduction to the use of a CNC router. Topics include safety, feed speeds, spindle speeds, tooling, setups and programming to include related attachments and accessories for the machine.

Student Learning Outcome(s):
- Create a name plate with the CNC Router using MaterCam.

CRPNTRY 240 BUILDING CONSTRUCTION SPECIALTIES (4)
Lecture: 3 hours / Lab: 4 hours

This course is a continuation of Basic Construction. Students will complete framing operations involving floor, wall, ceiling and roof construction. In addition, this course goes into greater depth in the areas of rough in for the preparation of electrical, plumbing, heating and ventilation.

Student Learning Outcome(s):
- Students will detail wall plates off architectural plans that includes layout for all holdowns, posts, windows, doors, channels, shear panels, studs and anchor bolts.

CRPNTRY 241 BLUEPRINT READING AND ESTIMATING (3)
Lecture: 3 hours

Students will learn blueprint reading through the process of estimation. Material take offs, detail methods, labor calculations, profit, overhead and bid procedures will be examined.

Student Learning Outcome(s):
- Prepare a takeoff estimate of materials using a set of architectural plans.

CRPNTRY 243 BUILDING ESTIMATING I (3) CSU
Lecture: 3 hours

This course introduces the process of construction estimation. Students will learn the estimation process of individual systems as well as the whole structure. Students complete building data sheets and materials price sheet. They will gain experience through a complete materials estimate of a structure.

Student Learning Outcome(s):
- Students complete a material take-off for a construction project from blueprints.

CRPNTRY 247 BUILDING ESTIMATING II (3)
Lecture: 3 hours

Students complete a comprehensive residential estimation project including materials, labor, overheads costs and expenses. Students perform materials take off using detailed and unit methods. Students estimate concrete and rebar requirements, lumber needs for floor, wall and roof construction as well as interior and exterior finishing materials. Labor costs are also calculated for common construction jobs. At the end of the course students will complete a comprehensive estimate for a residential construction project.

Student Learning Outcome(s):
- Prepare a takeoff estimate of materials using a set of architectural plans.

CRPNTRY 251 BUILDING CODES I: INTERNATIONAL RESIDENTIAL CODE (IRC) (3) CSU
Lecture: 3 hours

This class will examine the most current version of the International Residential Code. Topics will include administration and planning, and the structure, logic and layout of the code. It will then take up relevant code sections for all phases of residential construction. Namely, foundation, floor, wall, roof/ceiling, electrical, plumbing and mechanical, lighting distribution and fixtures, appliance installation and swimming pools. Study materials will be aligned with the most current ICC publications.
Student Learning Outcome(s):

Student will provide the code section and installation locations for smoke detectors.

CRPNTRY 252 BUILDING CODES II: INTERNATIONAL RESIDENTIAL CODE (IRC) (3) CSU
Lecture: 3 hours

This course provides the most updated international building codes. Topics to be covered are Administration, Use and Occupancy Classifications, types of Construction, General Heights and Areas, Fire and Smoke Protection features and Systems, Means of Egress, Accessibility, Detailed Occupancy Requirements, Exterior Wall Coverings, Roof and Foundations, Special Inspections, Concrete, Masonry and Wood, Interior Finishes, Interior Environment, Gypsum Board, Elevators, and Glazing.

Student Learning Outcome(s):

Student will provide code sections for Means of Egress code provisions.

CRPNTRY 285 DIRECTED STUDY - CARPENTRY (2)
Lecture: 2 hours

This course allows students to pursue directed study in Carpentry on a contract basis under the direction of a supervising instructor. Students must be enrolled in at least one Carpentry course to take this class.

Student Learning Outcome(s):

1. The outcome will vary depending on the contract with the instructor.
2. The student will formulate a project based on a topic in Carpentry and related topics.

CRPNTRY 385 DIRECTED STUDY - CARPENTRY (3)
Lecture: 3 hours

This course allows students to pursue directed study in Carpentry on a contract basis under the direction of a supervising instructor. Students must be enrolled in at least one Carpentry course to take this class.

Student Learning Outcome(s):

1. The outcome will vary depending on the contract with the instructor.
2. The student will formulate a project based on a topic in Carpentry and related topics.

CRPNTRY 941 COOPERATIVE EDUCATION - CARPENTRY (4) CSU
Lecture: 4 hours

Cooperative Education is a work experience program involving the employer, the student-employee and the college to insure that the student receives on the job training and the unit credit for work experience or volunteer work/ internship. Completion of at least seven units, including Cooperative Education, at the end of the semester is required. Students must be employed or volunteering/interning in order to participate in program.

Student Learning Outcome(s):

1. The student will develop at least three learning objectives to be accomplished on the job.
2. The objectives will be related to the educational/occupational goals of the student.

CHEM T 111 APPLIED CHEMISTRY I (5) CSU
Lecture: 3 hours / Lab: 6 hours

This course is dedicated to students majoring specifically in chemical, process plant, bio-manufacturing and biotechnology career options. Students will study the principles and concepts of chemistry and laboratory techniques including an introduction to physical methods of analysis involving the use of separation, equipment and instrumental methods used in the chemical, process plant and biotechnology industries.

Student Learning Outcome(s):

1. Students will identify chemical, process plant, bio-manufacturing industry skills/concepts and safety requirements.
2. Students will perform dimensional analysis, density and temperature calculations.
3. Students will identify physical and chemical properties and changes.

CHEM T 113 APPLIED CHEMISTRY MATHEMATICS I (2)
Lecture: 2 hours

This course will offer basic applications from mathematical operations to problem-solving strategies in the chemical industry required of chemical technicians working in the chemical industry.

Student Learning Outcome(s):

1. Students will apply basic mathematical skills to solve chemical laboratory technology problems.
2. Students will evaluate and determine the correct calculation(s) for a given mathematical problem.
3. Students will calculate mathematical problems providing the correct significant figures as a result.

CHEM T 121 APPLIED CHEMISTRY II (5) CSU
Lecture: 3 hours / Lab: 6 hours

This course covers the principles applied to aqueous solutions, energy and chemical reactions, modern atomic theory, chemical bonding, gases, chemical equilibrium, acids and bases, nuclear chemistry, and introduction to organic chemistry. Laboratory studies include qualitative and quantitative analysis of common anions and cations and introduction to instrumental analysis. The skills learned will be those required for employment in the waste water treatment, chemical, process operations, biotechnology and bio-manufacturing career options.

Student Learning Outcome(s):

1. Students will demonstrate knowledge of chemical behavior in quantum theory.
2. Students will demonstrate knowledge of principle energy levels.
3. Students will demonstrate knowledge of chemical behavior in quantum theory.

CHEM T 123 APPLIED CHEMISTRY MATHEMATICS II (2)
Lecture: 2 hours

This course covers further applications of mathematical techniques in chemical technology including techniques used in chemistry, physics and technical mathematics. The emphasis includes further topics in units, concentration, graphs, equilibrium, thermodynamics, and oxidation-reduction and industry related methods.

Student Learning Outcome(s):

1. Students will discuss and explain the concept of average mass and explore how counting can be done by weighing.
2. Students will discuss and calculate solution preparation problems involving molarity and standard deviation.
3. Students will explain and calculate pH and pOH.
Graduation Requirements, Pathways and Programs of Study

**CHEM T 131** INDUSTRIAL PROCESSES (3)
*Lecture: 1 hour / Lab: 6 hours*

Instruction is given in the fundamental theories of chemical and physical processes used in various manufacturing industries. Also, instruction is given in operation of equipment including the introduction of concepts of quality control validation as it relates to manufacturing in regulated industries.

Student Learning Outcome(s):

1. Apply GLP and GMP techniques Perform the synthesis of lab samples. 2. Analyze unknown lab samples. 3. Perform and evaluate all lab procedures in a final team project. 4. Apply computer applications necessary for data acquisitions.

**CHEM T 132** QUANTITATIVE AND INSTRUMENTAL ANALYSIS I CSU

This course covers principles and applications of sample and data collection, statistical error analysis, data interpretation, and chemical analysis techniques. Laboratory emphasis on accuracy and precision measurements utilizing analytical techniques and instrumentation including spectrophotometry, chromatography, titration and gravimetric analysis.

Student Learning Outcome(s):

1. Apply Good Lab Practices (GLP) and Good Manufacturing Practices (GMP) and techniques. 2. Perform the synthesis of lab samples. 3. Analyze unknown lab samples.

**CHEM T 133** ORGANIC CHEMISTRY I (4) CSU
*Lecture: 2 hours / Lab: 6 hours*

This course includes systematic study of hydrocarbons including nomenclature, physical and chemical properties, occurrences, synthesis, and reactions of alkanes, alkenes, and alkynes. Laboratory studies include distillations, liquid-liquid extractions, and chromatographic techniques and IR spectroscopy.

Student Learning Outcome(s):

The student will be able to recognize and name aliphatic hydrocarbons applying the IUPAC nomenclature rules.

**CHEM T 140** MICROBIOLOGY LABORATORY TECHNIQUES FOR TECHNICIANS (1)
*Lab: 3 hours*

This course studies techniques and procedures used regularly in microbiology laboratories. It includes laboratory safety and aseptic techniques, media preparation, handling and maintaining cultures and the use and care of lab equipment, especially microscopes. The course is designed specifically for chemical, process and biomanufacturing technicians.

Student Learning Outcome(s):

1. Demonstrate knowledge of lab safety techniques and standards and use them appropriately in the laboratory. 2. Isolate and transfer pure cultures of bacteria under aseptic conditions. 3. Demonstrate knowledge of bacteria and fungi commonly found in microbiology laboratories. 4. Prepare and observe under brightfield microscope stained bacterial smear. 5. Determine bacterial population density using standard plate count and turbidimetric techniques. 6. Prepare different types of liquid and solid culture media. 7. Prepare and properly store stock bacterial cultures. 8. Evaluate effects of physical and chemical agents on microbial growth. 9. Identify the scientific name of an unknown pure cultures of microbes using standard microbiological techniques.

**CHEM T 141** BASIC EMPLOYMENT INFORMATION (1)
*Lecture: 1 hour*

Instruction covers safety precautions, professional ethics, health habits, responsibilities to the customer and management, personal appearance, employment trends and professional organizations. The course also includes writing resources and cover letters, and job search techniques.

Student Learning Outcome(s):

1. Student will compose a resume using current employment formats. 2. Student will construct a cover letter and thank you note. 3. Student will demonstrate the ability successfully interview for an employment opportunity. 4. Student will create and present power point presentations covering employment criteria.

**CHEM T 142** QUANTITATIVE AND INSTRUMENTAL ANALYSIS II (5)
*Lecture: 3 hours / Lab: 6 hours*

This course is a continuation of Quantitative and Instrumental Analysis I. It is an advanced course covering the theory and application of modern instrumentation and techniques for the analysis of chemical systems such as fuels, waste water, food and beverages, pharmaceuticals, metal etc. It also includes interpretative spectroscopy and computer-assigned experimentation.

Student Learning Outcome(s):

1. Apply GLP and techniques. 2. Perform the synthesis of lab samples1. 3. Analyze unknown lab samples. 4. Evaluate basic flowcharts in instrumentation. 5. Evaluate and quantify the sample composition and concentration.

**CHEM T 143** ORGANIC CHEMISTRY II (4) CSU
*Lecture: 2 hours / Lab: 6 hours*

This course addresses IUPAC nomenclature, physical and chemical properties, occurrences, synthesis, reactions and industrial applications of aldehydes and ketones, alcohols, ethers including cyclic and crown ethers, aromatic compounds, esters, amino acids, peptides, proteins, carbohydrates, synthetic and natural polymers, polarimetry, IR, UV/VIS, NMR spectroscopy, and mass spectrometry.

Student Learning Outcome(s):

The student will be able to elucidate the structure of complex organic molecules by analyzing and interpreting the nmr spectrum of such compounds.

**CHEM T 168** CHEMICAL QUALITY CONTROL I (2)
*Lab: 6 hours*

This course provides introduction to quantitative and qualitative analysis of common anions and cations in aqueous solution.

Student Learning Outcome(s):

The student will be able to assign oxidation states to individual atoms in molecules and ions and balance redox equations under acidic and basic conditions.
CHEMISTRY

CHEM 070 INTRODUCTORY ORGANIC AND BIOCHEMISTRY (4) UC/CSU

Lecture: 3 hours / Lab: 3 hours

Prerequisite: Chemistry 51 or Chemistry 65 or Chemistry 101.

This course studies the structure, physical properties and nomenclature of organic compounds and biomolecules. Simple chemical reactions are introduced. Students use physical and chemical properties of compounds to characterize them in the laboratory. It is strongly recommended to take this course before taking chemistry 211. This course provides credit towards the Associate of Sciences degree in Chemistry

Student Learning Outcome(s):

1. Students are able to name small organic compounds; alkanes, alkenes, aromatics, aikynes, alcohols, aldehydes, ketones, carboxylic acids, esters, amides and amines. 2. Students will describe the structure and chemistry of small organic compounds. 3. Students will classify constitutional and optical stereoisomers. 4. Students will describe and identify the physical and chemical properties of carbohydrates, lipids, proteins and nucleic acids. 5. Students will use the physical and chemical properties of compounds to characterize them in the laboratory.

CHEM 101 GENERAL CHEMISTRY I (5) UC/CSU

Lecture: 3 hours / Lab: 6 hours

Prerequisite: Mathematics 125

In lectures students learn nomenclature, atomic structure, quantum theory, bonding theories and molecular geometry, chemical equations, stoichiometry, thermochemistry, solid, liquid and gaseous states and related forces, gas laws, solutions and colligative properties, periodic relationships, and acid base theories. Laboratory exercises are quantitative in nature and are related to the lecture topics. This is the first semester of a one-year course in chemistry intended for majors in the natural sciences (chemistry, biochemistry, biology, physics, pre-medicine), mathematics, and engineering.

CHEM 102 GENERAL CHEMISTRY II (5) UC/CSU

Lecture: 3 hours / Lab: 6 hours

Prerequisite: Chemistry 101.

In lectures students receive the theory and application of chemical kinetics, general and aqueous equilibria, thermodynamics, electrochemistry, nuclear chemistry, descriptive chemistry, structure and bonding in transition metal complexes and carbon compounds. In the laboratory students put into practice what is learned in lecture to experiments in reaction kinetics, chemical qualitative analysis, chemical and spectroscopic quantitative analysis, titration techniques, and electrochemistry.

Student Learning Outcome(s):

1. Students will describe kinetic, equilibrium and redox concepts for organic reactions and apply radioactivity principles a) Relate rates of reactions to mechanisms a) Evaluate rates of reactions and their dependence on concentration and temperature b) Illustrate and evaluate dynamic equilibrium and effect of catalysts the effect of catalysis c) Interpret the Arrhenius, Brønsted-Lowry and Lewis concepts of acids and bases, analyze relative strength of acids and base and relationship of molecular structure to acid strength d) Define and determine the pH of solutions e) Describe and analyze acid base equilibria f) Assess the properties of salt solution and buffer solutions and perform acid base titrations g) Define the solubility product Ksp and apply it to calculate solubility of compounds h) State the first, second and third laws of thermodynamics and perform calculations for phase transitions and chemical changes i) Relate free energy to equilibrium constants and temperature j) Balance redox reactions and illustrate their applications. j) Define radioactivity, formulate nuclear equations and evaluate nuclear stability k) Identify, describe and interpret the properties of main-group elements, transition elements and coordination compounds 2. Students will perform experiments to illustrate these concepts following safety practices in the laboratory.

CHEM 185 DIRECTED STUDY - CHEMISTRY (1) CSU

Lecture: 1 hour

This course allows students to pursue directed study in Chemistry on a contract basis under the direction of a supervising instructor.

Student Learning Outcome(s):

The student will formulate a research project based on a specific chemistry topic, interpret the current chemical research literature on that topic and write a report about it.
CHEM 211 ORGANIC CHEMISTRY FOR SCIENCE MAJORS I (5) UC/CSU
Lecture: 3 hours / Lab: 6 hours
Prerequisite: Chemistry 102.

This is the first part of a two-course sequence presenting the structure, equilibrium, nomenclature including conformational analysis, potential energy plots, hybridization, stereochemistry, preparation and mechanisms of reactions of aliphatic hydrocarbons and related functionalities. A mechanistic approach to reactions and a focus on multi-step synthesis is emphasized throughout the course. The laboratory presents the techniques of preparation, isolation, and analysis of organic compounds employing standard and modern instrumental methods.

Student Learning Outcome(s):
1. Students will describe structure dynamics and equilibrium of organic compounds i) Hydrocarbons, haloalkanes, alcohols, thiols, ethers, sulfides and epoxides a) Describe bonding and structure of functional groups in organic compounds. b) Name them according to the IUPAC system. c) Relate their physical properties to structure. d) Inspect conformations of alkanes and cycloalkanes. e) Describe chirality, optical activity and inspect properties of stereoisomers. f) Evaluate acidity of organic compounds and illustrate the thermochemistry of acid-base reactions. g) Describe preparation and reactions of organic compounds including mechanisms, reaction intermediates and potential energy diagrams. h) Employ multi-step organic synthesis and retrosynthesis to produce the functional groups learned in class 2. Students will employ modern synthetic and chromatographic techniques to characterize organic synthesis.

CHEM 212 ORGANIC CHEMISTRY FOR SCIENCE MAJORS II (5) UC/CSU
Lecture: 3 hours / Lab: 6 hours
Prerequisite: Chemistry 211;

Continuing studies of organic molecules started in chemistry 211 with emphasis on carbonyl containing compounds, macromolecules and naturally occurring nitrogen and oxygen-containing compounds. Non-covalent interactions and catalyst. A mechanistic approach to reactions and a focus on multi-step synthesis is emphasized throughout the course. This course is part of the transfer sequence for careers in the physical, biological, and health sciences and a requirement for the Associate of Sciences degree in Chemistry.

Student Learning Outcome(s):
1. Students will describe structure dynamics and equilibrium of organic compounds; organolithium, organomagnesium compounds, diorganocopper reagent, carbones, carbenoids, aldehydes, ketones, carboxylic acids, derivatives of carboxylic acids, dienes, amines and benzene as well as other aromatic compounds. a) Describe bonding and structure of the functional groups in organic compounds. b) Name according to the IUPAC system. c) Relate physical properties to structure and inspect chirality. d) Apply spectroscopic techniques to characterize organic compounds. e) Describe preparation and reactions of organic compounds including mechanisms, reaction intermediates and potential energy diagrams. f) Examine stability of organic compounds g) Employ multi-step organic synthesis and retrosynthesis to produce the functional groups learned in class 2. Students will employ modern synthetic, chromatographic and spectroscopic techniques to prepare and characterize them. 3. Students will perform multi-step synthesis and draw conclusions form experimental data.

CHEM 221 BIOCHEMISTRY FOR SCIENCE MAJORS (5) UC/CSU
Lecture: 3 hours / Lab: 6 hours
Prerequisite: Chemistry 211;

This course introduces structure, thermodynamics and metabolism of biologically important molecules. Students use modern techniques for purification, structure and function characterization including chromatography, gel electrophoresis, spectroscopy and molecular modeling. This course is part of the transfer sequence for careers in the physical biological and health sciences and a requirement for the Associate of Sciences degree in Chemistry; Concentration biochemistry.

Student Learning Outcome(s):
1. Describe how atoms and molecules in living cells function and interact chemically. a) Describe the relationship of thermodynamics to living systems. b) Analyze acid base titration curves and describe buffer systems. c) Interpret characteristics of amino acids in terms of structure. d) Assess how the structure of proteins determine their function. e) Describe methods of protein isolation and characterization. f) Illustrate the differences between kinetic and thermodynamic aspects of reactions. g) Employ enzyme kinetic data to determine competitive or noncompetitive inhibition. h) Discuss how allosteric enzymes are regulated. i) Differentiate between the concerted and sequential models for allosteric enzymes j) Relate events at the active site to reaction mechanisms. k) Identify and distinguish between primary structure, secondary structure, tertiary structure, and the quaternary structure of proteins. l) Describe lipids and related molecules to illustrate models of membrane structure and their function. m) Describe levels of structure in nucleic acids and the flow of genetic information in the cell. m) Describe the techniques used in nucleic acid research. n) Discuss ways to study DNA-protein interactions and use bioinformatics to study genomics and proteomics. o) Assess the thermodynamics of metabolism. p) Describe the overall pathway of glycolysis and the production of energy. q) Explain the formation and break down of glycogen and the production of glucose from pyruvate r) Explain the regulation of the pentose phosphate pathway. s) Assess the role of the citric acid cycle and electron transport in the production of energy. t) Students will use techniques for the purification, characterization, structure determination and function of biomolecules.

CHEM 285 DIRECTED STUDY - CHEMISTRY (2) CSU
Lecture: 2 hours

This course allows students to pursue directed study in Chemistry on a contract basis under the direction of a supervising instructor.

Student Learning Outcome(s):
The student will formulate a research project based on a specific chemistry topic, interpret the current chemical research literature on that topic and write a report about it.

CHEM 385 DIRECTED STUDY - CHEMISTRY (3) CSU
Lecture: 3 hours

This course allows students to pursue directed study in Chemistry on a contract basis under the direction of a supervising instructor.

Student Learning Outcome(s):
The student will formulate a research project based on a specific chemistry topic, interpret the current chemical research literature on that topic and write a report about it.

CHILD DEVELOPMENT

CH DEV 001 CHILD GROWTH AND DEVELOPMENT (3) UC/CSU
Lecture: 3 hours
Advisory: English 28.

This course examines the major physical, psychosocial, and cognitive/language developmental milestones for children, both typical and atypical, from conception through adolescence. There will be an emphasis on interactions between maturation processes and environmental factors. While studying developmental theory and investigative research methodologies, students will observe children,
evaluate individual differences and analyze characteristics of development at various stages.

Student Learning Outcome(s):

1. Describe development of children from conception through adolescence in the physical, social, emotional, and cognitive domains.
2. Identify cultural, economic, political, historical contexts that impact children’s development.
3. Apply knowledge of development and major theoretical frameworks to child observations.

CH DEV 002 EARLY CHILDHOOD: PRINCIPLES AND PRACTICES (3) CSU
Lecture: 3 hours

TB clearance required. Prerequisite: Child Development 1.

An examination of the underlying theoretical principles of developmentally appropriate practices applied to programs, environments, emphasizing the key role of relationships, constructive adult-child interactions, and teaching strategies in supporting physical, social, creative and intellectual development for all children. This course includes a review of the historical roots of early childhood programs and the evolution of the professional practices promoting advocacy, ethics and professional identity.

Student Learning Outcome(s):

Upon Completion of this course students will be able to:
1. Compare and contrast historical and current early childhood education perspectives, theories, and program types and philosophies.
2. Describe the role of the early childhood educator, including ethical conduct, and professional pathways.
3. Identify quality in early childhood programs related to environment, curriculum, and teaching strategies.

CH DEV 007 INTRODUCTION TO CURRICULUM IN EARLY CHILDHOOD EDUCATION (3) CSU
Lecture: 3 hours

Prerequisites: Child Development 1; Child Development 2.

This course presents an overview of knowledge and skills related to providing appropriate curriculum and environments for young children from birth to age 6. Students will examine a teacher’s role in supporting development and engagement for all young children. This course provides strategies for developmentally-appropriate practice based on observation and assessments across the curriculum, including 1) academic content areas, 2) play, art, and creativity, and 3) development of social-emotional, communication, and cognitive skills.

Student Learning Outcome(s):

Upon completion of this course students will be able to:
1. Differentiate between various curriculum models, approaches, environments, and standards for early learning including indicators of quality.
2. Identify the teacher’s role in early childhood programs, including planning, implementing and evaluating activities and environments.
3. Select and apply developmentally appropriate teaching strategies and theories to curriculum and environment design.

CH DEV 008 CURRICULUM IN EARLY CHILDHOOD EDUCATION (3) CSU
Lecture: 3 hours

Prerequisites: Child Development 1; Child Development 2 and Child Development 7.

Students design and evaluate developmentally appropriate curriculum and environments for young children from birth to age 6. Based on the value of play, students demonstrate the teacher’s role in applying theory to practice in supporting children’s concept development. Preparing and assessing the implementation of curriculum will include but not be limited to: language and literacy, social studies, art and creativity, music and rhythm, perceptual motor development, mathematics, natural and physical sciences.

Student Learning Outcome(s):

Demonstrate and design the active implementation of an integrated curriculum.

CH DEV 010 HEALTH, SAFETY AND NUTRITION (3) CSU
Lecture: 3 hours

Advisory: English 21.

Students are required to participate in and pass the American Red Cross Infant/Child CPR and First Aid Course.

This course introduces the laws, regulations, standards, policies and procedures and early childhood curriculum related to child health, safety, and nutrition. The key components that ensure physical health, mental health and safety for both children and staff will be identified along with the importance of collaboration with families and health professionals. This course also focuses on integrating the concepts into everyday planning and program development for all children. Students are required to participate in and pass the American Red Cross Infant/Child CPR and First Aid course.

Student Learning Outcome(s):

Upon Completion of the Course students will be able to:
1. Describe strategies used to promote health, safety and nutrition of children and adults in early childhood settings.
2. Evaluate environments for both positive and negative impacts on children’s health and safety.
3. Identify regulations, standards, policies, and procedures related to health, safety and nutrition in early childhood settings.

CH DEV 011 CHILD, FAMILY AND COMMUNITY (3) CSU
Lecture: 3 hours

Advisory: English 21.

An examination of the developing child in a societal context focusing on the interrelationship of family, school and community and emphasizes historical and socio-cultural factors. The processes of socialization and identity development will be highlighted, showing the importance of respectful, reciprocal relationships that support and empower families.

Student Learning Outcome(s):

Upon Completion of this course students will be able to:
1. Describe socialization of the child focusing on the interrelationship of family, school, and community.
2. Identify the educational, political and socioeconomic impacts on children and families.
3. Describe strategies that empower families and encourage family involvement in children’s development.

CH DEV 022 PRACTICUM IN CHILD DEVELOPMENT I (4) CSU
Lecture: 2 hours / Lab: 6 hours

Prerequisite: Child Development 1; and Child Development 2 and Child Development 7 and Child Development 8; Child Development 11.

Students are required to complete 108 hours at an approved field site. Must be available between 8:00 a.m. and noon.

In this course the student will practice and demonstrate developmentally appropriate early childhood program planning and teaching competencies under the supervision of ECE/CD faculty and other qualified early education professionals. Students will utilize practical classroom experiences to make connections between theory and practice, develop professional behaviors, and build a comprehensive understanding of children and families. Child centered, play-oriented approaches to teaching, learning, and assessment; and knowledge of curriculum content areas will be emphasized as student
teachers design, implement and evaluate experiences that promote positive development and learning for all young children.

Student Learning Outcome(s):
Upon completion of this course students will be able to: 1. Apply a variety of effective approaches, strategies and techniques for teaching in an early childhood classroom. 2. Design, implement and evaluate curriculum and environments based on observation and assessment of young children. 3. Analyze personal teaching experiences to guide and inform practice.

CH DEV 023 PRACTICUM IN CHILD DEVELOPMENT II (4) CSU
Lecture: 2 hours / Lab: 6 hours
Prerequisite: Child Development 22. Students are required to complete 108 hours at an approved field site. Must be available between 8:00 a.m. and noon.

This course provides an advanced practicum experience. Students apply assessment strategies to plan, implement, and evaluate developmentally appropriate activities. Techniques that promote partnerships between teachers and families are developed. Educational philosophy statement, a resume and a professional portfolio are created. State law requires a TB test (Mantoux Test) or chest x-ray, Dtap, MMR and flu vaccinations. In addition to the seminar class, students are required to complete a minimum of 108 hours at an APPROVED field site.

Student Learning Outcome(s):
1. Design and implement curriculum activities for preschool age children. 2. Critically assess one's own teaching experience to guide and inform practice.

CH DEV 030 INFANT AND TODDLER STUDIES I (3) CSU
Lecture: 3 hours
Prerequisite: Child Development 1.

This course provides an in-depth study of cognitive/language, social/emotional and perceptual/motor developmental domains and milestones of infants from birth to 36 months. As well as, an overview of major theories including attachment, brain development, the value of play, early intervention and relationship-based care in the context of family systems: culture, home language, and traditions. Students will be introduced to the laws and regulations of safe healthy environments and the rights of all infants and toddlers including children at-risk for disabilities. Class instruction includes objective observations of infants and toddlers in diverse settings.

Student Learning Outcome(s):
Recognize major developmental milestones in infants and toddlers and explain the stages and characteristics of infants/toddlers' physical, cognitive and social and emotional development.

CH DEV 031 INFANT AND TODDLER STUDIES II (3) CSU
Lecture: 3 hours
Prerequisite: Child Development 1 and Child Development 30.

This course implements the principles of inclusive, respectful care-giving for infants and toddlers within a variety of program designs, routines and schedules. Topics cover typical and atypical development, principles of early intervention, design, implementation and assessment of developmentally appropriate curriculum and environment; health, safety and licensing issues. Coursework includes documentation of learning through observation, guidance towards self-regulation, family communications and community resources. Current research within the context of home language, culture and traditions will be addressed.

Student Learning Outcome(s):
Students will evaluate principles of respectful care focusing on routines and schedules.

CH DEV 034 OBSERVING AND RECORDING CHILDREN'S BEHAVIOR (3) CSU
Lecture: 3 hours
Prerequisite: Child Development 1.

This course focuses on the appropriate use of a variety of assessment and observation strategies to document child development, growth, behaviors, play and learning, and to join with families and professionals in promoting children's success. Recording strategies, rating systems, portfolios, and multiple assessment tools are explored. Child observations will be conducted and analyzed.

Student Learning Outcome(s):
Upon completion of this course students will be able to: 1. Evaluate the characteristics, strengths, limitations, and applications of contemporary observation and assessment tools. 2. Complete systematic observations and assessment using a variety of methods of data collection to inform environment design, interactions and curriculum. 3. Discuss the role of partnership with families and other professionals in utilizing interpretations of observational assessment data.

CH DEV 038 ADMINISTRATION & SUPERVISION OF EARLY CHILDHOOD PROGRAMS I (3) CSU
Lecture: 3 hours
Prerequisites: Child Development 1; Child Development 2; Child Development 10; Child Development 11.

This course examines administrative principles and practices for Early Childhood Programs. Topics covered include: licensing regulations, leadership skills, budget preparation and analysis, personnel management, parent involvement programs and community resources. Professionalism and quality standard are emphasized. Partially fulfills licensing requirement for the director.

Student Learning Outcome(s):
Students will incorporate licensing guidelines to design an early childhood space that meets the needs of children, staff members and parents within a reasonable budget.

CH DEV 039 ADMINISTRATION & SUPERVISION OF EARLY CHILDHOOD PROGRAMS II (3) CSU
Lecture: 3 hours
Prerequisite: Child Development 38.

This course provides training for administrators of Early Childhood Programs on a variety of topics pertaining to administration of early childhood programs. Topics include: state and federal regulations, computer applications for administration, grant and proposal development, advocacy, leadership skills and team management techniques, developing a comprehensive parent partnership, working with Desired Results, and legal issues. This course partially fulfills the licensing requirement for the director.

Student Learning Outcome(s):
1. Student will analyze his/her own administrative style and utilize management strategies that match individual's leadership style, evaluate his/her own ability and develop a timeline for a personal and professional development plan. 2. Formulate strategies to create a positive climate and motivate the staff.
CH DEV 042  TEACHING IN A DIVERSE SOCIETY (3) CSU  
Lecture: 3 hours  
This course will examine the development of social identities in diverse societies including theoretical and practical implications affecting young children, families, programs, teaching, education and schooling. Various classroom strategies will be explored emphasizing culturally relevant and linguistically appropriate anti-bias approaches supporting all children in becoming competent members of a diverse society. Course includes examination on issues related to social identity, stereotypes and bias, social and educational access, media and schooling. Course also involves self-reflection of one’s own understanding of educational principles in integrating anti-goals in order to better inform teaching practices and/or program development.  
Student Learning Outcome(s):  
Upon completion of this course students will be able to: 1. Examine the impact of various societal influences on the development of children’s social identity. 2. Evaluate the ways that developmentally appropriate, inclusive and anti-bias approaches support learning and development. 3. Evaluate the influence of teachers’ experiences on teaching approaches and interactions with children and families.

CH DEV 044  EARLY INTERVENTION FOR CHILDREN WITH SPECIAL NEEDS (3) CSU  
Lecture: 3 hours  
Prerequisite: Child Development 1.  
This course is designed for students interested in specializing in or working with young children with special needs and their families. Instruction focuses on accommodating and adapting the physical environment, instructional strategies and curriculum to meet the needs of differently able children from birth through preschool.  
Student Learning Outcome(s):  
Students will recognize the needs of a family with a young exceptional child and propose an intervention approach that is appropriate for their needs.

CH DEV 045  PROGRAMS FOR CHILDREN WITH SPECIAL NEEDS (3) CSU  
Lecture: 3 hours  
Prerequisite: Child Development 1 and 2.  
This course is an overview of programs providing special education services for children with special needs focusing on preschool through school age. It will include a study of various programs, legislation, characteristics of exceptionalities and educational implications. Observation in schools will be required.  
Student Learning Outcome(s):  
Students will assess characteristics of a quality special education class/program and services necessary for children with special needs.

CH DEV 046  SCHOOL AGE PROGRAMS I (3) CSU  
Lecture: 3 hours  
Prerequisite: Child Development 1.  
The students will be introduced to the care of school age children. This course is designed for those currently working, or planning to work in before and after school child care. Students will develop age-appropriate curriculum, learn how to support the family and make use of community resources.  
Student Learning Outcome(s):  
1. Students will compare diverse models of school age care to assess how programs meet the needs of school age children. 2. They will apply their understanding of developmental needs by preparing curriculum activities to support children’s growth and development.

CH DEV 047  SCHOOL AGE PROGRAMS II (3) CSU  
Lecture: 3 hours  
Prerequisite: Child Development 46.  
Introduction to before and after school age programs. Topics covered are guidance of child behavior, the child in context of the family, community and administration of programs. Hiring and supervision of staff, working with parents and marketing and advertising the school age program will be also covered.  
Student Learning Outcome(s):  
Students will learn how to evaluate a quality school age program.

CH DEV 048  POSITIVE GUIDANCE IN EARLY CHILDHOOD SETTINGS (3) CSU  
Lecture: 3 hour(s) / Lab: 1 hours  
This course is an exploration of developmentally appropriate management techniques for children in early childhood settings. Emphasis is on developing culturally sensitive individualized plans for behavior management of children with traditional and special needs.  
Student Learning Outcome(s):  
Students will be able to develop an effective behavior management plan.

CH DEV 065  ADULT SUPERVISION/EARLY CHILDHOOD MENTORING (2) CSU  
Lecture: 2 hours  
Corequisite: Child Development 23 or Child Development 39.  
The class focuses on the principles and practices of supervision and evaluation of staff in Early Childhood Programs. Emphasis is placed on the role of experienced teachers who mentor or supervise new teachers and student teachers. This meets supervision requirement for the Child Development Permit.  
Student Learning Outcome(s):  
Students will be able to demonstrate ability to evaluate a preschool classroom based on developmentally appropriate guidelines and to facilitate positive interaction between adults in the center/classroom environment.

CH DEV 941  COOPERATIVE EDUCATION - CHILD DEVELOPMENT (4) CSU  
Lecture: 4 hours  
Cooperative Education is a work experience program involving the employer, the student-employee and the college to insure that the student receives on the job training and the unit credit for work experience or volunteer work/internship. Completion of at least seven units, including Cooperative Education, at the end of the semester is required. Students must be employed or volunteering/interning in order to participate in program.  
Student Learning Outcome(s):  
1. The student will develop at least three learning objectives to be accomplished on the job. 2. The objectives will be related to the educational/occupational goals of the student.
COMMUNICATION STUDIES

COMM 101  PUBLIC SPEAKING (3) UC/CSU
Lecture: 3 hours
Advisory: English 028

This introductory speech course emphasizes techniques of public speaking including writing and delivery of speeches to inform and persuade. Students refine critical thinking, research, organizational, and time management skills. They learn to adapt a message to any audience and occasion.

Student Learning Outcome(s):
1. Student will draft and deliver in front of a live audience and well-organized speech.
2. Students will deliver both informative and persuasive speeches.
3. Students will identify and evaluate evidence in support of claims used in both informative and persuasive speeches.

COMMUNITY PLANNING/ECONOMIC DEVELOPMENT

COMPLAN 001  INTRODUCTION TO COMMUNITY ECONOMIC DEVELOPMENT (3) CSU
Lecture: 3 hours

This course is an introduction to the theory, history, and practice of community development. The course covers: neighborhood development and community building strategies; land use and real estate development; and business and labor force development strategies used to revitalize urban neighborhoods. Students will produce a neighborhood plan using e-planning tools including: asset maps, a housing plan and a workforce development plan. The course is also offered as three modules that run concurrently with the full course.

Student Learning Outcome(s):
Students will create a neighborhood revitalization plan that will include needs assessment, a community engagement process and economic development strategy to increase jobs, income and assets.

COMPLAN 002  INTRODUCTION TO COMMUNITY ORGANIZING (3) CSU
Lecture: 3 hours

This course focuses on community organizing efforts by people working together to improve their neighborhoods and cities. The course prepares students to become professional organizers, community developers, and effective citizen leaders. The course explores the history, theory, and different approaches to grassroots community organizing. Students will analyze the current context for organizing, the impact of social change theories, organizing strategies, tools and new methodologies used in community organizing.

Student Learning Outcome(s):
Students will develop a community organizing plan to address critical conditions in a low income community.

COMPLAN 003  AFFORDABLE HOUSING DEVELOPMENT (3) CSU
Lecture: 3 hours

Develop real estate development skills needed to build multi-family affordable housing projects. Through project-based learning, you will recognize the stages of the development process; analyze the feasibility of a project, including neighborhood, site and financial analyses; and identify sources and uses of financing and project management, marketing and operations.

Student Learning Outcome(s):
Students will formulate an affordable housing plan targeting problems faced by low-income residents of the city.

COMPLAN 005  SECTOR DEVELOPMENT AND EMPLOYMENT STRATEGIES (3) CSU
Lecture: 3 hours

This course will focus on how a strong understanding of industry sectors can be linked to viable job creation and employment strategies. Particular attention will be devoted to sector initiatives and training programs in the greater Los Angeles region.

Student Learning Outcome(s):
Students will examine and evaluate a workforce development plan in the community economic development sector.

COMPLAN 006  MANAGING NON-PROFIT AND PUBLIC ORGANIZATIONS (3) CSU
Lecture: 3 hours

This course deals with the organizational opportunities and challenges faced by directors and managers of non-profit and public service organizations. Students will gain an understanding of the roles and accountabilities of non-profit directors and managers and learn to work effectively within such organizations by recognizing and applying knowledge about different governance structures and the functional domains common to most public benefit organizations including strategic and operational planning, fund development and community engagement.

Student Learning Outcome(s):
Students will create a non profit program plan to include: analysis of community resources, fundamental actions, multiple strategies in forming nonprofit programs.

COMPLAN 007  CONTEMPORARY ISSUES AND STRATEGIES IN POPULAR EDUCATION AND ORGANIZING (3) CSU
Lecture: 3 hours

This course will explore current issues of land use, housing, workers' rights, environmental justice and the fight for jobs in Los Angeles by utilizing field research and direct interaction with local non-profit organizations working to make change in these sectors.

Student Learning Outcome(s):
Students will examine contemporary social justice issues and campaigns in order to formulate arguments to support the need for reform.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
<th>Lecture Hours</th>
<th>Description</th>
<th>Student Learning Outcome(s):</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMPLAN 009</td>
<td>COMMERCIAL REAL ESTATE DEVELOPMENT</td>
<td>3</td>
<td>3</td>
<td>This course will teach students how to develop commercial real estate projects with a specific focus on retail and inner city development. The introductory course builds skills and competencies in land development, developing financing, marketing and leasing of small and mid size commercial projects. Through case studies, simulations and project-based learning, students recognize development strategies and tools used by public, private and non-profit organizations.</td>
<td>Students will assess the commercial real estate needs of a low-income community and develop a commercial development strategy designed to stimulate the local economy and physically revitalize a designed targeted community.</td>
</tr>
<tr>
<td>COMPLAN 010</td>
<td>COMPREHENSIVE COMMUNITY VIOLENCE PREVENTION</td>
<td>3</td>
<td>3</td>
<td>The course provides students an overview of the larger issues of violence prevention and its impact on community development. The course prepares students for work in the field of community violence prevention.</td>
<td>Students will create a community violence prevention plan to address the root causes of community violence through a community development lens.</td>
</tr>
<tr>
<td>COMPLAN 011</td>
<td>PROFESSIONAL DEVELOPMENT SKILLS/ISSUES IN COMMUNITY DEV</td>
<td>3</td>
<td>3</td>
<td>Students will learn to identify and understand a variety of personal, professional development strategies, writing and communication skills and industry networks/language used by professionals in community development corporations, community-organizing networks and community-based non-profit organizations.</td>
<td>Students will develop a professional development plan that supports their employment in the Community and Economic Development field.</td>
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<tr>
<td>COMPLAN 012</td>
<td>FUNDRAISING BASICS FOR NONPROFIT ORGANIZATIONS</td>
<td>1</td>
<td>1</td>
<td>This course provides students with a basic understanding of fundraising and grant development concepts, strategies and tools applicable to non-profit organizations.</td>
<td>Students will formulate a fund development plan that is tailored to the needs of an organization.</td>
</tr>
<tr>
<td>COMPLAN 015</td>
<td>INTRODUCTION TO THE COMMUNITY DEVELOPMENT INDUSTRY &amp; CAREERS</td>
<td>1</td>
<td>1</td>
<td>Learn about the field of community development by exploring historical and current trends. Explore the range and scope of organizations working in the field, leadership, issues, community served and approaches to community based solutions.</td>
<td>Students will describe a career pathway in the community development through a career development plan.</td>
</tr>
<tr>
<td>COMPLAN 017</td>
<td>LEADERSHIP DEVELOPMENT AND SKILL BUILDING</td>
<td>3</td>
<td>3</td>
<td>In this course students will learn to define leadership models in which all members of society play pivotal roles in change. Students will demonstrate multicultural appreciation and have the confidence to see themselves as community change agents.</td>
<td>Students will be able to develop a personal leadership development plan for their future.</td>
</tr>
<tr>
<td>COMPLAN 022</td>
<td>SOCIAL MEDIA, FOR ORGANIZING AND CIVIC ENGAGEMENT</td>
<td>2</td>
<td>2</td>
<td>This course will cover effective media strategies for community organizing campaigns, effective messaging that reflects the values of the community and an introduction to using media tools such as social media, self-generated radio and press events.</td>
<td>Students will compose a communications strategy plan that utilizes digital and social media in a political or community organizing campaign.</td>
</tr>
<tr>
<td>COMPLAN 030</td>
<td>MARKET RESEARCH TOOLS FOR THE ECONOMIC DEVELOPMENT PROCESS</td>
<td>3</td>
<td>3</td>
<td>This course is specifically designed for professionals in community economic development organizations that provide technical assistance to small businesses. This hands-on course will provide professionals with the tools needed to assess client needs and develop and implement effective market research and marketing plans for small businesses. This is a hybrid course, utilizing a combination of in-class and on-line/web-based instruction. The content of this course is geared towards individuals with 2-3 years of professional experience and whose organizations provide assistance to small businesses.</td>
<td>Students will be able to develop a community engagement marketing plan for small businesses to reach the community.</td>
</tr>
</tbody>
</table>
COMPLAN 032 COMMUNITY BUILDING PRINCIPLES AND STRATEGIES (1) CSU  
*Lecture: 1 hour*

This course provides students with a basic understanding of community building principles, strategies and tools for community and economic development.

**Student Learning Outcome(s):**

Students will formulate a plan based on their understanding of Community Building principles, steps in the Community Building process, interpret community needs and assets, analyze social issues via multiple methods, apply social analysis to decisionmaking methods to create a community building plan.

COMPLAN 033 COMMUNITY ENGAGEMENT PRINCIPLES AND STRATEGIES (1) 
*Lecture: 1 hour*

This course provides students with a basic understanding of community engagement principles, strategies and tools for community and economic development.

**Student Learning Outcome(s):**

Students will be able to formulate a community engagement plan.

COMPLAN 035 HEALTH LEADERSHIP AND COMMUNITY DEVELOPMENT (3) CSU  
*Lecture: 3 hours*

This course provides students with a basic understanding of the health disparities and conditions affecting low-income, inner-city communities and the leadership skills required to improve them.

**Student Learning Outcome(s):**

Students will be able to formulate a plan to improve public health systems that affect health determinants of low income inner city neighborhoods.

COMPLAN 036 INTRODUCTION TO COMMUNITY BASED RESEARCH AND ORGANIZING METHODS (3) CSU  
*Lecture: 3 hours*

This course provides students with a basic understanding of community-based research principles, tools and strategies. The course is taught in a training/workshop format where students will work in small groups to apply classroom lessons to investigate local community issues, such as transportation, environment and economic health. Topics covered include participatory action research theory and methodology, history of Los Angeles, mobility issues in urban settings, sources and impacts of pollution and income and wealth inequality.

**Student Learning Outcome(s):**

To conduct a participatory action research survey targeting a specific community.

COMPLAN 038 DEVELOPING SOCIAL NETWORKS FOR COMMUNITY BUILDING (1) CSU  
*Lecture: 1 hour*

The course examines the value of developing social networks in the process of community building. The course examines strategies for collaboration, collective problem solving, identification of neighborhood assets and developing support mechanisms across sectors of development.

**Student Learning Outcome(s):**

Students will formulate a digital relationship building plan.

COMPLAN 040 NON-PROFIT PROGRAM DESIGN AND DEVELOPMENT (2) CSU  
*Lecture: 2 hours*

This course guides students to design and develop non-profit programs that are highly integrated into a non-profit service organization’s mission, vision and values. Topics include identifying conditions, research and problem analysis, program goal development, outcome creation, implementation strategies and evaluation of impact.

**Student Learning Outcome(s):**

Students will be able to create a non-profit logic model to serve community serving programs targeting problems facing low-income residents.

COMPLAN 042 SUSTAINING SOCIAL JUSTICE CAMPAIGN VICTORIES AND ORGANIZATION (1)  
*Lecture: 1 hour*

This course will introduce students to current models for sustaining a social justice organization including evaluating the non-profit, social entrepreneurship and self-help models to support community revitalization and empowerment.

**Student Learning Outcome(s):**

1. Identify and compare three different types of social movement organizational models. 2. Compare and contrast the opportunities, challenges and successes of these models. 3. Identify funding and sustainability opportunities for various organizations fitting the various models.

COMPLAN 065 COMMUNITY-BASED HEALTH POLICY ADVOCACY (3) CSU  
*Lecture: 3 hours*

This course will provide a foundational basis for skills to engage the community in grassroots health promotion and policy advocacy.

**Student Learning Outcome(s):**

Students will formulate a Policy Analysis Memo that addresses a social determinant of health.

COMPLAN 100 HISTORY OF COMMUNITY DEVELOPMENT IN LOS ANGELES (2) CSU  
*Lecture: 2 hours*

History of Community Development in Los Angeles explores the historic development of Los Angeles from the early settlements to the rise of industrialization, neighborhood development, demographic transitions and the intersection between race, class, politics and power.

**Student Learning Outcome(s):**

Students will compose an equity solution and plan that currently affects a Los Angeles neighborhood.
COMPLAN 101  HISTORY OF SOCIAL JUSTICE
THEORY, IDEOLOGY AND PRACTICE IN AMERICA (2) CSU

Lecture: 2 hours

The course provides students with a historical foundation of social movements based in the United States. Students will analyze the guiding principles and work of key organizations that have fought for justice along intersectional issues of race, class and gender and will apply theories to projects that seek to solve current day problems.

Student Learning Outcome(s):
Students will compose an equity solution that addresses a current social justice issue that incorporates equity building concepts.

COMPLAN 102  CULTIVATING CONSCIOUSNESS:
REFLECTION OF THE SELF IN COMMUNITY AS AN ORGANIZER (1)

Lecture: 1 hour

Community organizers will explore issues of race, class and privilege and its impact on the self and communities. Students will learn skills and knowledge related to group dynamics, sustainability, self analysis and macro and micro issues related to the role of community organizers.

Student Learning Outcome(s):
Students will identify an indicator of racism and create a policy recommendation for addressing inequities in communities of color.

COMPLAN 105  INTERNATIONAL MODELS OF COMMUNITY ORGANIZING (1)

Lecture: 1 hour

Students will learn about international models of community organizing and the connection between local and international issues.

Student Learning Outcome(s):
1. Understand the impact of globalization and neoliberalism on local and national systems and economies. 2. Illustrate the contribution of organizing efforts and the United Nations in rebuilding communities all over the world. 3. Distinguish between strategies, tools and systems in international organizing efforts.

COMPLAN 106  ELECTIONS, COMMUNITY, POWER AND SYSTEMS REFORM IN COMMUNITY DEVELOPMENT (1)

Lecture: 1 hour

Students will learn about local and national efforts for elections and systems reform for social change including evaluating successful electoral campaigns.

Student Learning Outcome(s):
1. Compare strengths and challenges in utilizing electoral and system reform campaigns especially in the state of California. 2. Analyze history of electoral campaigns and their impact on positive social change. 3. Identify key components of developing a successful movement-building electoral campaign.

COMPLAN 200  STRATEGIC PLANNING & MANAGEMENT TRAINING FOR ECONOMIC DEVELOPMENT (3)

Lecture: 3 hours

This course is focused on the fundamentals of strategic and business planning for organizational staff and will provide tools and opportunities to practice for the organizations.

COMPLAN 201  FINANCIAL MANAGEMENT ASSISTANCE FOR SMALL BUSINESS FOR ECONOMIC DEVELOPMENT PROFESSIONAL (3)

Lecture: 3 hours

This course is focused on the fundamentals of financial management for nonprofit staff and will provide tools and opportunities to practice for the organizations.

Student Learning Outcome(s):
Students will formulate a financial management plan that will sustain a nonprofit organization.

COMPLAN 202  EFFECTIVE HUMAN RESOURCES MANAGEMENT FOR SMALL BUSINESS ASSISTANCE (3)

Lecture: 3 hours

This course examines the evolving human resources function within today’s nonprofit organizations.

Student Learning Outcome(s):
Students will formulate a human resources management plan.

COMPLAN 203  MARKETING AND COMMUNICATIONS PLANNING FOR COMMUNITY ORGANIZATIONS (3) CSU

Lecture: 3 hours

Fundamentals of communications and marketing planning for nonprofit organizational staff. Course will provide tools and opportunities to practice.

Student Learning Outcome(s):
Students will formulate a one year PR plan for a nonprofit organization.

COMPUTER APPLICATIONS OFFICE TECHNOLOGIES

CAOT 001  COMPUTER KEYBOARDING AND DOCUMENT APPLICATIONS I (3) CSU

Lecture: 2 hours / Lab: 3 hours

Fundamentals of keyboarding and letter writing.

Student Learning Outcome(s):
1. Students will be able to touch type the keyboard with speed and accuracy at 25-40 words per minute. 2. Students will create simple reports and block style letters.
**CAOT 002 COMPUTER KEYBOARDING AND DOCUMENT APPLICATIONS II (3) CSU**

*Lecture: 2 hours / Lab: 3 hours*

Increase computer keyboarding skills and improve business and legal document development in MS Word.

**Student Learning Outcome(s):**

1. Students will create a formal report using advanced word-processing commands and features. 2. Students are expected to type a minimum of 50 words-per-minute (wpm).

**CAOT 007 MACHINE TRANSCRIPTION (3)**

*Lecture: 2 hours / Lab: 2 hours*

*Advisory: CAOT 1 & 31*

This course is designed to provide instruction in the use of modern language of dictating and transcribing professional documents using current transcriptioning software. Emphasis is placed on using effective dictation and transcription techniques when composing original documents, employing acceptable formats, and transcribing business correspondence and reports in final form. Students will review English fundamentals, strengthen keyboarding and proofreading skills.

**Student Learning Outcome(s):**

1. Students will transcribe “Block Letter” and Modified Block letters with mixed punctuations, demonstrating correct transcription techniques. 2. Students will transcribe financial, bank, and insurance forms through transcribing and dictation. 3. Students will transcribe a two-page business letter and address an envelope from a taped dictation.

**CAOT 020 MEDICAL OFFICE PROCEDURES (5) CSU**

*Lecture: 4 hours / Lab: 2 hours*

Student will become proficient in keying medical correspondence, case histories, insurance forms, and reports. Telephone techniques, medical record keeping, filing and Internet activities are taught. Students will learn to perform the duties of the administrative medical assistant under realistic conditions requiring them to organize work and set priorities.

**Student Learning Outcome(s):**

When provided with a medical office scenario, the student will assess the situation and describe what actions in writing they would take to serve the client(s) and evaluate the effectiveness of the services provided.

**CAOT 030 OFFICE PROCEDURES (3) CSU**

*Lecture: 2 hours / Lab: 2 hours*

*Advisory: CAOT 1*

This course provides skills needed to meet the challenges of the constantly changing workforce. It emphasizes the importance of developing an effective professional image, appropriate self-management, and the importance of working successfully in teams. It stresses development of essential administrative professional skills including written and verbal communications, global communications, paper and electronic records management, personal finance and investment strategies, event planning, travel arrangements, workplace mail and copying, and job search and advancement. Emphasis is also placed on the development of soft skills such as etiquette, self-management, teamwork, ethics, leadership, and customer service.

**Student Learning Outcome(s):**

1. Students will apply knowledge in office procedures and techniques for entry level positions in business offices. 2. Students will write an indirect letter, assuming the role of an administrative assistant in a mock business.

**CAOT 031 BUSINESS ENGLISH (3) CSU**

*Lecture: 3 hours*

This course provides language fundamentals needed to communicate effectively in today’s workplace. These fundamentals include grammar, usage, punctuation, capitalization, number style, proofreading, and spelling. It develops business vocabulary as well as English skills necessary for business industry. Because business people must express their ideas clearly and correctly, language fundamentals are critical.

**Student Learning Outcome(s):**

1. Students will construct a well-formatted business letter utilizing standard English grammar and punctuation. 2. Student will create a procedures manual as a class project.

**CAOT 032 OFFICE TERMINOLOGY (2) CSU**

*Lecture: 1 hour / Lab: 2 hours*

*Advisory: CAOT 1 & 31*

This course is designed to provide instruction in the use of modern language of dictating and transcribing professional documents using current transcriptioning software. Emphasis is placed on using effective dictation and transcription techniques when composing original documents, employing acceptable formats, and transcribing business correspondence and reports in final form. Students will review English fundamentals, strengthen keyboarding and proofreading skills.

**Student Learning Outcome(s):**

1. Students will transcribe “Block Letter” and Modified Block letters with mixed punctuations, demonstrating correct transcription techniques. 2. Students will transcribe financial, bank, and insurance forms through transcribing and dictation. 3. Students will transcribe a two-page business letter and address an envelope from a taped dictation.

**CAOT 033 RECORDS MANAGEMENT AND FILING (2)**

*Lecture: 1 hour / Lab: 2 hours*

This course will provide an overview of the field of records management; alphabetic, subject consecutive numeric, and geographic storage and retrieval systems; records management technology; and records control. Class includes records management theory using Microsoft Access.

**Student Learning Outcome(s):**

Complete a Records Management Simulation showing competence in alphabetic, subject consecutive numeric, terminal-digit numeric, and geographic filing systems.

**CAOT 034 BUSINESS TERMINOLOGY (2) CSU**

*Lecture: 2 hours*

The course is designed to develop spelling ability and vocabulary enrichment with application for business use. It develops an understanding of common business and technology terms, as well as emphasizing vocabulary development and expansion.

**Student Learning Outcome(s):**

Students will compose and edit text that correctly incorporate common business and technology terms, as well as new general vocabulary.

**CAOT 035 CONCEPTS IN INFORMATION SYSTEMS (3) UC/CSU**

*Lecture: 3 hours*

This course provides an introduction to the basic concepts of microcomputers and information systems with the notion of understanding computer components. Understanding computer components includes application software, system software, input/output devices, communications, files and databases.

**Student Learning Outcome(s):**

1. Students will understand how to communicate by using web resources. 2. Students will understand how to operate system and application software.

**CAOT 036 INTEGRATED OFFICE SOFTWARE (3) UC/CSU**

*Lecture: 3 hours*

This course provides an introduction to the basic concepts of microcomputers and information systems with the notion of understanding computer components. Understanding computer components includes application software, system software, input/output devices, communications, files and databases.

**Student Learning Outcome(s):**

1. Students will understand how to communicate by using web resources. 2. Students will understand how to operate system and application software.

**CAOT 044 MEDICAL TERMINOLOGY (3) CSU**

*Lecture: 3 hours*

Students develop an understanding of medical terminology through a study of word roots, prefixes, and suffixes and body systems. Students’ emphasis is also given to spelling, pronunciation, and definitions.
Student Learning Outcome(s):

The student will be able to, using the proper terminology, identify and summarize the body systems overview structures, related combining forms, and functions most important to that system.

CAOT 046 MEDICAL TRANSCRIPTION (3)
Lecture: 2 hours / Lab: 2 hours
Advisory: CAOT 2, 31, & 44

Students will transcribe medical office and hospital dictation using transcribing software. Students will develop appropriate formats for transcribing medical reports; and specialized rules of grammar and punctuation peculiar to dictated medical reports. Students will be well versed in correct transcription procedures and in transcribing medical materials. Production is the beginning of recorded material stressing terminology from medical reports, diagnoses, and case histories. Correct spelling of medical terms are critical in learning this course.

Student Learning Outcome(s):

1. Students will recognize medical Latin root terms and phrases. 2. Students will transcribe medical reports.

CAOT 067 MICROSOFT OUTLOOK FOR THE OFFICE (2) CSU
Lecture: 1 hour(s) / Lab: 2 hours

Students learn to use the features of Microsoft Outlook in the business setting. This course includes sending and receiving e-mail messages as well as managing contacts and mail. It allows students to learn and use (1) Outlook’s Calendar for scheduling appointments, planning meetings, and scheduling events; (2) Outlook’s Tasks feature; and (3) Outlook’s Notes feature.

Student Learning Outcome(s):

1. Use the E-mail features of Microsoft Outlook to write and manage e-mail, create and edit the Address Book, and use an AutoSignature hyperlink. 2. Schedule appointments and group meetings with Outlook Calendar; evaluate and update the calendar to include recurring, changed, or deleted items or tasks. 3. Set up, organize, and edit the Tasks folder.

CAOT 082 MICROCOMPUTER SOFTWARE SURVEY IN THE OFFICE (3) CSU
Lecture: 2 hours / Lab: 3 hours

This course is an introduction to office information systems and computer literacy by incorporating group discussions, research, and hands-on-experience in a variety of Windows applications. The software used in this course includes word processing, spreadsheets, databases, communications, graphics and operating systems, scheduling, and the Internet.

Student Learning Outcome(s):

1. Students will be able to create a resume with associated cover letter, envelope, and a web page with frames and themes. 2. Students will be able to design and modify the structure of, create and add records to an Access database, and then to use it to generate reports. 3. Students will be able to integrate Word, PowerPoint, Excel and Access into a real business model.

CAOT 084 MICROCOMPUTER OFFICE APPLICATIONS: WORD PROCESSING (3) CSU
Lecture: 2 hours / Lab: 3 hours
Advisory: CAOT 1.

This course provides instructions on Microsoft Word applications using introductory, intermediate, and advanced commands to create, format, edit, save, and print documents including letters, research papers, title papers, tables, reports, and merge documents. The application also utilizes publishing features that includes creating newsletters, brochures, flyers, and resumes on the web and through cloud computing.

Student Learning Outcome(s):

1. Students will demonstrate knowledge of word-processing terminology and the comprehensive capabilities of Microsoft Word. 2. Students will integrate word and excel by linking a excel worksheet to a word document using charts and edit link objects.

CAOT 085 MICROCOMPUTER OFFICE APPLICATIONS: SPREADSHEET (3) CSU
Lecture: 1 hour / Lab: 4 hours

This course provides instructions on Microsoft Excel spreadsheet. Students learn to create professional and powerful worksheets with emphasis of What-if-analysis and business functions; complex problem-solving; auditing, scenario manager; data validation; importing external data; Web queries; creating templates; consolidating workbooks and/or worksheets; goal seeking; and integration features. The business applications include those used by office employees, accountants, management, and marketing personnel.

Student Learning Outcome(s):

1. Students will calculate formulas on large worksheets. 2. Students will create, sort, and query worksheet databases using computed, compound, and advanced criteria.

CAOT 086 MICROCOMPUTER OFFICE APPLICATIONS: DATABASE (3) CSU
Lecture: 2 hours / Lab: 3 hours
Advisory: CAOT 082.

This course provides instructions on office database applications using a relational database program, such as, Microsoft Access. Covers records design, file creation and maintenance, and data manipulation and presentation. Emphasizes office applications such as records for personnel, inventory, and sales. Integrates a word processing program to produce automated mailings.

Student Learning Outcome(s):

1. Students will create working databases using Access 2013 professional use. 2. Students will produce queries by setting criteria in professional databases. 3. Student acquire the ability to maintain databases for professional use.

CAOT 088 MICROCOMPUTER OFFICE APPLICATIONS: DESKTOP PUBLISHING (3) CSU
Lecture: 2 hours / Lab: 3 hours

This course provides hands-on training using a personal computer, a printer and desktop publishing software. Includes producing camera ready, near typeset quality publications, newsletters, trifold brochures, business information sets, merging publication data, creating an interactive websites and linking and embedding objects.
Graduation Requirements, Pathways and Programs of Study

**CO INFO 011 NETWORK SECURITY FUNDAMENTALS (3) CSU**

*Lecture: 2 hours / Lab: 2 hours*

This course provides instruction and hands-on training in the following computer information systems concepts: Basic security principles, methods of establishing security baselines, and the most recent attack and defense techniques and technologies. It will also help prepare for CompTIA's examination and professional security certification. Course covers an overview of current network security tools, specific skills and related topics, and insight into future trends and issues in network security.

**Student Learning Outcome(s):**

1. Students will examine and critically discuss the various levels of computer game programming. 2. Students will use critical thinking skills to gather, identify, analyze, synthesize information, and evaluate problems and solutions. 3. In the laboratory students will create computer game programs and debug any related compiler errors.

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**CAOT 093 LEGAL DOCUMENT PRODUCTION (2) CSU**

*Lecture: 2 hours*

**Advisory: CAOT 84.**

This course prepares students to produce legal documents within the law firm setting, including briefs, memos, pleadings and all other legal documents. Recommended for paralegal students and required for legal administrative assistants.

**Student Learning Outcome(s):**

Students will have the ability to work with a variety of legal templates to key documents, such as, comprehensive legal documents for the courts, wills and trusts and to key many different contracts.

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**CAOT 098 MICROCOMPUTER OFFICE APPLICATIONS: DISCOVERING COMPUTERS: DIGITAL LITERACY (3)**

*Lecture: 2 hours / Lab: 3 hours*

This course is designed to prepare students to operate a computer in the Windows environment. This course covers elements of Windows including: Windows operation, disk and file management, modification and customization of the Windows environment, and application of Windows accessories. This class requires both on campus and online work.

**Student Learning Outcome(s):**

Students will be able to demonstrate their digital literacy in reference to smart technology, network systems, security, ethics and computer privacy.

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**CAOT 101 HANDS-ON INTERNET (1)**

*Lecture: 0.5 hours / Lab: 1.5 hours*

This course provides hands-on introduction to the World Wide Web and its components with emphasis on using traditional Internet services, downloading programs, sharing files, using e-mail, extending browser capabilities and increasing Web security.

**Student Learning Outcome(s):**

Students will complete a project to show their understanding of how the Internet is used in a technological environment.
CO INFO 042  VIDEO GAME PROGRAMMING I (3) CSU  
Lecture: 2 hours / Lab: 2 hours  
Advisory: CO INFO 40 or 700  

This hands-on course teaches the technical skills behind 3D game programming, using the latest version of Torque from GarageGames, and provides the very best tools available to the game maker. Students will gain practical experience needed to create their own games. As students create a first person shooter, the class will cover the techniques behind the programming, textures, and models that go into successful game creation. Students will cover the Torque Engine and will learn how to integrate sound and music into their games.  

Student Learning Outcome(s): 

Student will design algorithm, create and test 3D game applications using gaming software such as GarageGames or BlitzMax.

CO INFO 700  COMPUTER CONCEPTS (3) CSU  
Lecture: 2 hours / Lab: 2 hours  
Advisory: Mathematics 105 and English 21;  

This course provides an overview of Information Technology concepts that explore the aspects of computer hardware and software, operating systems and networking, programming, and the Internet. Class lectures cover prevailing industry terminologies and the latest breakthroughs in the field of Information Technology that span the convergent branches of hardware, software, and the Internet – as evident in today’s social media wherein online human interaction is mediated by advanced hardware/software technologies, and the so-called ‘Internet of Things’ where all digital devices known to humankind are connected – and how they affect modern society. This course is designed for students with minimal or no previous computer background and those who need to refresh their knowledge with the latest terms and trends in Information Technology.  

Student Learning Outcome(s): 

Demonstrate, discuss and illustrate knowledge of essential textbook Information Technology concepts from the hardware/software components and programming and the system development cycle to the Internet, E-mail, and social media.

CO INFO 701  INTRODUCTION TO COMPUTERS AND THEIR USES (3) UC/CSU  
Lecture: 2 hours / Lab: 2 hours  
Advisory: English 21; Mathematics 105;  

The students will be introduced to computer applications using Microsoft Office. Word, Excel, Access are covered. Also, the students will learn to integrate different applications, and understand the fundamentals of the Windows operating system.  

Student Learning Outcome(s): 

Use the most common business systems - text processing, spreadsheets, database systems - and the basic functionalists of the operating system.

CO INFO 709  VISUAL BASIC PROGRAMMING (3) UC/CSU  
Lecture: 2 hours / Lab: 2 hours  
Advisory: Computer Information Systems 700 or 701  

The primary topic of this class is the structure and methods of the Visual Basic programming system. This system is widely used to create computer applications that include interaction with a user, and is called object-oriented programming. 

Student Learning Outcome(s): 

Student will explain and use the syntax and grammar of the Visual Basic programming system to create programs that are representative of commonly used business and engineering procedures.

CO INFO 733  MICROCOMPUTER DATABASE PROGRAMMING (3) CSU  
Lecture: 2 hours / Lab: 2 hours  
Advisory: CO INFO 701  

A complete presentation of database management using Access, including database design, queries, macros, toolbars, VBA and SQL. Also includes advanced work in Excel, use of the Internet in these products.  

Student Learning Outcome(s): 

Create and customize advanced database objects to improve the accuracy for analyzing data, and simplify using data and data analysis for the end-user.

CO INFO 734  OPERATING SYSTEMS (3) UC/CSU  
Lecture: 2 hours / Lab: 2 hours  

This course provides students a solid foundation in the basics of the open-source Linux operating system that currently powers a majority of network servers the world over due to its robust features from security to efficiency, reliability, and its modest cost-of-ownership. Unix/Linux powers a greater segment of the Internet than Microsoft. Topics included are An Overview of the Linux Architecture, The Kernel and Shell, File System, Users and Groups Management, Permission and Ownership Management, Services and Processes Management. Students gain system-level experience through problem-solving hands-on lab exercises at the command line and in the graphical user interface.  

Student Learning Outcome(s): 

1. Identify and describe the essential components of the Linux system from its architecture to its constituent administrative level functions and interfaces. 2. Apply and demonstrate fundamental concepts in graphical user and command line interface operation, and associated concepts in system and network security administration in a systematic manner. Install and deploy a Linux system. 3. Apply and demonstrate concepts in system and network security administration.

CO INFO 739  PROGRAMMING IN C++ (3) UC/CSU  
Lecture: 2 hours / Lab: 2 hours  
Advisory: Computer Information Systems 701;  

This class provides an introduction to the use of the C++ programming system. It emphasizes the syntax and grammar of its coding language. The method of instruction is the use of the system to implement computer application projects using the traditional programming structures of sequence, selection, and loops, use of functions, arrays and strings and how different data types work.  

Student Learning Outcome(s): 

Use the syntax and grammar of the C++ programming language to create programs that are representative of commonly used business and engineering procedures.
# Graduation Requirements, Pathways and Programs of Study

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<th>Description</th>
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| CO INFO 741 | Programming in C# (UC/CSU) | 3 | This class provides an overview of computer programming in C# (C Sharp). It emphasizes the structure and methods of object oriented programming. This consists of form design, the properties lists, and the syntax and grammar of the code language. The class also stresses problem solving methods, development of algorithms, the programming structures of sequence, selection, and loops, use of functions, arrays and strings and how different data types work.  
Student Learning Outcome(s):  
Student will design and create applications, and solve programming problems using object-oriented C# programming language’s concepts and tools. |
| CO INFO 742 | Web Development using PHP-MySQL (CSU) | 3 | This class provides an intermediate-level course in E-commerce using the PHP scripting language and the MySQL database platform to develop robust and secure dynamic websites with special emphasis on object-oriented programming and the application of real-world website features such as Secure Socket Layer (SSL), shopping carts, and payment systems.  
Student Learning Outcome(s):  
Student will learn the fundamentals of website development and E-commerce using PHP-MySQL. |
| CO INFO 743 | Object-Oriented Programming in C++ (UC/CSU) | 3 | This course develops an understanding of Object-Oriented programming. It includes Object-oriented analysis and design. Major topics include classes, constructor, destructor, accessor and mutator functions, overloaded functions and operators, inheritance, and polymorphism.  
Student Learning Outcome(s):  
Student will design and create applications, and solve programming problems using object-oriented C++ programming language’s concepts and tools. |
| CO INFO 750 | Dreamweaver Concepts and Techniques (UC/CSU) | 3 | The course covers concepts and techniques of the Dreamweaver system. It consists of projects that provide experience in the methods used to produce and modify documents for the World Wide Web.  
Student Learning Outcome(s):  
Utilize Web development concepts, and use Dreamweaver to create and enhance websites and webpages. |
| CO INFO 757 | XHTML Programming and Applications (UC/CSU) | 3 | The course covers the fundamental operations of the eXtensible HyperText Markup Language (XHTML) system. It consists of projects that provide experience in the methods used to produce and modify documents for the World Wide Web.  
Student Learning Outcome(s):  
Student will design and evaluate Websites, and include the most recent multimedia elements, using XHTML markup language and its latest elements along with CSS. |
| CO INFO 762 | Introduction to JavaScript Programming (UC/CSU) | 3 | This class provides an introduction to the use of the Java Script programming system. It emphasizes the syntax and grammar of its coding language and it is embedded into the Web page structure. The method of instruction is projects which include the design and implementation of calculations and related actions into a Web page.  
Student Learning Outcome(s):  
Use the syntax of JavaScript programming system to create client-side scripts to interact with the user, control the browser, and alter the displayed document content. |
| CO INFO 770 | Local Area Network Administration (UC/CSU) | 3 | This course will prepare students for a challenging career in Information Technology with a focus in Local Area Network Administration. Students will develop skills to administer and support data communication hardware such as, file servers, printers and other related peripheral input/output devices, and provide technical direction to lower level network technicians. Server-based network, setup file and print resources, network infrastructure, monitor and troubleshoot services running over the network.  
Student Learning Outcome(s):  
After the completion of this course students will be able to: 1) Develop a network proposal that will accommodate the needs of a small business. 2) Create a fully functional network using network simulation software. |
| CO INFO 771 | Local Area Network Technical Support (UC/CSU) | 3 | This course will provide students with a comprehensive understanding of Local Area Network (LAN) topologies; and with the skills necessary to install, configure, customize, and troubleshoot Ethernet and Wireless computer networks. This course will prepare students for the newest 2010 CompTIA Network+ N10-004 examination. |
COOPERATIVE EDUCATION

COOP ED 195 WORK EXPERIENCE - GENERAL I (1) CSU
Lecture: 1 hour

Cooperative Work Experience Education (CWEE) combines on-the-job experience with regular classroom instruction. It is designed to expand students’ skills and knowledge, and to improve self-understanding by integrating classroom study with supervised work experience. CWEE is based on the principle that well educated individuals develop most effectively through the incorporation of related education and work experience. By monitoring structured work experiences in business, industry, government, and human services settings, LATTC provides enrichment to college studies accomplished on the job.

Student Learning Outcome(s):
1. The student will develop at least 3 learning objectives to be accomplished on the job.

COOP ED 295 WORK EXPERIENCE - GENERAL I (2) CSU
Lecture: 2 hours

Cooperative Education is a work experience program involving the employer, the student-employee and the college to ensure that the student receives on the job training and the unit credit for work experience or volunteer work/internship. Students must be employed or volunteering/interning in order to participate in program. During the fall and spring semesters, students shall be enrolled in at least one additional course in a U.S. regionally accredited institution.

Student Learning Outcome(s):
1. Develop learning objectives related to educational/occupational goals to be accomplished on the job.

COOP ED 395 WORK EXPERIENCE - GENERAL I (3) CSU
Lecture: 3 hours

General Cooperative Education is a work experience program involving the employer, the student-employee, and the college to ensure that the student receives on the job training and unit credit for work experience. Work experience requires that the student be employed in a paid or unpaid position and need not be related to the students educational goals.

Student Learning Outcome(s):
1. Develop learning objectives related to educational/occupational goals to be accomplished on the job.

COSMETOLOGY

CSMTLGY 035 SKIN THERAPY I (6)
Lecture: 3 hours / Lab: 9 hours

Students will be introduced to disinfection and sanitation procedures, basic facial manipulations, proper cleansing, toning and moisturizing applications, masks and pack techniques and operational procedures for using facial machines.

Student Learning Outcome(s):

CSMTLGY 036 SKIN THERAPY II (6)
Lecture: 3 hours / Lab: 9 hours
Prerequisite: Cosmetology 35.

Students will be introduced to waxing services, makeup applications, desincrustation, iontophoresis, light therapy and high frequency treatments. Skin analysis equipment, facial and body machines, airbrushing machines and hair removal techniques will be employed.

Student Learning Outcome(s):

The student will be able to demonstrate sanitation procedures while performing basic facial manipulations, proper cleanings, toning and moisturizing applications, masks and pack techniques and operational procedures for utilizing the facial machine.
CSMTLGY 037  SKIN THERAPY III (6)
Lecture: 3 hours / Lab: 9 hours
Prerequisite: Cosmetology 36;

Students will be introduced to hand and foot treatments, body scrubs, wraps, reflexology and massage treatments. Aromatherapy treatments will be employed.

Student Learning Outcome(s):
1. Students will perform hand and foot treatments utilizing reflexology. 2. Students will demonstrate body scrubs, wraps, massage and aromatherapy treatments.

CSMTLGY 038  SKIN THERAPY IV (6)
Lecture: 3 hours / Lab: 9 hours
Prerequisite: Cosmetology 37;

Students will be introduced to clinic floor practicum, advanced facial and makeup applications, arching and waxing services and body treatments. Mock state board procedures for licensure will be employed.

Student Learning Outcome(s):
Students will be able to perform all skin therapy services such as facials, advanced makeup application, arching, waxing and body treatments.

CSMTLGY 101  INTRODUCTION TO COSMETOLOGY (3)
NDA
Lecture: 3 hours

Introduction to the opportunities in the field of cosmetology. Students will learn how vocabulary, math skills, and study skills are applicable to the field, and will be better prepared to enter a full-time cosmetology program.

Student Learning Outcome(s):
The student will be able to identify key concepts, define technical terminology and explore the opportunities offered in the cosmetology industry.

CSMTLGY 111  FRESHMAN COSMETOLOGY (6)
Lecture: 3 hours / Lab: 9 hours

The course covers basic manipulative skills and proper application of shampooing, scalp treatments, finger waving, curl construction, hair design, haircutting, and manicuring. Basic lecture and theory include topics on bacteriology, trichology, decontamination.

Student Learning Outcome(s):
1. Student will demonstrate the proper procedures for waxing facial areas, applying masks, packs, scrubs and dermal lights for different skin types. 2. Students will perform thermal texture procedures utilizing the pressing comb, oven, Marcel and electrical irons.

CSMTLGY 112  JUNIOR SALON I (6)
Lecture: 3 hours / Lab: 9 hours
Prerequisite: Cosmetology 111;

The course covers basic applications of skin care and facial massage manipulations, permanent wave, haircutting techniques, and all phases of thermal texture hair designing. Theories related to all areas mentioned above are also discussed.

Student Learning Outcome(s):
1. Students demonstrate the proper procedures for cleansing, toning and moisturizing the skin, massage manipulations, eyebrow arching and basic makeup application. 2. Students will demonstrate procedures for sectioning and wrapping a permanent wave.

CSMTLGY 121  JUNIOR SALON II (6)
Lecture: 3 hours / Lab: 9 hours
Prerequisite: Cosmetology 112;

The students are exposed to intermediate instruction in permanent waving, chemical straightening, thermal straightening and curling, skin and hair care, with instruction on the use of facials, hair cutting and nail care. Theories that are related to all areas mentioned above will be discussed.

Student Learning Outcome(s):
1. Students will demonstrate the proper procedures for waxing facial areas, applying masks, packs, scrubs and dermal lights for different skin types. 2. Students will perform thermal texture procedures utilizing the pressing comb, oven, Marcel and electrical irons.

CSMTLGY 122  JUNIOR SALON III (6)
Lecture: 3 hours / Lab: 9 hours
Prerequisite: Cosmetology 121;

The students are instructed in advanced permanent waving, soft permanent wave, chemical straightening, thermal straightening and curling, hair cutting, and electricity. Theories related to the above mentioned subjects will be discussed.

Student Learning Outcome(s):
1. Students will perform permanent waving, soft permanent waving and chemical straightening techniques as well as advanced cold waving. 2. Students will demonstrate facial techniques using chemical compounds and electrical modalities.

CSMTLGY 131  TINTING I (6)
Lecture: 3 hours / Lab: 9 hours
Prerequisite: Cosmetology 112;

The course covers basic, intermediate and advanced hair coloring, bleaching, toning, highlighting, frosting and color correction techniques. A variety of artificial nail procedures will be demonstrated. Theories to the above mentioned subjects will be discussed.

Student Learning Outcome(s):
The students will apply the law of color in identifying and demonstrating the applications of basic and intermediate hair coloring, bleaching, and toning techniques.

CSMTLGY 132  TINTING II (6)
Lecture: 3 hours / Lab: 9 hours
Prerequisite: Cosmetology 131;

The course covers all aspects of hair coloring, bleaching, toning, 'special effect' highlighting, foiling, cap frosting and color correction. Additional subjects are: haircutting, thermal and wet hair styling, and the study and applications of artificial nail products. Theories related to the above mentioned subjects will be discussed.
Student Learning Outcome(s):

1. Students will analyze, discuss, and demonstrate the procedures for a variety of hair coloring/bleaching applications. 2. Students will demonstrate a variety of artificial nail applications.

CSMTLGY 214   ADVANCED HAIR COLORING AND STYLING  
Lecture: 1.5 hours / Lab: 4.5 hours  
Prerequisite: Cosmetology 112;  
Students are offered instruction in permanent hair coloring applications, color correction techniques, zonal and block highlighting effects. In addition, the course will concentrate on hair cutting, thermal hair styling, long hair designing and nail technology.  
Student Learning Outcome(s):  
Students will be able to identify and demonstrate the skills required for special effects applications of hair color and bleach, while employing color correction techniques needed for industry.

CSMTLGY 215   CONTEMPORARY STYLING TECHNIQUES (3)  
Lecture: 1.5 hours / Lab: 4.5 hours  
Prerequisite: Cosmetology 112;  
Students receive instruction in advanced hair designing, hair coloring, hair sculpting, and chemical texture services.  
Student Learning Outcome(s):  
Students will be able to analyze and create contemporary hair designs utilizing wet and thermal styling techniques meeting industry standards.

CSMTLGY 216   INTERMEDIATE HAIR COLORING AND STYLING (3)  
Lecture: 1.5 hours / Lab: 4.5 hours  
Prerequisite: Cosmetology 112;  
Students are offered an introduction to intermediate hair coloring, bleaching and toning applications and techniques. In addition, the course will concentrate on hair cutting, hair styling, and skin care procedures.  
Student Learning Outcome(s):  
Students will be able to identify and demonstrate the skills required for mixing and applying demi-permanent, permanent hair coloring and bleaching compounds.

CSMTLGY 217   MULTI-TEXTURE DESIGN (LEVEL 1-2) (3)  
Lecture: 2 hours / Lab: 3 hours  
This class teaches the basic techniques of the five most popular methods for applying hair additions: strand by strand, braiding, bonding, track and sew and netting.  
Student Learning Outcome(s):  
Students will be able to identify the proper procedures and application for various hair augmentation techniques and demonstrate several different braiding patterns and tension control.

CSMTLGY 218   LONG HAIR AND PERIOD HAIR DESIGN AND HAIR PIECE CONSTRUCTION (3) NDA  
Lecture: 2 hours / Lab: 3 hours  
The course will cover long hair styling, period hair designing and hair piece construction techniques.  
Student Learning Outcome(s):  
1. Students will be able to identify and perform a variety of period hairstyles from the 20’s through the 80’s. 2. Students will be able to create a head piece using Styrofoam, chicken wire, synthetic and human hair.

CSMTLGY 221   ADVANCED MAKEUP TECHNIQUES (3) NDA  
Lecture: 2 hours / Lab: 3 hours  
This course is designed to teach students makeup applications in contouring techniques, correct shaping of eyes, lips and eyebrows; makeup applica-
205 Graduation Requirements, Pathways and Programs of Study

COUNSEL 001 INTRODUCTION TO COLLEGE (1) CSU
Lecture: 1 hour

This course is designed to provide students with skills needed to succeed in college. Emphasis is placed on college policies and procedures, campus services and resources, study skills, time management and developing a student educational plan (SEP) to meet those goals. Additional topics include: Certificate, associate degree requirements, and transfer admission requirements.

Student Learning Outcome(s):

- Content mastery: Utilize knowledge of basic college policies & terms, types of degrees and programs, systems of higher education, useful print and electronic media resources and campus resources in various assignments Information competency and planning skills: Prepare an educational plan that shows evidence of ability to use catalog, websites and printed materials for transfer or non-transfer goals
- Self-management: Demonstrate student professionalism and solve typical student problems by using strategies and behaviors necessary for academic success in college.

COUNSEL 002 INTERPERSONAL RELATIONSHIPS (1) CSU
Lecture: 1 hour

This course enhances interpersonal skills for building effective communication for personal and professional growth. It utilizes group dynamics by enhancing self-esteem through self-awareness, acceptance, ability to listen and workplace habits. An honest appraisal of individual strengths and weaknesses is made in an effort to help remove barriers to social and academic growth to assist in action plans for personal and educational goals.

Student Learning Outcome(s):

- 1. Students will identify their personality preference and communication patterns based on the Myers Briggs Test Inventory (MBTI). 2. Students will identify social barriers (e.g., cultural, economical) to effective interpersonal relationship as well as strategies to overcome those barriers. 3. Students learn to achieve and maintain a balance in their work, school, and personal time. 4. Students will create an action plan for goals including creating or adjusting an Student Education Plan (SEP).

COUNSEL 003 CAREER PLANNING (1) CSU
Lecture: 1 hour

This is a career planning course designed to assist the student in selecting an appropriate career goal by introducing critical strategies, and information which is essential in selecting a career. The main areas covered in this course are self-assessment, problem solving, discovering your strengths and weaknesses, and understanding your personality style. Some tools which will be used to help identify the areas of concern are the Myers Briggs and the COPES. Students will also learn how to prepare a functional and chronological resume, as well as a standard cover letter.

Student Learning Outcome(s):

- 1. Students will explain specific characteristics of at least one career they are interested in. 2. Students will prepare a resume which is appropriate to their skills, education level, abilities, and work history. 3. Student will identify the appropriate courses required for his/her career goal.

COUNSEL 004 CAREER PLANNING (1) CSU
Lecture: 1 hour

This is a career planning course designed to assist the student in selecting an appropriate career goal by introducing critical strategies, and information which is essential in selecting a career. The main areas covered in this course are self-assessment, problem solving, discovering your strengths and weaknesses, and understanding your personality style. Some tools which will be used to help identify the areas of concern are the Myers Briggs and the COPES. Students will also learn how to prepare a functional and chronological resume, as well as a standard cover letter.

Student Learning Outcome(s):

- 1. Students will explain specific characteristics of at least one career they are interested in. 2. Students will prepare a resume which is appropriate to their skills, education level, abilities, and work history. 3. Student will identify the appropriate courses required for his/her career goal.

COUNSEL 005 COLLEGE SURVIVAL (2) CSU
Lecture: 2 hours

This course provides the students with information enabling him/her to succeed or survive in college program. Emphasis will be placed on development of making informed decisions, study skills, productive time management, financial planning, an understanding of college terminology and utilization of college support services.

Student Learning Outcome(s):

- 1. Students will be able to identify information sources and services on campus that they need to meet their academic goals. 2. Students will define personal attributes needed for college success through learning style, time management and goal setting. Identify requirements for associate degree, certificate, and transfer option. 3. Students will be able to create a comprehensive Student Education Plan (SEP) to meet their educational goal.

COUNSEL 020 POST-SECONDARY EDUCATION: THE SCOPE OF CAREER PLANNING (3) UC/CSU
Lecture: 3 hours

This course introduces students to the role of higher education in society and to their role as students. Students explore personal attributes needed for college success, critical thinking and effective study strategies, relating to others in a diverse world, the career planning and decision making process, and transfer and educational planning. This course will also provide students with an overview of campus resources and policies.

Student Learning Outcome(s):

- 1. Choose effective study strategies and apply these strategies to educational and workplace settings. 2. Examine health issues such as stress, nutrition, and exercise that affect lifelong well-being. 3. Create effective strategies for managing time and achieving lifelong goals. 4. Define a career and describe the process and skills that are necessary for successful planning. 5. Learn effective decision making and goal setting techniques in order to develop an educational goal.

COUNSEL 020E POST-SECONDARY EDUCATION: COLLEGE SUCCESS (1) CSU
Lecture: 1 hour

College Success is a course designed to increase the opportunity for success in college by assisting the student in obtaining skills necessary to reach his/her educational objectives. Topics in this course include information about college catalog, success, self-esteem, values and beliefs, study skills, communication skills, and healthy lifestyles.
Student Learning Outcome(s):

1. Choose effective study strategies and apply these strategies to educational and workplace settings.
2. Examine health issues such as stress, nutrition, and exercise that affect lifelong well-being.
3. Create effective strategies for managing time and achieving lifelong goals.
4. Learn effective decision making and goal setting techniques in order to develop an educational goal.

COUNSEL 022 THE TRANSFER PROCESS (1) UC/CSU
Lecture: 1 hour

This course is an introduction to the transfer process. It is designed to enable students to become active participants in planning their long-term educational and career goals and will provide students with an understanding of the process and the requirements for transferring to a four-year college or university. The course will consist of lecture, use of internet resources, guest speakers and student assignments.

Student Learning Outcome(s):

1. Student will define and compare transfer systems and requirements to four-year colleges/universities.
2. Students will differentiate between UC, CSU, and private general education checklist.
3. Student will explore the Internet, visit campuses, and create a transfer plan that will meet the requirements for transfer to the desired major and school(s).

CULINARY ARTS

CLN ART 111 CULINARY ARTS ORIENTATION I (4) CSU
Lecture: 2 hours / Lab: 6 hours

Prerequisite: Culinary Arts 112; Corequisite: Culinary-Arts 112.

With a combination of lecture and lab practice, the students are introduced to culinary theories and develop skills in knife handling, ingredient identification, small and large equipment use, weights and measures, recipe development and cooking fundamentals

Student Learning Outcome(s):

1. Students will define basic culinary terminology, identify cooking processes and techniques, and evaluate completed products.
2. Define cooking processes and techniques.
3. Prepare food items according to demonstration fundamentals.
4. Evaluate food items and revise finished products as needed.

CLN ART 112 SANITATION AND SAFETY (2) CSU
Lecture: 2 hours

This class discusses sanitation and safety as it applies to the restaurant industry; HACCP protocol, preventing food borne outbreaks, introduction to microbiology and establishing ‘flow of food systems’ will be covered, federal, state and local legislation and employee training. National Restaurant Association Serve Safe Test will be given at conclusion of this class.

Student Learning Outcome(s):

Score a 75 % or higher on a National Restaurant Association food-handlers test (State Law).

CLN ART 120 FRONT OF HOUSE/DINING SERVICES (4)
Lecture: 2 hours / Lab: 6 hours

Front of house topics pertinent to restaurant & hospitality management, dining room management, service, staffing, use of POS system, money management, stairwearing. Serve Safe “Alcohol” test will be administered at the conclusion of the course.

Student Learning Outcome(s):

1. Practice proper front of the house operations as it pertains to the food service industry.
2. Describe customer relations and service as performed in a culturally diverse arena.
3. Appraise effective service as it relates to the Hospitality industry.
4. Recognize, identify and assess guidelines of the safe, sale and service of Alcohol.

CLN ART 121 GARDE MANGER I - BAKING (6) CSU
Lecture: 3.75 hours / Lab: 6.75 hours

Prerequisite: Culinary Arts 111 & 112.

Introduction to Garde Manger and Baking. Introduction to basic garde manger, salads, cold sauces and salad dressings dressing, baking principles including yeast and sweet doughs, laminated doughs, mixing methods, and decorating.

Student Learning Outcome(s):

1. Students will identify cold kitchen and bakery operations and procedures.
2. Students Will demonstrate recipes and preparation.
3. Students will evaluate completed assignments and adjust as needed.

CLN ART 122 GARDE MANGER II - CHARCUTIERE (6) CSU
Lecture: 3.75 hours / Lab: 6.75 hours

Prerequisite: Culinary Arts 111 and Culinary Arts 112;

Students will become proficient in the historical features of the grade manger stations including planning and preparation of cold soups, hors d’oeuvres, appetizers, canape, mouse, timbale, cold sauces, relishes, force-meat, galantine, terrine, pate en croute components. Preparation and usages of specialty meats, sweetbreads, and sausage will be defined; gelees, aspic, chaud froid, glazing, marinating, curing will be practiced; and buffet presentation, the display of carved fruit and vegetable garnishes and centerpieces will be studied. Projects will include international cuisine, salt dough sculpting and ice carving.

Student Learning Outcome(s):

Students will define and identify classic Garde Manger items, design menu items, and evaluate and access finished products.

CLN ART 131 CULINARY ARTS - BREAKFAST I (6) CSU
Lecture: 3.75 hours / Lab: 6.75 hours

Prerequisite: Culinary Arts 111; Culinary Arts 112;

Students are introduced to a la minute breakfast cookery, hot sandwiches, culinary management and supervision. Upon completion the students will be able to identify and safely use the tools and equipment used in breakfast cookery as well as egg cookery, breakfast meats, cereals, beverages, hot sandwiches, a la minute preparation, brunch items, pancakes, and waffles. Other areas covered include portion control, inventory pars, weights and measures, labor and cost control.

Student Learning Outcome(s):

1. Describe a la minute cookery, management applications, and cycle menu procedures.
2. Practice and employ a la minute and cycle menu protocol in a fast paced food service facility.
3. Compare and contrast a la minute cooking station with batch type food preparation or pre-prepared items.
Graduation Requirements, Pathways and Programs of Study

CLN ART 132  
CULINARY ARTS - ENTREMETIER SAUCIER (6) CSU  
Lecture: 3.75 hours / Lab: 6.75 hours  
Prerequisite: Culinary Arts 111; Culinary Arts 112;  
Students will examine and prepare the theory and production techniques involved in the preparation of stocks, soups, sauces, starchy, and vegetables in a classical and contemporary cooking approach. Students will develop a practical understanding of the role and application of sauce pairing with the center of the plate, vegetables, starchy, and dessert items.  
Student Learning Outcome(s):  
1. Students will identify class stock, soups, sauces, vegetable and starch cookery. 2. Prepare and assess completed product.

CLN ART 141  
BUTCHERY/CENTER OF THE PLATE AND QUANTITY FOOD COOKERY (6) CSU  
Lecture: 3.75 hours / Lab: 6.75 hours  
Prerequisite: Culinary Arts 111; Culinary Arts 112; Culinary Arts 121, Culinary Arts 122, Culinary Arts 131; Culinary Arts 132  
This course covers quantity and quality food production of meats, fish, and poultry. Students will practice center of the plate food preparation, meat identification and fabrication with an emphasis on portion control, sauce pairing and accompaniment compatibility. Students will discuss, compare and prepare various international foods.  
Student Learning Outcome(s):  
Students will define and practice advanced culinary skills and techniques.

CLN ART 170  
CULINARY NUTRITION (2) CSU  
Lecture: 2 hours  
This course provides a quick overview of applied culinary nutrition. Recipe and menu development including ingredient selection and cooking techniques will be discussed. Special diet (low fat, low sodium, diabetic, and caloric intake) will be discussed. Appropriate for food service professionals who would like to work as personal chefs, with sports teams, at spas and resorts, major hospital chains, entertainment or transportation industries or in health care.  
Student Learning Outcome(s):  
1. Students will define nutrition principles as they apply to foodservice industry. 2. Students will utilize nutrition principles to evaluate and modify recipes. 3. Students will be able to respond knowledgeably to customers questions and needs in the foodservice industry.

CLN ART 235  
MENU PLANNING AND PURCHASING (4) CSU  
Lecture: 3 hours / Lab: 3 hours  
Prerequisites: Culinary Arts 111; Culinary Arts 112.  
Advanced course in menu planning and purchasing using the menu as a tool for ordering, selection and procurement of food and beverage items. Menu, labor, and facility computer generated cost analysis and percentages will be addressed.  
Student Learning Outcome(s):  
1. Define Menu development for a professional food service facility. 2. Recognize ordering and costing procedures based on menu offered. 3. Compose a flow of food and sale price (door to table) based on the menu, menu item, and food cost. 4. Evaluate system and make changes based on outcome.

CLN ART 240  
RESTAURANT SUPERVISION AND TRAINING (2) CSU  
Lecture: 2 hours  
Prerequisite: Culinary Arts 111; Culinary Arts 112;  
Students are introduced to human resource management and supervision techniques. Students will identify the recruiting process, communication skills, leadership styles, legal issues in the workforce, employee motivation and discipline.  
Student Learning Outcome(s):  
1. Identify the supervisors role as a leader in a restaurant management situation. 2. Discuss the various supervisor obligation in a food service establishment. 3. Evaluate supervisors ability to make changes for their employees and themselves.

CLN ART 941  
COOPERATIVE EDUCATION - CULINARY ARTS (4) CSU  
Lecture: 4 hours  
Cooperative Education is a work experience program involving the employer, the student-employee and the college to insure that the student receives on the job training and the unit credit for work experience or volunteer work/internship. Completion of at least seven units, including Cooperative Education, at the end of the semester is required. Students must be employed or volunteering/interning in order to participate in program.  
Student Learning Outcome(s):  
1. The student will develop at least three learning objectives to be accomplished on the job. 2. The objectives will be related to the educational/occupational goals of the student.

DIESEL AND RELATED TECHNOLOGY

DIESLTK 112  
DIESEL ENGINE AND ELECTRICAL FUNDAMENTALS (11)  
Lecture: 6 hours / Lab: 15 hours  
This course is designed to cover the theory and operation of diesel engine components, shop safety, tools, fastening devices, use of measuring instruments, and electrical systems. The student should develop, hands-on skills, manual dexterity skills, critical thinking skills and basic employment skills.  
Student Learning Outcome(s):  
1. Student should be able to explain the basic principles of operation of any diesel engine and sub-assemblies. 2. Student should be able to explain and test the basic principles of operation of the electrical system, charging system, starting system, and the use of a VOM.

DIESLTK 112A  
DIESEL ENGINE FUNDAMENTALS (5.5)  
Lecture: 3 hours / Lab: 7.5 hours  
This course is designed to cover the theory and operation of diesel engine components and supporting systems, shop safety, tools, fastening devices, and use of measuring instruments.  
Student Learning Outcome(s):  
Student should be able to explain the basic principles of operation of any diesel engine and sub-assemblies.
**DIESLTK 112B ELECTRICAL FUNDAMENTALS (5.5) CSU**  
*Lecture: 3 hours / Lab: 7.5 hours*

This course is designed to cover the theory and operation of electrical fundamentals. The student should develop, hands-on skills, manual dexterity skills, critical thinking skills on electrical parts and systems.

**Student Learning Outcome(s):**

The student should be able to explain and test the basic principles of operation of the electrical system, charging system, starting system, and the use of a VOM.

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**DIESLTK 122 DIESEL FUEL INJECTION SYSTEMS & BASIC HYDRAULICS AND AIR CONDITIONING (11) CSU**  
*Lecture: 6 hours / Lab: 15 hours*

This course covers the principles of fuel injection systems. Emphasis is placed on the proper construction, operation, dis-assembly, diagnosis, reassembly, testing and calibrating of different type of pumps and fuel injectors. Various models will be examined, including electronic systems.

**Student Learning Outcome(s):**

Students will demonstrate how different types of injectors work. Students will diagnose and repair an air conditioning system.

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**DIESLTK 122A DIESEL FUEL INJECTION SYSTEMS (5.5) CSU**  
*Lecture: 3 hours / Lab: 7.5 hours*

This course covers the principles of fuel injection systems. Emphasis is placed on the proper construction, operation, dis-assembly, diagnosis, reassembly, testing and calibrating of different type of pumps and fuel injectors.

**Student Learning Outcome(s):**

Students will demonstrate how different types of injectors work.

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**DIESLTK 122B BASIC HYDRAULICS AND AIR CONDITIONING SYSTEMS (5.5) CSU**  
*Lecture: 3 hours / Lab: 7.5 hours*

This course will cover electronic fuel systems, including electronically controlled fuel pumps and injectors. Practical application by hands on exercises consisting of dis-assembly and assembly, calibration testing and troubleshooting.

**Student Learning Outcome(s):**

Students will diagnose and repair an air conditioning system.

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**DIESLTK 132 HEAVY DUTY DRIVE TRAIN & AIR BRAKE SYSTEMS (11) CSU**  
*Lecture: 6 hours / Lab: 15 hours*

**Prerequisites:** Diesel and Related Technology 112; Diesel and Related Technology 122;

This course will cover the operating principles and repair of heavy duty clutches, transmissions, drive shafts, and differentials.

**Student Learning Outcome(s):**

The student will be able to perform various tasks of transmission and clutch maintenance.

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**DIESLTK 132A HEAVY DUTY DRIVE TRAIN (5.5) CSU**  
*Lecture: 3 hours / Lab: 7.5 hours*

This course will cover the operating principles and repair of heavy duty clutches, transmissions, drive shafts, and differentials.

**Student Learning Outcome(s):**

The student will be able to perform various tasks of transmission and clutch maintenance.

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**DIESLTK 132B AIR BRAKE SYSTEMS (5.5) CSU**  
*Lecture: 3 hours / Lab: 7.5 hours*

This course will cover the operation and repair of air systems, foundation brakes, and anti-lock brake systems.

**Student Learning Outcome(s):**

The student will use various OEM software to diagnose anti-lock brake systems.

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**DIESLTK 142 DIESEL ENGINE OVERHAUL & ELECTRONIC ENGINE CONTROLS (11) CSU**  
*Lecture: 6 hours / Lab: 15 hours*

**Prerequisite:** Diesel and Related Technology 112; and Diesel and Related Technology 122;

This course covers diesel engine overhaul principles including disassembly, inspection, and reassembly as part of overhauling a diesel engine. The operation of electronic engine controls will also be covered with an emphasis on using OEM diagnostic software in the troubleshooting of a diesel engine.

**Student Learning Outcome(s):**

1. The student will be able to perform various tasks of an engine overhaul.  
2. The student will use various OEM software to diagnose electronic engine controls.

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**DIESLTK 142A DIESEL ENGINE OVERHAUL (5.5) CSU**  
*Lecture: 3 hours / Lab: 7.5 hours*

This course covers diesel engine overhaul principles including disassembly, inspection, and reassembly as part of overhauling a diesel engine.

**Student Learning Outcome(s):**

The student will be able to perform various tasks of an engine overhaul.

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**DIESLTK 142B ELECTRONIC ENGINE CONTROLS (5.5) CSU**  
*Lecture: 3 hours / Lab: 7.5 hours*

The operation of electronic engine controls will be covered with an emphasis on using OEM diagnostic software in the troubleshooting of a diesel engine.

**Student Learning Outcome(s):**

The student will utilize various OEM software to diagnose electronic engine controls.
### DIESLTK 185 DIRECTED STUDY - DIESEL AND RELATED TECHNOLOGY (1)

**Lecture:** 1 hour

This course allows students to pursue a directed study in Diesel and Related Technology on a contract basis under the direction of a supervising instructor.

**Student Learning Outcome(s):**

1. The outcome will vary depending on the contract with the instructor.
2. The student will formulate a research paper based on a topic in diesel and related technology.

### DIESLTK 265 COMPRressed natural gas (CNG), LIQUIFIED natural gas (LNG) FUEL & ELECTRONIC CONTROLS (4)

**Lecture:** 3 hours / **Lab:** 3 hours

This course provides an introduction to Compressed Natural Gas (CNG) and Liquefied Natural Gas (LNG) fuel safety and handling. LNG/LNG fuel system layout, ignition systems, and the electronic controls that support the use of this alternative fuel.

**Student Learning Outcome(s):**

1. Student will identify CNG/LNG components and explain their function.
2. Student will diagnose CNG/LNG electronic controls using manufacturer diagnostic software.

### DIESLTK 285 DIRECTED STUDY - DIESEL AND RELATED TECHNOLOGY (2)

**Lecture:** 2 hours

This course allows students to pursue a directed study in Diesel and Related Technology on a contract basis under the direction of a supervising instructor.

**Student Learning Outcome(s):**

1. The outcome will vary depending on the contract with the instructor.
2. The student will formulate a research paper based on a topic in diesel and related technology.

### DIESLTK 301 INTRODUCTION TO ALTERNATIVE FUELS & HYBRID VEHICLE TECHNOLOGY (1)

**Lecture:** 1 hour

This course provides an introduction to various alternative fuel technologies being used in the automotive and heavy-duty diesel fields. Covers description and basic operation of Bio-diesel, Compressed Natural Gas (CNG), Liquefied Natural Gas (LNG), Fuel Cell and hybrid vehicle technologies.

**Student Learning Outcome(s):**

1. Student will be able to explain the differences between regular diesel and bio-diesel fuels.
2. Student will understand the differences between Compressed Natural Gas (CNG) and Liquefied Natural Gas (LNG) engine will also be covered.

### DIESLTK 302 HYBRID AND PLUG-IN ELECTRIC VEHICLE (6) CSU

**Lecture:** 3.5 hours / **Lab:** 5 hours

This course covers hybrid vehicle system fundamentals including hybrid vehicle safety, special tools, different hybrid system configurations, high voltage battery construction and maintenance, de-power procedures and basic service.

### DIESLTK 303 ADVANCED HYBRID AND PLUG-IN ELECTRIC VEHICLES (5) CSU

**Lecture:** 2 hours / **Lab:** 6 hours

This course covers advanced hybrid vehicle system diagnostics and replacement of hybrid and plug-in electric components such as high voltage battery, electric motor, capacitors, etc. Troubleshooting of gasoline/diesel engine will also be covered.

**Student Learning Outcome(s):**

The student will perform complex hybrid and plug-in electric vehicle troubleshooting using manufacturer diagnostic software, schematics, and specialty tools designed for hybrid and electric vehicle repair.

### DIESLTK 385 DIRECTED STUDY - DIESEL AND RELATED TECHNOLOGY (3)

**Lecture:** 1 hour / **Lab:** 6 hours

This course allows students to pursue a directed study in Diesel and Related Technology on a contract basis under the direction of a supervising instructor.

**Student Learning Outcome(s):**

1. The outcome will vary depending on the contract with the instructor.
2. The student will formulate a research paper based on a topic in diesel and related technology.
3. The student will assemble a fully functioning laboratory mockup based on the research determined by the contract between the instructor and student.

### DIESLTK 401 RAIL SYSTEMS OVERVIEW, SAFETY, TOOLS, AND MECHANICAL PRINCIPLES (10)

**Lecture:** 5 hours / **Lab:** 16 hours

This course provides an introduction to the rail industry and the various modes of rail vehicles and their use. Rail safety, tools and mechanical principles are also covered.

**Student Learning Outcome(s):**

Student will perform lockout/tagout procedure according to OSHA standards. Student will assemble a gear system following a diagram to accomplish desired directional movement and torque multiplication.

### DIESLTK 401A RAIL SYSTEMS OVERVIEW, SAFETY AND TOOLS (5)

**Lecture:** 2.5 hours / **Lab:** 8 hours

This course provides an introduction to the rail industry and the various modes of rail vehicles and their use. Rail safety and tools are also covered.

**Student Learning Outcome(s):**

Student will perform lockout/tagout procedure according to OSHA standards.

### DIESLTK 401B MECHANICAL PRINCIPLES (5)

**Lecture:** 2.5 hours / **Lab:** 8 hours

This course provides an overview of rail mechanical principles.
### DIESLTK 402 RAIL ELECTRICAL AND ELECTRONIC PRINCIPLES (10)
**Lecture:** 5 hours / **Lab:** 16 hours
This course covers electrical fundamentals, technical writing, Programmable Logic Controls (PLC), and electronic principles in rail systems technology including electrical and ladder logic schematics, wires and splicing, and related diagnostic tools.

**Student Learning Outcome(s):**
Student will assemble a gear system following a diagram to accomplish desired directional movement and torque multiplication.

### DIESLTK 402A RAIL ELECTRICAL PRINCIPLES (5)
**Lecture:** 2.5 hours / **Lab:** 8 hours
This course covers electrical fundamentals, technical writing, electrical and ladder logic schematics, and Programable Logic Controls (PLC).

**Student Learning Outcome(s):**
Student will wire an electric motor following a schematic provided. Student will perform diagnostic tests on a failed electronic component to identify the problem.

### DIESLTK 402B RAIL ELECTRONIC PRINCIPLES (5)
**Lecture:** 2.5 hours / **Lab:** 8 hours
This course covers electrical principles in rail systems technology, wires and splicing, and related diagnostic tools.

**Student Learning Outcome(s):**
Student will perform diagnostic tests on a failed electronic component to identify the problem.

### DIESLTK 403 RAIL VEHICLE PNEUMATIC & HYDRAULIC CONTROLS AND HVAC & CAR BODY MAINTENANCE (10) CSU
**Lecture:** 5 hours / **Lab:** 16 hours
This course provides an overview of the steps for inspecting, maintaining troubleshooting, and rebuilding rail vehicle systems and system components, including propulsion, current collection, trucks and axles, dynamic braking, couplers, HVAC, car body, and communication systems.

**Student Learning Outcome(s):**
Student will be able to perform a brake system inspection. Student will program electronic HVAC system to manufacturers specifications.

### DIESLTK 403A RAIL VEHICLE PNEUMATIC & HYDRAULIC CONTROLS (5) CSU
**Lecture:** 2.5 hours / **Lab:** 8 hours
This course provides an overview of the steps for inspecting, maintaining troubleshooting, and rebuilding rail vehicle systems and system components, including propulsion, current collection, trucks and axles, dynamic braking, and couplers.

### DIESLTK 403B RAIL VEHICLE HVAC AND CAR BODY (5) CSU
**Lecture:** 2.5 hours / **Lab:** 8 hours
This course covers electrical fundamentals, technical writing, Programmable Logic Controls (PLC), and electronic principles in rail systems technology including electrical and ladder logic schematics, wires and splicing, and related diagnostic tools.

**Student Learning Outcome(s):**
Student will wire an electric motor following a schematic provided. Student will perform diagnostic tests on a failed electronic component to identify the problem.

### DIESLTK 404 RAIL DIESEL ENGINE FUNDAMENTALS AND RAIL ACCESSORY/SUPPORT SYSTEMS (10) CSU
**Lecture:** 5 hours / **Lab:** 16 hours
This course is designed to cover the theory and operation of diesel engine components and supporting systems, fastening devices, and use of measuring instruments. It also covers rail Accessory/Support Systems including Automatic Train Control (ATC)/ Automatic Train Protection (ATP).

**Student Learning Outcome(s):**
Student will be able to explain the basic principles of operation of diesel engines and sub-assemblies. Student will perform ATC/ATP system function check.

### DIESLTK 404A RAIL DIESEL ENGINE FUNDAMENTALS (5.5) CSU
**Lecture:** 3 hours / **Lab:** 7.5 hours
This course is designed to cover the theory and operation of diesel engine components and supporting systems, fastening devices, and use of measuring instruments.

**Student Learning Outcome(s):**
Student will be able to explain the basic principles of operation of diesel engines and sub-assemblies.

### DIESLTK 404B RAIL ACCESSORY/SUPPORT SYSTEMS (4.5) CSU
**Lecture:** 2 hours / **Lab:** 8.5 hours
This course is designed to cover rail Accessory/Support Systems including Automatic Train Control (ATC)/ Automatic Train Protection (ATP).

**Student Learning Outcome(s):**
Student will perform ATC/ATP system function check.

### DIESLTK 941 COOPERATIVE EDUCATION - DIESEL AND RELATED TECHNOLOGY (4) CSU
**Lecture:** 4 hours
Cooperative Education is a work experience program involving the employer, the student-employee and the college to insure that the student receives on the job training and the unit credit for work experience or volunteer work/internship. Completion of at least seven units, including Cooperative Education, at the end of the semester is required. Students must be employed or volunteer/interning in order to participate in program.
DIGITAL MEDIA

DIgLMD 100  INTRODUCTION TO DIGITAL VIDEO (3) UC/CSU

Lecture: 2 hours / Lab: 2 hours

Students will survey a range of mass media fields operating today with a particular attention to the development of media in modern history. From the history of print media through radio and television up to the internet age, students will engage in analysis of the ever-changing adaptations of mass media as it relates to globalization, politics, entertainment and consumerism.

Student Learning Outcome(s):
1. Students will understand and be able to identify a variety of digital media tools and technologies.
2. Students will be able to create and share digital media content through multiple platforms.

DIgLMD 101  FUNDAMENTALS OF DIGITAL MEDIA (3) UC/CSU

Lecture: 2 hours / Lab: 2 hours

Students are introduced to the principles and process of digital audio recording and reproduction. Topics include such aspects as sound design, acoustics, Dolby surround sound, microphones, mixers, outboard gear, signal flow, recording and editing audio. Further exploration will involve analog over digital formats and destructive over non-destructive editing.

Student Learning Outcome(s):
1. Students will develop an understanding of digital media entrepreneurship and how emerging technologies are changing the economics of the new media landscape. Students will pitch start-up projects and develop unique digital media business proposals to demonstrate their understanding of digital media entrepreneurship principles.

DIgLMD 103  FUNDAMENTAL OF DIGITAL AUDIO (3) UC/CSU

Lecture: 2 hours / Lab: 2 hours

Students are introduced to the process and tools of non-linear video editing. Basic skills will be developed in editing techniques, media file formats, basic audio editing, compression types, industry terminology, development of basic still and motion graphics, and understanding key concepts of shooting for digital systems. Students will produce short video sequences that are appropriately compressed for delivery via web/Internet and various digital media.

Student Learning Outcome(s):
1. The student will develop at least three learning objectives to be accomplished on the job. 2. The objectives will be related to the educational/occupational goals of the student.

DIgLMD 104  DIGITAL MEDIA ENTREPRENEURSHIP (3) CSU

Lecture: 2 hours / Lab: 2 hours

Students will develop an understanding of digital media entrepreneurship and how emerging technologies are changing the economics of the new media landscape. Students will learn how to apply complex principles of design toward analyzing and creating visual structures for digital media projects.

Student Learning Outcome(s):
1. Students will develop a comprehensive business plan for an entrepreneurial Digital Media concept that reflects industry best practices.

DIgLMD 105  VISUAL DESIGN FOR DIGITAL MEDIA (3) UC/CSU

Lecture: 2 hours / Lab: 2 hours

Students will analyze the core principles of visual design, particularly as they relate to narrative and interactive digital media. Students will then apply those principles to the production of digital media projects.

Student Learning Outcome(s):

DIgLMD 106  ESSENTIALS FOR LIVE AUDIO (3) CSU

Lecture: 2 hours / Lab: 2 hours

Students will learn recording techniques of a modern studio and understand the role of the engineer. The course covers modern digital audio workstations using a mixer board to record multiple audio tracks simultaneously, as well as mixing recorded audio for audio balancing.

Student Learning Outcome(s):

DIgLMD 107  DIGITAL AUDIO STUDIO RECORDING (3) CSU

Lecture: 2 hours / Lab: 2 hours

Students will learn about the equipment involved in live events, concepts of sound waves and acoustics, how to setup for various event sizes and configurations, and best practices in mixing for live audio.

Student Learning Outcome(s):

DIgLMD 108  VISUAL EFFECTS AND MOTION GRAPHICS (3) UC/CSU

Lecture: 2 hours / Lab: 2 hours

Students will learn the technical and creative crafts of visual effects and motion graphics for a variety of media using Adobe After Effects.

Student Learning Outcome(s):

Los Angeles Trade-Technical College 2018 - 2020 GENERAL CATALOG
DIGLMD 115  VIDEO EDITING (3) UC/CSU
Lecture: 2 hours / Lab: 2 hours

Students will engage in film and video editing techniques on a non-linear editing platform. A series of video editing projects will explore technical non-linear editing system skills and editing tools in the service of storytelling craft. Topics covered include theme, structure, continuity, rhythm, flow, suspense, and dramatic irony.

Student Learning Outcome(s):
Students will be able to use industry standard, non-linear editing systems to effectively cut a video project that demonstrates their understanding of professional standards for editorial techniques and their understanding of the narrative editing process.

DIGLMD 116  INTRODUCTION TO WEB PAGE DESIGN (3) UC/CSU
Lecture: 2 hours / Lab: 2 hours

Students will learn the fundamental elements of websites, theories of web design, and how to develop a basic website.

Student Learning Outcome(s):
Students will be able to develop a website with multiple pages with a consistent layout using an external style sheet.

DIGLMD 117  INTERMEDIATE WEB PAGE DESIGN (3) UC/CSU
Lecture: 2 hours / Lab: 2 hours

Students will learn the advanced elements of developing an interactive website, dynamic concepts of web design, how to create an image gallery, and implementing a different style sheet for different devices and outputs in a flexible layout.

Student Learning Outcome(s):
Students will be able to develop a website including an image gallery with a floating layout that will be able to change per output/device and retain the compositional layout.

DIGLMD 118  IMAGE MANIPULATION FOR MULTIMEDIA (3) UC/CSU
Lecture: 2 hours / Lab: 2 hours

Students will explore concepts and processes to enhance and alter images to develop more compelling compositions for multiple modalities in various formats. Course covers advanced Adobe Photoshop techniques that include the use of alpha channels, layers effects, and animation, as well as format changes for the various media types and aspect ratios.

Student Learning Outcome(s):
1. Students will be able to generate quality photo manipulated compositions, utilizing multiple techniques and palettes in Adobe Photoshop. 2. Students will be able to optimize for various media types of differing dimensions while maintaining the intended compositional style and readability.

DIGLMD 150  INTRODUCTION TO MOBILE APPLICATIONS (3) UC/CSU
Lecture: 2 hours / Lab: 2 hours

Students will develop an understanding of the core principles necessary to design and create mobile applications. Course covers pre-production, interface design, asset behavior and user experience.

Student Learning Outcome(s):
Students will design and create a fully functional mobile application including file and asset management.

DIGLMD 151  INTRODUCTION TO INTERFACE DESIGN (3) UC/CSU
Lecture: 2 hours / Lab: 2 hours

Prerequisite: DIGLMD 153; Advisory: VISCOM 103

Students will develop an understanding of the core principles necessary to design successful and dynamic Graphical User Interfaces. Course covers the essentials of visual design: color theory, layout and composition, as well as interface behavior and user experience.

Student Learning Outcome(s):
Students will concept and design a number of visual graphical interfaces.

DIGLMD 152  DIGITAL ART (3) UC/CSU
Lecture: 2 hours / Lab: 2 hours

Students will develop an understanding of the core principles of digital art and design. Course covers the essentials of digital visual design using Photoshop and Illustrator: color theory, composition, software tools, photo manipulation and image creation.

Student Learning Outcome(s):
Students will use industry software to create visual assets for games and mobile applications.

DIGLMD 153  2D DIGITAL ANIMATION (3) UC/CSU
Lecture: 2 hours / Lab: 2 hours

Prerequisite: DIGLMD 153; Advisory: VISCOM 103

Students will develop an understanding of the core principles of digital 2D animation. Course covers the essentials of animation using Flash: drawing, key framing, betweening, and exporting animation.

Student Learning Outcome(s):
Students will create an animated short using industry standard software.

DIGLMD 155  MOBILE APPLICATION PRODUCTION (3) UC/CSU
Lecture: 2 hours / Lab: 2 hours

Students will develop and build a completed mobile application. Course covers pre-production, interface design, asset behavior, user experience, and publication of a finished mobile application.

Student Learning Outcome(s):
Students will develop and build a completed mobile application.

DIGLMD 199  DIGITAL MEDIA LAB (1) UC/CSU
Lab: 2 hours

This is an open lab to offer students access to professional creative applications such as Adobe Illustrator, Flash, Dreamworks, AfterEffects, Photoshop, Premiere, and Soundbooth, and Apple Final Cut Pro, as well as video production equipment to complete coursework in the Digital Media program.
**DRAFTING**

**DRAFT 010**  
**CADD FOR SUSTAINABLE LANDSCAPE DESIGN** (3) CSU  
*Lecture: 2 hours / Lab: 3 hours*

Computer Aided Design/Drafting (CADD) applications and Building Information Modeling (BIM) specific to landscape professionals. Includes introduction to CADD skills, block functions, internet applications, three-dimensional design, presentation drawings, building systems, working drawings, and working drawing coordination.

**Student Learning Outcome(s):**

1. Using sustainable standards and contemporary tools like CAD/BIM 3D printing tools, the student understands and produces a set of construction documents (drawings and specification) for a sustainable landscape/concrete building. 2. Student coordinates, plans and locates technical information for a project using site and building restrictions imposed by various entities for a masonry/concrete building and the production of maintenance and operations manuals that address project long term sustainability and resilient requirements. 3. Student understands and explores mathematical methods and details used to analyze simple structures, properties of materials, cost estimating, load transfer and strain-stress relationships for a masonry/concrete building.

**ECONOMICS**

**ECON 001**  
**PRINCIPLES OF ECONOMICS I** (3) UC/CSU  
*Lecture: 3 hours*

This course provides an introductory microeconomic analysis and their application to business situation. Emphasis is on supply and demand, elasticsities, consumer choice optimization, profits, economic rent, financial environment of business, market structure, economic and social regulations, antitrust policy in a globalized economy.

**Student Learning Outcome(s):**

1. Student will evaluate individual, professional and government choices in terms of scarcity. 2. Student will apply the understanding of the interaction of demand and supply concept to determine the market price and market quantity of commodity that is produced and consumed. 3. Student will apply the rationing functions of prices and assess the effect of price floor related to under production and over production in the economy. 4. Student will apply the concept of economic change to career development and lifelong learning.

**ECON 002**  
**PRINCIPLES OF ECONOMICS II** (3) UC/CSU  
*Lecture: 3 hours*

This macroeconomics course concentrates on the behavior of the economy as a whole and includes such economy wide phenomena as changes in unemployment, general price level and national income. Emphasis is placed on public spending and public choice, economic fluctuations and business cycles. Other topics include fiscal and monetary policy, deficit spending and public debt, money creation, banking and central banking, policies and prospects for global economic growth, comparative advantage, international trade and contemporary economic developments.

**Student Learning Outcome(s):**

1. Student will evaluate individual, professional and governmental choices in terms of scarcity. 2. Student will evaluate the limitations of using GDP as a measurement of social welfare. 3. Student will assess the influence of Federal Reserve’s monetary policy actions on the market interest rates. 4. Student will assess why nations can gain from specializing in production and gain from international trade and incorporate the concept for career goals and lifelong learning.
EDUCATION

EDUC 001 INTRODUCTION TO TEACHING (3) CSU
Lecture: 3 hours

This course introduces students to the field of professional education and the concepts and issues that are related to K-8 education. Topics of this course include a basic understanding of a teacher’s role and challenges in society, contemporary education issues within historical, social, philosophical, legal, and political contexts, impact of government policies on schools and children, and the various perspectives on curriculum and instruction.

Students are required to complete a minimum of 45 hours of fieldwork in an approved elementary, self-contained classroom. A TB test, finger print (live scan), and background check may be required by individual elementary school.

Student Learning Outcome(s):

1. Explain the foundational instructional knowledge and strategies needed for successful tutoring, regardless of subject matter content or academic discipline.
2. Plan, design and choose specific tutoring and instructional strategies, group dynamics, interpersonal skills, record-keeping, organizational skills and study skills. It covers tutoring and instructional strategies for at least two learning styles to enhance academic success.
3. Design and present a lesson plan based on your educational philosophy, utilizing the California Department of Education’s curriculum standards or other state and/or professional curriculum standards.

EDUC 006 METHODS AND MATERIALS OF TUTORING (1)
Lab: 3 hours

This course trains students in individual and group tutoring and instructional techniques, group dynamics, interpersonal skills, record-keeping, organizational skills and study skills. It covers tutoring and instructional strategies that promote independent learning. This course is intended for students, paraprofessional educators, and also parents who are interested in learning, teaching, and applying effective instructional and tutoring techniques.

Student Learning Outcome(s):

1. Explain the foundational instructional knowledge and strategies needed for successful tutoring, regardless of subject matter content or academic discipline.
2. Plan, design and choose specific tutoring and instructional strategies for at least two learning styles to enhance academic success.
3. Design and present a lesson plan based on your educational philosophy, utilizing the California Department of Education’s curriculum standards or other state and/or professional curriculum standards.

ELECTRONICS

ELECTRN 002 INTRODUCTION TO ELECTRONICS (3) CSU
Lecture: 3 hours

An overview of the field of applied electronics and its employment opportunities. Introduction to components, nomenclature and symbols. A familiarization of equipment, specifications and physical units. This is a broad introductory course for all students who need a survey of electronic applications and principles. Electronics as applied both historically and in today’s society is investigated. Typical topics included are a study of the natural forces that make electronics possible, present applications of electronics to the fields of medicine, transportation, science, communications, industry, and the start of the digital invasion into our homes and work.

Student Learning Outcome(s):

Students will learn the basic electronics quantities and their application in analyzing DC and AC circuits.

ELECTRICAL CONSTRUCTION AND MAINTENANCE

ECONMT 001 RESISTIVE CIRCUIT ELECTRICAL FUNDAMENTALS (3)
Lecture: 3 hours

The course covers the basic principles of D.C. electricity. Course content will center on the analysis of basic series and parallel circuits, using Ohm’s law, the power equations, and Kirchoff’s laws. Proper application of appropriate mathematical concepts will be stressed.

Student Learning Outcome(s):

1. Student will analyze and solve mathematical equations to resolve unknown values associated with series electrical circuits.
2. Student will analyze and solve mathematical equations to resolve unknown values associated with parallel electrical circuits.
3. Student will analyze and solve mathematical equations to resolve unknown values associated with combination circuit electrical circuits.

ECONMT 006 SECURITY AND FIRE ALARM TECHNICIAN CERTIFICATION (3) CSU
Lecture: 2 hours / Lab: 4 hours

This course offers instruction in the installation of Fire and Security alarms. Upon successful completion of the course the student will be eligible to request and test for an installer certification by the National Alarm Association of America.

Student Learning Outcome(s):

1. Student will draw and construct coaxial patch cables. 2 Student will demonstrate knowledge of basic alarm systems.

ECONMT 007 HOME THEATER & COMMERCIAL AUDIO, VIDEO INSTALLATION THEORY(3)
Lecture: 2 hours / Lab: 4 hours

This course offers instruction in the installation of Home Theater Video and Audio systems as well as commercial and industrial applications for audio and video technology. Upon successful completion of the course the student will have the skills to enter this area of the electrical trade.

Student Learning Outcome(s):

1. Student will demonstrate knowledge of electrical safety work practices.
2. Student will perform the tasks required to construct a CATS patch Cable.
3. Student will perform the tasks required to construct a Coaxial patch Cable.
GRADUATION REQUIREMENTS, PATHWAYS AND PROGRAMS OF STUDY

ECONMT 100  (O.S.H.A.) SAFETY STANDARDS: CONSTRUCTION AND INDUSTRY (2)
Lecture: 2 hours
(= Same as Building Construction Techniques 102).

This course provides instruction on industry safety and health rules as it applies to workers and employers within the construction industry. Topics such as fall protection, lock out tag out procedures, PPE, excavations, etc. are covered. Participants that meet the required hourly attendance and successfully pass the final exam will be eligible to receive their OSHA (30 hr) safety-training certificate.

Student Learning Outcome(s):
1. Recognize appropriate training requirements and training methods.
2. Define OSHA specific construction terms such as: competent person, construction work, confined space, working space, general duty clause. 3. Select situational appropriate PPE.

ECONMT 101  ELECTRICAL CRAFT HELPER (4) CSU
Lecture: 4 hours

This course is designed as entry level preparation for a student interested in careers in the electrical power industry. This introductory course covers the basic fundamentals of planning, installation and maintenance of high and low voltage electrical systems. Basic functions of generation, both hydro and steam are covered. The transmission and distribution of electrical power will be reviewed. Fundamentals of electricity, identification, function, and operation of components will be surveyed. Ohms law, safety, ropes, knots, rigging, and tools required in the trade will be reviewed. Civil service exam assistance will also be covered.

Student Learning Outcome(s):
List the types of knots utilized for common rigging operations. State the required safety regulation and practices of the power line industry. Describe the precautions and safeguards required of employees working in the power line industry.

ECONMT 105  FUNDAMENTALS OF SOLAR ELECTRICITY (3) CSU
Lecture: 3 hours

This course is designed for students interested in a career in the solar industry. The fundamental principles and functions of photo voltaic industry will be introduced. This course covers planning, installation, maintenance and all the necessary components for a photo voltaic system. The transmission and distribution of electric power will be reviewed. Basic concepts of electricity, identification, functions and operations of components will be surveyed.

Student Learning Outcome(s):
1. Describe the history of PV technology and the industry and list available markets and possible applications for PV systems. Identify types of PV systems and their application. Describe the advantage and disadvantage of each. Identify safety practices and protective equipment used to mitigate hazards in the installation and maintenance of PV systems. 2. Define basic solar terms including: irradiation, irradiance, tilt angle, latitude, longitude, azimuth angle etc. Determine series/parallel PV array arrangement based on module and inverter specifications. 3. Describe the testing standards for solar panels and identify measurement conditions for solar cells and modules. Label key points and describe effects of environmental conditions on a typical IV curve. 4. Describe the use of a digital multi-meter, pyranometer, compass, and given a declination map, differentiate true south from magnetic south. Identify parts and demonstrate the ability to use the Sun pathfinder and do shading analysis.

ECONMT 110  RENEWABLE ENERGY SYSTEMS (3) CSU
Lecture: 3 hours

This course will cover energy basics, solar basics, both active and passive, solar-thermal and solar-electric, wind, hydro-power, wave and tidal power, bio-fuel and biomass resources, geothermal power, energy storage and hydrogen fuel cells. Both large and small scale, grid interactive and stand alone systems will be discussed. Energy collection, site evaluation, design analysis of various systems, material use, and methods of construction will also be covered, along with overviews of California and US energy policy and global energy use.

Student Learning Outcome(s):
1. Discuss the history of renewable energy development. 2. List the regions of the globe where specific renewable options are most or least viable. 3. List the components needed for various renewable energy sources.

ECONMT 115  FUNDAMENTALS OF D.C. ELECTRICITY (3) CSU
Lecture: 3 hours

This course offers study in the Fundamentals of D.C. Electricity. Subjects include: Electrical safety, the basic principles of atomic structure, electrical quantities, static electricity, magnetism, induction, resistors, series circuits, parallel circuits, and combination circuits. The proceeding resistive circuits will be analyzed using Ohm’s Law. The Power Equation and Kirchoff’s Voltage and Current Laws.

Student Learning Outcome(s):
1. Student will analyze and solve Series Circuit problems. 2. Student will analyze and solve Parallel Circuit problems. 3. Student will analyze and solve Combination Circuit problems.

ECONMT 116  HANDTOOLS AND WIRING PRACTICES (2) CSU
Lab: 6 hours

This course covers the proper use of Hand Tools, Wiring Methods, Conductor Identification, Selection, Splicing and Termination. Trade Practices and an Introduction to the National Electrical Code.

Student Learning Outcome(s):
1. Student will construct various Knots. 2. Student will locate and interpret information in the National Electrical Code. 3. Student will demonstrate knowledge of electrical safety work practices.

ECONMT 117  ELEMENTARY CIRCUIT PRACTICES (4) CSU
Lab: 12 hours

This course offers instruction in the drawing and analysis of wiring plans, wiring diagrams, and ladder diagrams. Including the wiring of both low and high voltage circuits utilizing: push button, single pole, standard three way, coast three way, standard four way, coast four way, and master switching systems.

Student Learning Outcome(s):
1. Student will interpret and identify the components of a 4 Way Switching System. 2. Student will interpret and identify the components of a 3 Way Switching System. 3. Student will demonstrate knowledge of electrical safety work practices.
ECONMT 119  APPLIED CALCULATIONS AND MEASUREMENTS (3) CSU
Lecture: 3 hours
This is an entry level course in electrical calculations and measurements with special emphasis on the application problems encountered in the electrical construction industry.

Student Learning Outcome(s):
1. Student will interpret and solve Common Fraction problems. 2. Student will interpret and solve Decimal Fraction problems. 3. Student will interpret and solve Percent problems.

ECONMT 120  INDUSTRIAL CONTROL SYSTEMS (3) CSU
Prerequisite: Electrical Construction and Maintenance 115; and Electrical Construction and Maintenance 119.
This course is a study of motors, circuits and devices used for controlling electric motors and the National Electrical Code covering motor installation.

Student Learning Outcome(s):
1. Interpret a ladder diagram of a control strategy to manually control a motor from two different locations and the ability to start or stop the motor from either location, utilizing two start/stop stations a single phase AC motor and a Contactor or magnetic motor starter. 2. Interpret a ladder diagram of a control strategy to run and stop a series universal motor from a remote location utilizing an automatic pilot device and a contactor.

ECONMT 128  INDUSTRIAL CONTROL SYSTEMS
PRACTICES (3) CSU
Lab: 9 hours
Prerequisite: Electrical Construction and Maintenance 115
This course fosters the development and application of control circuitry through the use of instructional wiring panels and lab project boards. The course includes manual and electromagnetic control of motors using switches, pushbuttons, relays and starters for sequencing, jogging, reversing and timed control of motors and circuits.

Student Learning Outcome(s):
1. Interpret two ladder diagrams, each with a different strategy to control a motor. One will operate a motor automatically from a remote location. The second will control a motor manually from two separate locations. Both strategies will employ contactors.

ECONMT 128A  INDUSTRIAL CONTROL SYSTEMS
PRACTICES A (1) CSU
Lab: 3 hours
This course fosters the development and application of control circuitry through the use of instructional wiring panels and lab project boards. The course includes manual and electromagnetic control of motors using switches, pushbuttons, relays and starters for sequencing, jogging, reversing and timed control of motors and circuits.

Student Learning Outcome(s):
Interpret two ladder diagrams, each with a different control strategy to control a motor. One will operate a motor automatically from a remote location. The second will control a motor manually from two separate locations. Both strategies will employ contactors.

ECONMT 128B  INDUSTRIAL CONTROL SYSTEMS
PRACTICES B (1) CSU
Lab: 3 hours
This course is the second module of the 128 A,B,C series and continues to foster the development and application of control circuitry through the use of instructional wiring panels and lab project boards. The course includes manual and electromagnetic control of motors using switches, pushbuttons, relays and starters for sequencing, jogging, reversing and timed control of motors and circuits.

Student Learning Outcome(s):
Interpret two ladder diagrams, each with a different control strategy to control a motor. The first will operate a motor manually from two locations. The second will control a motor automatically from a remote location. Both strategies will employ contactors.

ECONMT 128C  INDUSTRIAL CONTROL SYSTEMS
PRACTICES C (1) CSU
Lab: 3 hours
This course is the final module of the 128 A,B,C series and finalizes the development and application of control circuitry through the use of instructional wiring panels and lab project boards. The course includes manual and electromagnetic control of motors using switches, pushbuttons, relays and starters for sequencing, jogging, reversing and timed control of motors and circuits.

Student Learning Outcome(s):
Interpret two ladder diagrams, each with a different control strategy to control a motor. One will operate a motor automatically from a remote location. The second will control a motor manually from two separate locations. Both strategies will use contactors.

ECONMT 129  FUNDAMENTALS OF ALTERNATING CURRENT (3)
Lecture: 3 hours
Prerequisite: Electrical Construction and Maintenance 115; Electrical Construction and Maintenance 119
This course offers a study in operating principles of electrical power systems, the theory of A.C. generators and motors, load calculations, efficiencies, power factor correction, and calculations related to these theories.

Student Learning Outcome(s):
Apply appropriate Ohms laws, mathematical rules and trigonometry to solving multiple electrical calculations including: given the circuit voltage and current flowing into a motor and a wattmeter reading, the student will apply appropriate formulas and calculate the total Apparent Power, True Power, Reactive Power, Impedance, Inductive Reactance, Inductance, Phase Angle and the Power Factor of the motor circuit.

ECONMT 130  PRINCIPLES OF INDUSTRIAL ELECTRIC POWER (3)
Lecture: 3 hours
This course offers a study in operating principles and maintenance procedures and code requirements for electrical power systems. Theory of D.C. and A.C. generators and motors, load calculations, efficiency and power factor correction are also covered.

Student Learning Outcome(s):
1. Analyze drawings of control and power circuits used in industry. 2. Analyze various motor acceleration methods. The students will compare...
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and contrast the efficiency of the different methods. 3. Calculate transformer voltage, current, and KVA ratings.

ECONMT 136  INDUSTRIAL POWER APPLICATIONS (3)
Lecture: 3 hours
Lab: 9 hours

This course offers a practical study on shop experience in testing, servicing and repairing industrial plant electrical equipment, connection and operation of generators, as well as motors and their control systems.

Student Learning Outcome(s):
1. Connect electrical motor control equipment to single and three phase motors to National Electrical Code standards in a safe and workman-like manner using proper lock out and tag out procedures. 2. Demonstrate electrical control troubleshooting skills, and the ability to identify electrical open circuits, electrical short circuited connections and electrically grounded circuits. 3. Present finished drawings of all connections made during class.

ECONMT 137  INDUSTRIAL ELECTRONIC CONTROL SYSTEMS (3)
Lecture: 3 hours

In this course fundamental electronic and semiconductor theory as well as applications of electronic devices to industrial control systems are studied. Boolean algebra, logic circuits and numbering systems as they used in industrial controls are examined. Transducers, photoelectric limit switches and other industrial devices are studied.

Student Learning Outcome(s):
1. Students will analyze electronic control and power circuits. 2. The student will be able to identify different discrete electronic components and explain their operation in an industrial motor controller. 3. Students will reconfigure basic logic circuits to achieve alternate logical results.

ECONMT 138  APPLICATIONS OF ELECTRICAL AND ELECTRONICS DEVICES (2) CSU
Lecture: 6 hours
Lab: 4 hours

This course studies identification and operational tests on various types of electrical and electronic equipment, including transformers, electronic motor speed control systems and other industrial control devices.

Student Learning Outcome(s):
1. Construct digital logic circuits, and analyze them using Boolean Algebra. 2. Use solid state relays to energize motors or motor starters. 3. Compare and contrast logic gates using truth tables.

ECONMT 140  CONSTRUCTION WIRING PRINCIPLES AND PRACTICES (3)
Lecture: 3 hours
Prerequisite: Electrical Construction and Maintenance 130; and Electrical Construction and Maintenance 136; Corequisite: Electrical Construction and Maintenance 167;

This class teaches the wiring of electrical systems, including: layout, construction methods, code requirements, installation standards, and best practices.

Student Learning Outcome(s):
1. Students will design wiring plans, which conform to various load and control requirements, which result in minimum material use. 2. Students will calculate the full load currents, and the appropriately sized wire and protective devices for an assigned transformer according to the current National Electrical Code.

ECONMT 142  BASIC PROGRAMMABLE LOGIC CONTROLS (PLC) (1)
Lab: 3 hours

Introduction to Basic Programmable Logic Controllers, Programming Devices, Ladder Diagrams and Designing PLC Programs for Industrial Processes.

Student Learning Outcome(s):
1. Identify the advantages of a programmable controller. 2. Identify four components of a programmable controller. 3. Identify input and output devices connected to a programmable controller.

ECONMT 150  INTRODUCTION TO THE ELECTRICAL CODES (3)
Lecture: 3 hours
Prerequisite: Electrical Construction and Maintenance 130; and Electrical Construction and Maintenance 136; Corequisite: Electrical Construction and Maintenance 140;

This is a study and interpretation of the National Electrical Code, local ordinances, and regulations covering wiring installations and principal circuit requirements.

Student Learning Outcome(s):
1. Students will calculate loads and currents for assigned industrial, commercial, and residential occupancies. 2. Students will calculate the appropriately sized wire, conduit, and protective devices for the assigned industrial, commercial, and residential occupancies according to the current National Electrical Code.

ECONMT 159  PROGRAMMABLE LOGIC CONTROLS (PLC) (4) CSU
Lecture: 3 hours / Lab: 4 hours

Programmable Logic Controller wiring, programming, and troubleshooting techniques are learned and practiced in a hands-on laboratory environment.

Student Learning Outcome(s):
Identify, illustrate, and apply PLC Input/Output components Plan, design, and construct PLC wiring diagrams Plan, design, and construct working PLC programs Troubleshoot faulty PLC hardware and software.

ECONMT 164  SUSTAINABLE LIGHTING PRINCIPLES & PRACTICES (3) CSU
Lecture: 2 hours / Lab: 4 hours

This course offers study in the design of residential and commercial lighting systems. Included, are both indoor and outdoor lighting applications, emphasizing sustainable lighting design and energy saving strategies.

Student Learning Outcome(s):
Student will analyze and interpret ballast wiring diagram and install replacement ballast.
ECONMT 171 ELECTRICAL CODES AND ORDINANCES II (3)
Lecture: 3 hours

Advanced electrical codes and ordinances are the focus of this course. General codes, wiring methods and fittings, and circuit requirements specified in the various ordinances are reviewed.

Student Learning Outcome(s):
1. List electrical codes by topic and article. 2. Identify topic specific electrical code requirements such as; service size, circuit protection, branch circuits, and box sizing. 3. Interpret various electrical codes applied to various electrical installation examples.

ECONMT 172 ELECTRICAL MATH I (3)
Lecture: 3 hours

Topics covered in this course are problems relating to A.C. power application, use of the scientific calculator, percentage ratio and proportions, wire sizing, voltage drops, energy and efficiency calculations, trigonometric functions, phasor diagrams, A.C. single and poly-phase circuits, transformers, star and delta connections and mathematics for logic controls.

Student Learning Outcome(s):
1. Student will interpret and solve Common Fraction problems. 2. Student will interpret and solve Decimal Fraction problems. 3. Student will interpret and solve Percent problems.

ECONMT 173 ELECTRICAL MATH II (3)
Lecture: 3 hours

This course studies basic motor control fundamentals including the basic functions of control. Magnetic principles of D.C. and A.C. motors, types of motors, motor selection fundamentals are reviewed. Topics covered also include definitions for controller components and symbols, familiarization with N.E.M.A. standards and review of one-line, wiring and schematic diagrams.

Student Learning Outcome(s):
1. Student will interpret and solve Signed Number problems. 2. Student will interpret and solve Ratio & Proportion problems. 3. Student will interpret and solve Algebraic problems.

ECONMT 174 ELECTRIC MOTOR CONTROL I (3)
Lecture: 3 hours

This course focuses on a brief review of material covered in Electric Motor Control I and the selection and application of D.C. and A.C. controllers with emphasis on the A.C. devices. Study areas include manual, magnetic, across-the-line starters, as well as most forms of reduced voltage starters including the auto transformer, primary resistor, star-delta, part-winding and wound rotor type reduced voltage starters. Synchronous, multi-speed...
ECONMT 181  BASIC WIRING PRACTICES (3)
Lecture: 3 hours

This course contains the study of basic electrical diagrams; such as, wiring plans, wiring diagrams, and ladder diagrams. Topics of discussion include: Architectural symbols and drawings, reading and interpreting plans and specifications, as well as the drawing of basic circuits.

Student Learning Outcome(s):
1. Students will identify the components of a Standard 3 Way Switching System and its terminations. 2. Students will identify the components of a Standard 4 Way Switching System and its terminations. 3. Students will demonstrate an understanding on the use of hand tools in a safe and workmanlike manner.

ECONMT 182  BASIC DIAGRAM AND CIRCUIT PRACTICES (1)
Lab: 3 hours

This course provides practical shop practice in the wiring of signal, communication, and control circuits. Connection of device mechanisms such as, lights, buzzers, and relays are specifically reviewed.

Student Learning Outcome(s):
1. Students will identify the components of a Standard 3 Way Switching System and its terminations. 2. Students will identify the components of a Standard 4 Way Switching System and its terminations. 3. Students will demonstrate an understanding on the use of hand tools in a safe and workmanlike manner.

ECONMT 183  RESIDENTIAL ELECTRIC WIRING (3)
Lecture: 3 hours

This course covers the design and layout of residential electrical wiring in accordance with the National Electrical Code and recognized best trade practices.

Student Learning Outcome(s):
Students who complete this class with an aggregate score exceeding 70% will calculate feeder and service loads for residential occupancies. Students who complete this class with an aggregate score exceeding 70% will select wiring methods suitable for residential occupancies. Students who complete this class with an aggregate score exceeding 70% will design wire sizes and outlet locations suitable for residential occupancies.

ECONMT 184  MOTOR CONTROL PRINCIPLES AND PRACTICES (3)
Lecture: 2 hours / Lab: 4 hours

This course will examine the testing, adjusting, servicing, and connecting of motors, generators, and associated controllers. Reduced voltage starters and other motor starting techniques will be studied.

Student Learning Outcome(s):
1. Demonstrate familiarity with the theory and principles of AC single and three-phase motors, DC motors, generators, and alternators. 2. Be able to install above machines by connecting power and control circuits, as well as demonstrate motor control troubleshooting skills, and the ability to identify electrical opens, shorts, and ground faults. 3. Demonstrate the ability to solve motor control calculations, design, and convert elementary diagrams of the advanced motor control systems from both written and oral instructions into workable wiring installations.

ECONMT 185  DIRECTED STUDY - ELECTRICAL CONSTRUCTION AND MAINTENANCE (1)
Lecture: 1 hour

This course allows students to pursue a directed study in Electrical Construction & Maintenance on a contract basis under the direction of a supervising instructor.

Student Learning Outcome(s):
The outcome will vary depending on the contract with the instructor. The student will formulate a research paper based on a topic in Electrical Construction & Maintenance.

ECONMT 185L  DIRECTED STUDY, ELECTRICAL CONSTRUCTION AND MAINTENANCE (LAB) (1)
Lab: 3 hours

This course allows students to pursue a directed study in Electrical Construction & Maintenance on a contract basis under the direction of a supervising instructor.

Student Learning Outcome(s):
The outcome will vary depending on the contract with the instructor. The student will design and construct a lab project based on a topic in Electrical Construction & Maintenance.

ECONMT 186  INDUSTRIAL ELECTRICAL PRINCIPLES AND PRACTICES (3)
Lecture: 2 hours / Lab: 4 hours

This course content includes the use of measuring instruments, connecting and testing transformer banks, and connecting and testing industrial electronic control devices. This course discusses single phase and three phase transformers.

Student Learning Outcome(s):
1. Identify single phase and three transformers as well as differentiate between the two types. 2. Safely connect three single phase transformers into a variety of connections for a three phase bank operation. 3. Be able to do calculations involving single phase as well as three phase transformers.

ECONMT 187  ADVANCED PROGRAMMABLE CONTROLLERS (4)
Lecture: 3 hours / Lab: 4 hours

Programmable Logic Controller lecture and laboratory class, including Sequencers, Shift Registers, Analog I/O, and Subroutines, taught using RSLogix software.
ECONMT 190  ELECTRICAL CODE CALCULATIONS (3)
Lecture: 3 hours
Advisory: Electrical Construction and Maintenance 171.
This class teaches NEC (National Electrical Code) Article 220 residential, commercial and industrial calculations. Students will perform NEC Article 240 tap rule calculations and NEC motor and transformer calculations.

Student Learning Outcome(s):
1. Student will perform NEC Article 220 residential, commercial and industrial calculations.
2. Student will perform NEC Article 240 tap rule calculations.
3. Student will perform NEC motor and transformer calculations.

ECONMT 191  COMMERCIAL WIRING AND PRACTICES (2)
Lab: 6 hours
Instruction is given in installation of wiring systems such as non-metallic sheathed cable, armored cable, flexible metal conduit, electrical metallic tubing, and PVC. Emphasis is given on National Electric Code standards.

Student Learning Outcome(s):
The student will be able to wire a commercial electrical circuit following a wiring diagram using approved methods.

ECONMT 192  RESIDENTIAL WIRING AND PRACTICES (2)
Lab: 6 hours
The course content includes the installation of residential wiring materials including non-metallic sheathed cable, armored cable and flexible metal conduit for outlets, appliances and lighting.

Student Learning Outcome(s):
The student will be able to wire a residential electrical circuit following a wiring diagram using approved methods.

ECONMT 193  CONDUIT BENDING AND CALCULATIONS (3)
Lecture: 2 hours / Lab: 4 hours
This class teaches bending cutting and threading of conduits: EMT (Electrical Metallic Tubing), rigid, and IMC (Intermediate Metal Conduit) and the calculations that are included in these operations. Conduit will be bent with hand and hydraulic benders.

Student Learning Outcome(s):
Students will bend stubs, saddles, offsets, and back-to-back bends to specified dimensions in EMT, IMC, and rigid conduit. Students will thread IMC and rigid conduit. Students will prepare, plan, and calculate conduit bends.

ECONMT 193A  CONDUIT BENDING LABORATORY (1)
Lab: 3 hours
Corequisite: Electrical Construction and Maintenance 168.
This class practices the cutting and bending of electrical conduits, and the necessary calculations included in these operations. EMT conduit will be bent with hand benders.

Student Learning Outcome(s):
Students will bend stubs, saddles, offsets, and back-to-back bends in EMT conduit.

ECONMT 195  GROUNDING: FUNDAMENTALS, APPLICATIONS AND PRACTICES (3)
Lecture: 3 hours
This course will cover the fundamentals of electrical system grounding principles of reviewing definitions, theory, and equipment installations. Application to accepted industry practices, compliance to the National Electrical Code, review of lightning protection and electronic equipment grounding will be covered.

Student Learning Outcome(s):
1. Student will differentiate between grounding and bonding and define terms associated with grounding and bonding such as; ground, grounding, grounded, bonding, bonded, ground fault current. 2. Students will state grounding and bonding requirements and identify NEC code sections pertaining to safety and compliance. 3. Students will list applicable NEC sections pertaining to grounding and bonding.

ECONMT 196  INFRASTRUCTURE WIRING PRACTICES (4)
Lecture: 3 hours / Lab: 3 hours
This course offers instruction in the installation, termination, testing and documentation of commercial infrastructure wiring including the following: Coaxial Cable, Category 3, 5, 5E, & 6 Unshielded Twisted Pair and Fiber Optics.

Student Learning Outcome(s):
1. Student will demonstrate knowledge of electrical safety work practices.
2. Student will perform the tasks required to construct a CAT5 patch Cable.
3. Student will perform the tasks required to construct a Fiber Optic patch Cable.

ECONMT 197  LOW VOLTAGE ELECTRICAL PRACTICES (3)
Lecture: 2 hours / Lab: 4 hours
This course offers instruction in the installation, termination, testing and documentation of low voltage systems, such as lighting, communication, telephone, data, control systems, and similar low voltage applications.

Student Learning Outcome(s):
1. Student will demonstrate knowledge of electrical safety work practices.
2. Student will perform the tasks required to construct a CAT5 patch Cable.
3. Student will perform the tasks required to construct a Coaxial patch Cable.

ECONMT 199  JOURNEYMAN ELECTRICIAN EXAM PREPARATION (3)
Lecture: 2 hours / Lab: 4 hours
This course will prepare the student for the State of California Electricians’ Certification Examination. The distance education version of the class uses the Internet, World Wide Web and e-mail.

Student Learning Outcome(s):
1. Student will apply electrical calculations and measurements. 2. Student will identify trade specific electrical codes. 3. Student will pass a simulated Certification exam.
### Graduation Requirements, Pathways and Programs of Study

**ECONMT 205  SOLAR ENERGY INSTALLATION & MAINTENANCE PRINCIPLES AND PRACTICES (2)**

*Lab: 6 hours*

This course is designed for individuals who have the basic electrical and mechanical skills of an energy technician or electrician and are looking to expand into the renewable energy field. This is a hands-on class to develop the fundamental principles and practices for installation and maintenance of solar, wind, and similar renewable energy systems. This course covers basic planning, installation, and maintenance of the necessary components for various renewable energy systems.

**Student Learning Outcome(s):**

1. Demonstrate the ability to use safety harnesses while working on roofs. Follow all safety rules and regulations while working on roofs, in attics and around all electrical equipment during the installation of a renewable energy system. 2. Analyze a site assessment and select the appropriate system and design. Conduct a site survey and develop a written report that accounts for shading, array orientation, mounting methods and equipment BOS locations. Perform a system installation following manufacturer’s directions. 3. Adapt a systems mechanical design to conform to the individual site assessment needs taking into account ambient temperature, verify component sizes and capacities. Demonstrate and install subsystem components to an industry acceptable standard.

**ECONMT 212  SIGNIFICANT CHANGES NEC - NATIONAL ELECTRICAL CODE (3) CSU**

*Lecture: 3 hours*

Continuing education for the journeyman electrician. This course covers the changes to the National Electrical Code made during each 3 year code revision cycle. Each change to the code will be highlighted and how the change will impact the industry practices will be covered.

**Student Learning Outcome(s):**

1. List electrical codes by topic and article. 2. Identify topic specific electrical code changes, such as; grounding, OCP, motors, transformers, hazardous locations, healthcare facilities. 3. Interpret and discuss the trade impact of changes to the National Electrical Code made during each 3 year code revision cycle. 4. Demonstrate the ability to use safety harnesses while working on roofs. Follow all safety rules and regulations while working on roofs, in attics and around all electrical equipment during the installation of a renewable energy system. 5. Analyze a site assessment and select the appropriate system and design. Conduct a site survey and develop a written report that accounts for shading, array orientation, mounting methods and equipment BOS locations. 6. Perform a system installation following manufacturer’s directions. 7. Adapt a systems mechanical design to conform to the individual site assessment needs taking into account ambient temperature, verify component sizes and capacities. 8. Demonstrate and install subsystem components to an industry acceptable standard.

**ECONMT 215  SMALL WIND ENERGY SYSTEMS PRINCIPLES AND PRACTICES (3)**

*Lecture: 2 hours / Lab: 4 hours*

This course is designed for individuals that have the basic electrical and mechanical skills of an energy technician or electrician and are looking to expand into the small wind energy field. This class will help one to develop the fundamental knowledge and skill sets typically required for small wind system practitioners and to help ensure safety, quality and consumer acceptance of small wind installations.

**Student Learning Outcome(s):**

1. Discuss the history and development of wind energy. 2. List the regions of the globe where wind is a renewable option. 3. Install the components needed for various wind renewable energy sources.

**ECONMT 285L  DIRECTED STUDY, ELECTRICAL CONSTRUCTION AND MAINTENANCE (LAB) (2)**

*Lab: 6 hours*

This course allows students to pursue a directed study in Electrical Construction & Maintenance on a contract basis under the direction of a supervising instructor.

**Student Learning Outcome(s):**

The outcome will vary depending on the contract with the instructor. The student will formulate a research paper based on a topic in Electrical Construction & Maintenance.

**ECONMT 285L  DIRECTED STUDY, ELECTRICAL CONSTRUCTION AND MAINTENANCE (LAB) (3)**

*Lab: 9 hours*

This course allows students to pursue a directed study in Electrical Construction & Maintenance on a contract basis under the direction of a supervising instructor.

**Student Learning Outcome(s):**

The outcome will vary depending on the contract with the instructor. The student will design and construct a lab project based on a topic in Electrical Construction & Maintenance.

**ECONMT 385  DIRECTED STUDY - ELECTRICAL CONSTRUCTION AND MAINTENANCE (3)**

*Lecture: 3 hours*

This course allows students to pursue a directed study in Electrical Construction & Maintenance on a contract basis under the direction of a supervising instructor.

**Student Learning Outcome(s):**

The outcome will vary depending on the contract with the instructor. The student will design and construct a lab project based on a topic in Electrical Construction & Maintenance.

**ECONMT 385L  DIRECTED STUDY, ELECTRICAL CONSTRUCTION AND MAINTENANCE (LAB) (3)**

*Lab: 9 hours*

This course allows students to pursue a directed study in Electrical Construction & Maintenance on a contract basis under the direction of a supervising instructor.

**Student Learning Outcome(s):**

The outcome will vary depending on the contract with the instructor. The student will design and construct a lab project based on a topic in Electrical Construction & Maintenance.

**ECONMT 941  COOPERATIVE EDUCATION - ELECTRICAL CONSTRUCTION & MAINTENANCE (4) CSU**

*Lecture: 4 hours*

Cooperative Education is a work experience program involving the employer, the student-employee and the college to insure that the student receives on the job training and the unit credit for work experience or volunteer work/internship. Completion of at least seven units, including Cooperative Education, at the end of the semester is required. Students must be employed or volunteering/interning in order to participate in program.

**Student Learning Outcome(s):**

The student will develop at least three learning objectives to be accomplished on the job. The objectives will be related to the educational/occupational goals of the student.
ELECLNM 701A  ELECTRICAL LINEMAN APPRENTICE
RELATED TRAINING IA (3)
Lecture: 2 hours / Lab: 2 hours

Module 1A: Instruction is given in the generation of electricity; hydro, steam, wind, the elements of electricity, static, magnetism, electric circuit, transmission lines and cables, sub-transmission lines and cables, distribution lines and cables. Students receive training in pole climbing; safe practices, installation of cross arms, insulator guys, hanging of transformer, stringing of lines, pulling cables, pole top rescue and vault rescue. Safety and first aid are emphasized.

Student Learning Outcome(s):

1. Discuss the history and development of the electric utility industry. 2. Identify specific industry tools and materials and discuss their usage. 3. Select and demonstrate proper electric utility PPE equipment.

ELECLNM 701B  ELECTRICAL LINEMAN APPRENTICE
RELATED TRAINING IB (3)
Lecture: 2 hours / Lab: 2 hours

This course provides instruction in the generation of electricity; hydro, steam, wind, the elements of electricity, static, magnetism, electric circuit, transmission lines and cables, sub-transmission lines and cables, distribution lines and cables. Students receive training in pole climbing; safe practices, installation of cross arms, insulator guys, hanging of transformer, stringing of lines, pulling cables, pole top rescue and vault rescue. Safety and first aid are emphasized.

Student Learning Outcome(s):

1. Discuss the history and development of the electric utility industry. 2. Identify specific industry tools and materials and discuss their usage. 3. Select and demonstrate proper electric utility PPE equipment.

ELECLNM 701A  ELECTRICAL LINEMAN APPRENTICE
RELATED TRAINING IIA (3)
Lecture: 2 hours / Lab: 2 hours

Instruction is given in electricity including; electrical math, series and parallel circuits, motors, induced emf, mutual and self induction, direct current, alternating current, transformers connections, transformer fusing, capacitors, voltage regulators, definitions, core losses, polarity, markings, oil insulation, cooling practices, loading and testing, and oil circuit breakers. Street light practices, circuits, utilitarian systems, lamps, sodium and mercury lights, glassware, refractors, control of streetlights, map reading, forms, test, regulators and safety in maintenance are all emphasized.

Student Learning Outcome(s):

1. Applied calculations of measurement involved with electrical installations such as; transformer calculations, lighting loads in series, and parallel. 2. Demonstrate map reading. 3. Identify safety in general utility maintenance.

ELECLNM 702A  ELECTRICAL LINEMAN APPRENTICE
RELATED TRAINING IIB (3)
Lecture: 2 hours / Lab: 2 hours

Instruction is given in electricity including; electrical math, series and parallel circuits, motors, induced emf, mutual and self induction, direct current, alternating current, transformers connections, transformer fusing, capacitors, voltage regulators, definitions, core losses, polarity, markings, oil insulation, cooling practices, loading and testing, and oil circuit breakers. Street light practices, circuits, utilitarian systems, lamps, sodium and mercury lights, glassware, refractors, control of streetlights, map reading, forms, test, regulators and safety in maintenance are all emphasized.

Student Learning Outcome(s):

1. Applied calculations of measurement involved with electrical installations such as; transformer calculations, lighting loads in series, and parallel. 2. Demonstrate map reading. 3. Identify safety in general utility maintenance.
Student Learning Outcome(s):
1. Discuss the history and development of the underground electric utility industry. 2. Identify specific underground industry tools and materials and discuss their usage. 3. Select and demonstrate proper underground electric utility PPE equipment.

**ELECLNM 704B ELECTRICAL LINEMAN - APPRENTICE CABLE SPlicer MODULE B (3)**
Lecture: 2 hours / Lab: 2 hours

This course provides instruction in the application of rigging principles and practices on underground installations. In addition, the installation of equipment, splicing theory, distribution circuits, oil circuit breakers, transformer characteristics, and connections will also be covered. State law requirements, safety and street lighting electrical systems will be introduced in this course.

Student Learning Outcome(s):
1. Discuss the history and development of the underground electric utility industry. 2. Identify specific underground industry tools and materials and discuss their usage. 3. Select and demonstrate proper underground electric utility PPE equipment.

**ELECLNM 709 ELECT CRAFT HELPER, ELECT LINEMAN APPR RELATED TRAINING IV (4)**
Lecture: 4 hours

This course is designed as entry level preparation for a student interested in careers in the electrical power industry. This introductory course covers the basic fundamentals of planning, installation and maintenance of high and low voltage electrical systems. Basic functions of generation, both hydro and steam are covered. The transmission and distribution of electrical power will be reviewed. Fundamentals of electricity, identification, function, and operation of components will be surveyed. Ohms law, safety, ropes, knots, rigging, and tools required in the trade will be reviewed. Civil service exam assistance will also be covered.

Student Learning Outcome(s):
1. Discuss industry history & development of the grid. 2. List utility industry terms and definitions. 3. State electrical utility industry careers opportunities and requirements.

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**ELECTRONICS TECHNOLOGY**

**ETNTLGY 150 SOLDERING SURFACE MOUNT TECHNOLOGY (3)**
Lecture: 2 hours / Lab: 3 hours

This course provides an introduction of through hole soldering technology as well as principles of surface mount rework, show the range of specific equipment used in that process and provide a framework for learning about various rework methods. Recommended procedures for removal and replacement of surface mount chip components are also covered.

Student Learning Outcome(s):
Students will be able to solder and de-solder through-hole and surface mount components.

**ETNTLGY 151 DC THEORY AND CIRCUIT FUNDAMENTALS (3)**
Lecture: 3 hours

Instruction is given in basic electrical concepts, electron theory, Ohm’s Law, Kirchoffs Laws, series circuits, Parallel circuits, combination circuits, principles of magnetism; and the care, use, and construction of basic meters for voltage, current, and resistance measurements. Problems illustrating accuracy necessary in measurements are given.

Student Learning Outcome(s):
Students will be able to analyze series, parallel, series-parallel, thevenin and Norton circuits.

**ETNTLGY 152 DC THEORY AND CIRCUIT FUNDAMENTALS LAB (2) CSU**
Lab: 6 hours

Instruction is given in constructing basic electrical circuits. Series, parallel and series/parallel circuits are constructed and troubleshoot to understand the concept of troubleshooting techniques. Problems illustrating accuracy necessary in measurements are given.

Student Learning Outcome(s):
Students will use the equipment such as Digital Multimeter (DMM) and DC power supply to measure and troubleshoot various DC circuits.

**ETNTLGY 153 APPLIED DC CALCULATIONS (1)**
Lecture: 1 hour

This course offers a review on basic arithmetic including addition, subtraction, multiplication, division, fractions, decimals, square roots, signed numbers, powers of ten, an introduction to algebra, and problems solving Ohm’s Law and power calculations. Instruction is also provided in algebra, calculators, logarithms, graphs, phasers, and basic trigonometry as used in electronics.

Student Learning Outcome(s):
Students will be able to apply mathematical problem-solving models to DC circuits.

**ETNTLGY 154 AC THEORY AND CIRCUIT FUNDAMENTALS (3) CSU**
Lecture: 3 hours

This course offers the Theory of AC Electronics as it applies to basic and advanced circuits found in analog electronics. The course prepares the student for more advanced studies in Communications and Digital Electronics. Subjects covered include Capacitors, Magnetic Circuits, Inductors, Sinusoidal Alternating Waveforms, Basic Elements and Phasers, Series and Parallel AC Circuits, Series-Parallel AC Networks, Methods of Analysis, Network Theorems (AC), Power (AC), Resonance, Filters and Bode Plots, Pulse waveforms, and an introduction to System Analysis. Basic algebra and trigonometry will be used as the tools for understanding the AC circuit as it applies to electronics systems.

Student Learning Outcome(s):
Students will experiment with alternating current, inductance and capacitance, time constants and filters in analyzing and troubleshooting AC circuits.
### ETNTLGY 155  AC THEORY AND CIRCUIT FUNDAMENTALS LAB (2) CSU

**Lab: 6 hours**

An overview of the field in AC electronics that measures and analyzes the parameters and characteristics of AC circuits: The students studies their applications in electronic systems and becomes familiar with the various components used to make a viable circuit. In class, the students will also learn to construct and troubleshoot AC circuits.

**Student Learning Outcome(s):**

Students will develop and improve their abilities to follow instructions, make accurate measurements and calculations for different AC circuits.

### ETNTLGY 156  APPLIED AC CALCULATIONS (1)

**Lecture: 1 hour**

At the completion of this course, students will be able to perform mathematical functions used in AC circuit analysis. The topics include solving various algebraic equations, fractional equations, simultaneous equations, trigonometric functions, vector algebra, and logarithms. These topics will be covered with emphasis on calculations involving series, parallel, and series-parallel AC circuits.

**Student Learning Outcome(s):**

Students will be able to apply mathematical problem-solving models to AC circuits.

### ETNTLGY 157  SEMICONDUCTORS DEVICES AND APPLICATIONS (3) CSU

**Lecture: 3 hours**

This course imparts knowledge of semiconductors, electron devices including diodes, transistors, and their application in electronic circuits such as Amplifiers, Switches, Power Supplies, Oscillators, and Integrated Circuits.

**Student Learning Outcome(s):**

Students will analyze and troubleshoot semiconductor circuits.

### ETNTLGY 158  SEMICONDUCTORS DEVICES AND ELECTRONICS LABORATORY (3) CSU

**Lab: 9 hours**

This is a semiconductor devices laboratory course. It includes lab exercises using semiconductors devices including diodes, transistors, and their application in electronic circuits such as Amplifiers, Switches, Power Supplies, Oscillators, and Integrated Circuits.

**Student Learning Outcome(s):**

Students will build electronic circuits. Will test and troubleshoot successfully. 12 semiconductor devices circuits will be constructed.

### ETNTLGY 159  DIGITAL CIRCUITS AND APPLICATIONS (3) CSU

**Lecture: 3 hours**

This is an introductory course in digital electronics and applications. The course covers the number systems, including the decimal, binary, octal, and hexadecimal number systems. The topics covered include the characteristics of TTL and CMOS logic families, combinational logic, minimizing logic circuits, using Boolean operations and Karnaugh maps, encoders and decoders, sequential logic devices such as flip-flops, counters, shift registers, and memory devices.

**Student Learning Outcome(s):**

Students will analyze and troubleshoot combinational and sequential digital circuits.
Student Learning Outcome(s):

The students will demonstrate the skills necessary to built an AM/FM Radio kit.

ETNTLGY 252 NETWORK CABLELING SPECIALIST (3)

Lecture: 2 hours / Lab: 3 hours

This course is designed to provide students with the basic skills used in network technology. The successful completion of the course leads to a certificate in network cabling. Students will become familiar with EIA/TIA 568 Standards (Electronics Industry Alliance/Telecommunications Association). Students will learn various cables used in network cabling industry such as CAT 5, CAT5E, and coaxial cables and correctly terminate them.

Student Learning Outcome(s):

Students will be able to construct cables and make terminations used in network cabling.

ETNTLGY 253 FIBER OPTICS (3)

Lecture: 2 hours / Lab: 3 hours

This course is designed to provide students with the knowledge and skills necessary to become entry-level technicians in the network cabling industry with a concentration in fiber optics. Successful completion of this course leads to industry certification.

Student Learning Outcome(s):

Students will be able to construct and test fiber optic cables.

ETNTLGY 254 COMPUTER APPLICATIONS FOR ELECTRONICS TECHNOLOGY (3)

Lecture: 2 hours / Lab: 3 hours

This course introduces students to computer hardware, software related technology and their uses impact on society and education; hands-on experience with applications of software, such as Excel, Word, Power Point with an emphasis on electronics applications software such as Electronic Work Bench and VISIO.

Student Learning Outcome(s):

Students will be able to utilize computer software to effectively organize and communicate their work.

ETNTLGY 255 COMPUTER-BASED ELECTRONICS I (1)

Lab: 3 hours

This course introduces the students to Electronics Workbench (MultiSim), Electronics Technology Computer-Aided Instruction (ETCAI), and MultiSim Computer-Based Training (CBT) Software Programs. This course is designed to enable students to construct and analyze circuits using Electronics Workbench. It also enables students to increase their knowledge of electronics, using CAI.

Student Learning Outcome(s):

Students will be able to utilize the Multisim software to construct and analyze different circuits.

ETNTLGY 941 COOPERATIVE EDUCATION - ELECTRONICS TECHNOLOGY (4) CSU

Lecture: 4 hours

Cooperative Education is a work experience program involving the employer, the student-employee and the college to insure that the student receives on the job training and the unit credit for work experience or volunteer work/internship. Completion of at least seven units, including Cooperative Education, at the end of the semester is required. Students must be employed or volunteering/interning in order to participate in program.

Student Learning Outcome(s):

The student will develop at least three learning objectives to be accomplished on the job. The objectives will be related to the educational/occupational goals of the student.

ENGINEER-OPERATOR/MAINTENANCE

OPMAINT 228 STEAM PLANT OPERATION I (6)

Lecture: 6 hours

Related engineering information concerning high pressure steam plants in office buildings and industrial establishments are studied in this course. Emphasis is given to steam power plant, use of steam tables, types of boilers, construction of boilers, boiler accessories, settings for combustion equipment and heating surfaces; operation of steam boilers and the combustion of fuels.

Student Learning Outcome(s):

SLO #1 Gather information on the various components of a boiler system. SLO #2 Critically analyze and then organize information on the application of boiler devices and or systems.

OPMAINT 229 STEAM PLANT OPERATION II (6)

Lecture: 6 hours

Instruction is given in steam engines, valve operating mechanisms and governors, and operating characteristics of steam engines. Course covers steam turbines, pumps, and auxiliary power plant equipment, steam plant efficiencies, boiler water treatment, troubleshooting, and power transmission. Completion of this second course prepares trainee to take Los Angeles City examination for steam engineer’s license.

Student Learning Outcome(s):

SLO #1 Gather information on the various components of a boiler system. SLO #2 Critically analyze and then organize information on the application of boiler devices and or systems.
ENGINNER-OPERATOR/MAINTENANCE - APPRENTICE

OPMA AP 100  O.S.H.A. BASED SAFETY STANDARDS:
CONSTRUCTION & INDUSTRY (2)
Lecture: 2 hours

This course provides instruction on industry safety and health rules as it applies to workers and employers within the construction industry. Topics such as fall protection, lock out tag out procedures, PPE, excavations, etc. are covered. Participants that meet the required hourly attendance and successfully pass the final exam will be eligible to receive their OSHA (30 hr) safety-training certificate.

Student Learning Outcome(s):
1. Recognize appropriate training requirements and training methods.
2. Define OSHA specific construction terms such as: competent person, construction work, confined space, working space, general duty clause. 3. Select situational appropriate PPE.

OPMA AP 703  ENERGY MANAGEMENT (4)
Lecture: 4 hours

The computer’s use in the HVACR industry and the application of energy management technology in the improvement of energy efficiencies. The goal is to prepare the maintenance engineer to use of modern technology, including computers in the continuing quest for improved energy management.

Student Learning Outcome(s):
SLO #1 Gather information on the various components of an energy management system. SLO #2 Critically analyze and then organize information on the application of a energy management system. SLO #3 Properly apply the English language to write an explanatory paper about rationals for using computers in the continuing quest for improved energy management.

OPMA AP 704  ELECTRIC MOTOR CONTROL I FOR
APPRENTICES (2)
Lecture: 1 hour / Lab: 3 hours

This course provides instruction in basic motor control fundamentals, including the basic function of controlling devices, review of basic motors, selection of motors and definitions. The class will discuss definitions for controller components and symbols, familiarization of N.E.M.A. standards and review of one-line, wiring and schematic diagrams. The class will also introduce the use of digital controllers for use in industry.

Student Learning Outcome(s):
SLO #1 Gather information on the various components of a motor control system. SLO #2 Critically analyze and then organize information on the application of motor control systems. SLO #3 Properly install various motor control systems. Relates to OPMA AP Program SLO: #3: Work independently & interdependently to accomplish a shared professional outcome. Relates to CDM Department PLO’s: #1. Locating Information. #2. Reading for information. #4 Working safely with tools. Relates To College Core SLOs: A: Critical Thinking D: Communications.

OPMA AP 720  HVACR I (2)
Lecture: 1 hour / Lab: 3 hours

An introduction to the Principles and practices for the installation and maintenance of residential, commercial, and industrial heating, air conditioning, ventilation, and refrigerations systems. Equipment selection, maintenance, and safety will be covered.

Student Learning Outcome(s):
SLO #1 Gather information on the various components of a HVACR system. SLO #2 Critically analyze and then organize information on the application of HVACR equipment. SLO #3 Properly install various HVACR systems. Relates to OPMA AP Program SLO: #3: Work independently & interdependently to accomplish a shared professional outcome. Relates to CDM Department PLO’s: #1. Locating Information. #2. Reading for information. #4 Working safely with tools. Relates To College Core SLOs: A: Critical Thinking D: Communications.

OPMA AP 724  FUNDAMENTALS OF ELECTRICITY (2)
Lecture: 1 hour / Lab: 3 hours

This course covers the basic principles and practices of A/C & D/C electricity. Analyzing series, parallel and complex circuits, using Ohm’s law, the power equation, Kirchoff’s laws, and other applicable laws and equations.

Student Learning Outcome(s):
SLO #1 Gather information on the various components of a circuit analysis. SLO #2 Critically analyze and then organize information on the application of a circuit analysis. SLO #3 Construct various electrical circuits. Relates to OPMA AP Program SLO: #3: Work independently & interdependently to accomplish a shared professional outcome. Relates to CDM Department PLO’s: #1. Locating Information. #2. Reading for information. #4 Working safely with tools. Relates To College Core SLOs: A: Critical Thinking D: Communications.

OPMA AP 727  INDUSTRIAL MECHANICS FOR
APPRENTICES (2)
Lecture: 1 hour / Lab: 3 hours

Principles and practices for application of electro mechanics in environmental and manufacturing process control. The course will cover the use of devices and equipment in the control of industrial production and the maintenance of a healthy and comfortable environment in buildings.

Student Learning Outcome(s):
SLO #1 Gather information on the various components of a mechanical system installation. SLO #2 Critically analyze and then organize information on the application of a mechanical system installation. SLO #3 Construct or troubleshoot various mechanical systems. Relates to OPMA AP Program SLO: #3: Work independently & interdependently to accomplish a shared professional outcome. Relates to CDM Department PLO’s: #1. Locating Information. #2. Reading for information. #4 Working safely with tools. Relates To College Core SLOs: A: Critical Thinking D: Communications.

OPMA AP 739  LOCKSMITHING AND SECURITY SYSTEMS
FOR APPRENTICESHIP (4)
Lecture: 4 hours

This course is for the beginner. It is designed to teach a facilities maintenance worker how to perform in house locksmithing in a realistic and practical way. Topics will include: preventative maintenance, basic locksmithing tools, keys and locking devices, parts of a key, master key systems, installing basic lock sets, ‘Warded & Leer’ tumbler, side bar wafer locks, electromagnetic locks, electric strikes and key coding machines.
OPMA AP 740  TENANT RELATIONS AND REPORTS FOR APPRENTICES (4)
Lecture: 4 hours

The techniques used in maintaining wholesome and mutually beneficial relations with tenants and others is the primary purpose of this course. The need to understand the needs of all persons associated with a building is stressed. Instruction in the use of systems to maintain records and deliver timely and accurate reports is provided.

Student Learning Outcome(s):
SLO #1 Gather information on the various of good tenant relations. SLO #2 Critically analyze and then organize information on tenant relations. Relates to OPMA AP Program SLO: #3: Work independently & interdependently to accomplish a shared professional outcome. Relates to CDM Department PLO's: #1. Locating Information. #2. Reading for information. Relates To College Core SLOs: A: Critical Thinking D: Communications.

OPMA AP 744  HVACR CONTROL SYSTEMS (2)
Lecture: 1 hour / Lab: 3 hours

This course provides an introduction to the principles and practices for the installation and maintenance of residential, commercial, and industrial heating, air conditioning, ventilation, and refrigeration control systems. System control equipment selection, maintenance, and safety will be covered.

Student Learning Outcome(s):
SLO #1 Gather information on the various components of a HVACR system. SLO #2 Critically analyze and then organize information on the application of HVACR controls equipment. SLO #3 Properly install various HVACR control systems. Relates to OPMA AP Program SLO: #3: Work independently & interdependently to accomplish a shared professional outcome. Relates to CDM Department PLO's: #1. Locating Information. #2. Reading for information. #4. Working safely with tools. Relates To College Core SLOs: A: Critical Thinking D: Communications.

OPMA AP 745  PLUMBING CODE (4)
Lecture: 4 hours

Instruction in plumbing codes and ordinances that affect rough-in work in city and county areas; installation of wastes, vents, clean outs, traps, gas fittings, and gas vents: water pipe requirements.

Student Learning Outcome(s):
SLO #1 Gather information on the various aspect of the international plumbing code. SLO #2 Critically analyze and then organize information on the application of the international plumbing code. Relates to OPMA AP Program SLO: #3: Work independently & interdependently to accomplish a shared professional outcome. Relates to CDM Department PLO's: #1. Locating Information. #2. Reading for information. Relates To College Core SLOs: A: Critical Thinking D: Communications.

OPMA AP 746  MAINTENANCE PLUMBING PRINCIPLES & PRACTICES (2)
Lecture: 1 hour / Lab: 3 hours

The course will provide instruction in plumbing principles and common practices. Theory and hands on application will be applied on various common maintenance plumbing installations and repairs operations.

Student Learning Outcome(s):
SLO #1 Gather information on the various components of a plumbing system installation. SLO #2 Critically analyze and then organize information on the application of plumbing devices and code for a basic plumbing system installation. SLO #3 Construct or troubleshoot various plumbing system applications. Relates to OPMA AP Program SLO: #1 Locate information #2 Reading for information #3 Work independently & interdependently to accomplish a shared professional outcome. #4 Work Safely with Tools. Relates to CDM Department PLO's: #1. Locating Information. #2. Reading for information. #4 Working safely with tools. Relates To College Core SLOs: A: Critical Thinking D: Communications

OPMA AP 747  ELECTRICAL TROUBLESHOOTING (2)
Lecture: 1 hour / Lab: 3 hours

This course covers the basic principles and practices of electrical equipment and system troubleshooting. Proper use of tools and safety equipment will be covered.

Student Learning Outcome(s):
SLO Construct and troubleshoot various applications of electrical systems. Relates to OPMA AP Program SLO: #3: Work independently & interdependently to accomplish a shared professional outcome. #4: Work safely with tools. Relates to CDM Department PLO's: #2. Reading for information. #4. Working safely with tools. Relates To College Core SLOs: A: Critical Thinking.

OPMA AP 748  ELECTRICAL CODES & ORDINANCES (NEC) (4)
Lecture: 4 hours

This course will introduce students to basic rule for the electrical trade. General codes, wiring methods and fittings, and circuits requirements specified in the various codes and ordinances will be covered.

Student Learning Outcome(s):
SLO 1. List electrical codes by topic and article. SLO 2. Identify topic specific electrical code requirements such as: service size, circuit protection, branch circuits, and box sizing. SLO 3. Interpret various electrical codes applied to various electrical installation examples.

OPMA AP 749  HVACR II (2)
Lecture: 1 hour / Lab: 3 hours

This course introduces advanced principles and practices for the installation and maintenance of residential, commercial, and industrial heating, air conditioning, ventilation, and refrigeration systems. Equipment selection, maintenance, and safety will be covered.

Student Learning Outcome(s):
SLO #1 Gather information on the various components of a HVACR system installation. SLO #2 Critically analyze and then organize information on the application of a HVACR system installation. SLO #3 Construct or troubleshoot various HVACR systems. Relates to OPMA AP Program SLO: #3: Work independently & interdependently to accomplish a shared professional outcome. #4: Work safely with tools. Relates To College Core PLO's: #4 Working safely with tools. Relates To College Core SLOs: A: Critical Thinking.
**OPMA AP 750**  INDOOR AIR QUALITY (4)

Lecture: 4 hours

This course emphasizes on operation of systems to provide quality air to indoor environments. AQMD requirements and pending regulations are reviewed. Organizing and implementing maintenance programs that include indoor air quality assessment and air balancing HVAC systems are covered.

Student Learning Outcome(s):

SLO 1. Discuss the health aspects of IAQ. SLO 2. Discuss airflow as it relates to IAQ. SLO 3. Discuss chemicals that can have a negative impact on IAQ.

**OPMA AP 751**  PRINT READING (4)

Lecture: 4 hours

This course covers instruction in basic blueprint reading including symbols identification. Various drawing types, the information contained, and the primary uses for each type of drawing will be covered.

Student Learning Outcome(s):

SLO #1 Gather information from various types of blueprints. SLO #2 Critically analyze and then organize information gathered from various types of blueprints and related documentation. Relates to OPMA AP Program SLO: #3. Work independently & interdependently to accomplish a shared professional outcome. Relates to CDM Department PLO’s: #1. Locating Information. #2. Reading for information. Relates To College Core SLOs: A: Critical Thinking D: Communication.

**OPMA AP 753**  BOILERS FOR APPRENTICES (4)

Lecture: 4 hours

Related engineering information concerning high pressure steam plants in office buildings and industrial establishments are studied in this course. Emphasis is given to steam power plant, use of steam tables, types of boilers, construction of boilers, boiler accessories, settings for combustion equipment and heating surfaces; operation of steam boilers and the combustion of fuels.

Student Learning Outcome(s):

SLO #1 Gather information on the various components of a boiler system. SLO #2 Critically analyze and then organize information on the application of boiler devices and or systems. Relates to OPMA AP Program SLO: #3. Work independently & interdependently to accomplish a shared professional outcome. Relates to CDM Department PLO’s: #1. Locating Information. #2. Reading for information. Relates To College Core SLOs: A: Critical Thinking D: Communication.

**ENGINEERING, ELECTRICAL**

**ENG ELC 101**  INTRODUCTION TO ELECTRICAL ENGINEERING (3)

Lecture: 3 hours

An overview of the major fields that comprise the Electrical Engineering discipline which will inform students about the various offerings within the major. Key concepts include the fundamentals of Direct Current and Alternating Current, power systems, communication, digital logic, computers, digital signal processing and semiconductors. Students will learn the basic aspects of how to communicate effectively as a professional engineer, including the importance of working as a team to complete a project. The ethical responsibilities of professional engineers will be explored.

**ENGINEERING, GENERAL**

**ENG GEN 101**  INTRODUCTION TO SCIENCE, ENGINEERING AND TECHNOLOGY (2) UC/CSU

Lecture: 1 hour / Lab: 2 hours

Students learn about the engineering method and strategies for academic and career success in engineering. Students are introduced to mechanical, civil, electrical, and computer systems engineering through project work. The vast range disciplines and opportunities in engineering are presented. Students are allowed to work collaboratively on some course assignments and in-class design projects. Only basic mathematics skills are required.

Student Learning Outcome(s):

1. Student will identify and distinguish between different fields of engineering by researching information about them and further select one of them as a career. 2. Student will identify effective methods to study engineering and demonstrate it in a team setting. 3. Student will demonstrate the knowledge of preparing an educational plan. 4. Students will be able to discuss the importance of ethics in engineering and show awareness of professional codes of conduct. 5. Students will employ campus resources including: library, career center, learning center, counseling and financial aid to succeed in their educational road map in an engineering transfer program.

**ENG GEN 122**  PROGRAMMING AND PROBLEM-SOLVING IN MATLAB (3) UC/CSU

Lecture: 2 hours / Lab: 3 hours

Prerequisite: Math 265

This course utilizes the MATLAB environment to provide students with a working knowledge of computer-based problem-solving methods relevant to science and engineering. It introduces the fundamentals of procedural and object-oriented programming, numerical analysis, and data structures. Examples and assignments in the course are drawn from practical applications in engineering, physics, and mathematics.

Student Learning Outcome(s):

1. Student will create, test and debug sequential MATLAB programs, as well as programs that use object-oriented techniques, in order to achieve computational objectives. 2. Student will apply numeric techniques and computer simulations to analyze and solve engineering-related problems. 3. Student will use MATLAB effectively to analyze and visualize data.

**ENG GEN 131**  STATICS (3) UC/CSU

Lecture: 2 hours / Lab: 3 hours

Prerequisite: Math 265, Physics 001

Course covers vector analysis in one, two and three dimensions. Solution of problems involving forces and moments applied to bodies in static equilibrium. Determine centroids, areas, volumes and moments of inertia. Course includes analysis of forces acting on trusses, frames, and machines. Analytic and graphic solutions are used.

Student Learning Outcome(s):

1. Student will setup a Free Body Diagram (FBD) and show all external forces, reactions, constraints and moments. 2. Student will learn how to apply the equilibrium conditions and solve statically determinant problems. 3. Student will be to calculate and show Load (Force), Shear and Moments diagrams.

Los Angeles Trade-Technical College 2018 - 2020 GENERAL CATALOG
ENG GEN 151  MATERIALS OF ENGINEERING (3) UC/CSU
Lecture: 3 hours
Prerequisite: Chemistry 101 & Physics 1

This course is an introduction to materials science and engineering and different types of materials used in engineering design, emphasizing the relationships between structure, properties, and processing. Topics include: Atomic structure and bonding, atomic and ionic arrangements and imperfections, crystalline structures, metals, polymers, ceramics, composites including diffusion or atom and ion movements in materials, and mechanical properties and fracture including strain hardening and annealing. An illustration of the materials’ fundamental differences and their application in engineering is also covered.

Student Learning Outcome(s):
1. Student will be able to classify materials according to structure and be able to comment on how the properties of a particular class of materials are related to their atomic, micro and macro structure. 2. Student will understand how materials behave under load and to understand the technical nomenclature used for describing the empirical behavior of materials under load. 3. Student will use published materials data to choose the best material for an application and to make estimates of component size. 4. Student will understand the different forming and processing techniques that are commonly used in industry in terms of their effect on the structure of the material and the resulting influence on physical properties.

ENG GEN 220  ELECTRICAL CIRCUITS I (4) UC/CSU
Lecture: 3 hours / Lab: 2 hours
Prerequisite: Math 267, Physics 003; Corequisite: Math 275

This course covers electric circuit analysis in time and frequency domains, transient, and steady state solutions. Topics include linear circuit analysis techniques, Kirchhoff’s Laws, Network Theorems, mesh and nodal analysis, OP amps and amplifiers, Thévenin/Norton equivalents circuits, natural-forced-complete response of RLC circuits, AC circuits, phasors, three phase power, and frequency response and resonance. The laboratory includes experimental verification of the laws of AC and DC circuits, Kirchhoff’s laws, and Thévenin’s theorem using instruments such as multimeter, oscilloscopes, and signal generators.

Student Learning Outcome(s):
1. Student will analyze DC & AC circuits to find current, voltage, resistance, power, and energy. 2. Student will draw and label circuit diagrams and show thorough mathematical solutions. 3. Student will apply and solve problems with different circuit analysis techniques and demonstrate a process for selecting an appropriate technique for a given problem.

ENG GEN 231  DYNAMICS (3) UC/CSU
Lecture: 2 hours / Lab: 3 hours
Prerequisite: ENG GEN 131

This course covers fundamentals of kinematics and kinetics of particles and rigid bodies. Topics include kinematics of particle motion, Newton’s second law, work-energy and momentum methods, kinematics of planar and three-dimensional motions of rigid bodies, work-energy and momentum principles for rigid body motion, and an introduction to mechanical vibrations.

Student Learning Outcome(s):
1. Student will sketch free-body and kinetic diagrams by isolating rigid bodies and vectorially solve 2-D and 3-D kinematics and dynamics problems. 2. Student will apply Newton’s second law to drive and analyze the equations of motion of a particle, a system of particles, and a rigid body in motion. 3. Student will employ the conservation laws or principles of motion in mechanics i.e., Law of Conservation of Energy, Law of Conservation of Momentum (linear and angular), Impact Theory and principals of Relative Motion to solve dynamics problems, as an alternative method to Newton’s laws of motion.
Understanding your English Assessment Results

To earn your associate degree at LATTC or to transfer to a university to obtain a bachelors degree, you will need to complete the English competency, English 101: College Reading and Composition I.

You will need to complete an assessment to determine your best placement in the English course sequence. This may require more than one semester. Because college courses require intense reading and writing, you are encouraged to enroll in English your first semester.

English Course Sequence

TRANSFER LEVEL:
Demonstrate proficiency in understanding theme and concept as well as critical thinking skills applied to various readings. Write college-level essays and projects, using a variety of communication strategies.

ONE LEVEL BELOW TRANSFER:
Critically assess and summarize readings. Write essays and projects that integrate readings and are focused, developed and organized.

TWO LEVELS BELOW TRANSFER:
Continued practice in reading critically; distinguishing main ideas from supporting details. Write essays that demonstrate development and organization of ideas.

Option 1

English 101
College Reading & Composition
3 units
UC: CSU

English 28
Intermediate Reading & Composition
3 units

English 100
Accelerated Prep: College Writing
3 units

Option 2

Students may achieve English 28 and/or English 100 competencies and take a challenge exam to advance to English 101.

Post Fall 2018, revisions regarding assessment can be found online.
ENGLISH

ENGLISH 021 ENGLISH FUNDAMENTALS (3)
Lecture: 3 hours

Prerequisite: Placement Exam or Learning Skills 2C or Basic Skills 2CE

This course focuses on the fundamentals of academic reading, writing, and critical thinking. It reinforces basic skills such as the correct use of punctuation, spelling, and sentence structure. Students incorporate these skills, along with sentence combining techniques, to write single paragraph responses progressing to short essays (250-500 words) that have an introduction, body, and conclusion.

Student Learning Outcome(s):
1. Write a mechanically-sound timed-in class 5-paragraph essay. 2. Write a brief (500-600 word) research paper, demonstrating rudimentary MLA format.

ENGLISH 028 INTERMEDIATE READING AND COMPOSITION (3)
Lecture: 3 hours

Prerequisite: English 21, English 100 or Placement Exam

In this course, students plan, draft, revise, and edit compositions of increasing sophistication and complexity, progressing from multi-paragraph essays to research projects. Writing is based primarily on non-fiction college-level readings. With accelerated preparation for the English 101 Challenge Exam, this course prepares students for either English 28 or English 101 based on achievement of identified competencies.

Student Learning Outcome(s):
1. Write a well developed, coherent timed essay. Write a 4-6 page research paper, demonstrating MLA format and citations.

ENGLISH 046 READING AND STUDY IMPROVEMENT (3)
Lecture: 3 hours

Students review reading skills and strategies necessary for college success, including reading for main ideas, determining organizational patterns of details presented, and drawing logical conclusions in paragraphs and short essays. Readings and vocabulary study skills are 9th grade to college level. Students are introduced to more critical reading skills (determining author’s purpose, tone, point of view, and intended audience) and literacy concepts (interpreting figures of speech, characterization, plot, setting, and theme).

Student Learning Outcome(s):
1. Read and retain information from selected texts at a 70% minimum score. 2. Read and analyze college-level texts.

ENGLISH 100 ACCELERATED PREP: COLLEGE WRITING (3)
Lecture: 3 hours

This class prepares students for academic reading, critical thinking, and writing expected in career/technical pathways, transfer and associate-degree classes. Students plan, draft, revise, and edit compositions of increasing sophistication and complexity, progressing from paragraphs to multi-paragraphs to research projects. Writing is based primarily on non-fiction college-level readings. With accelerated preparation for the English 101 Challenge Exam, this course prepares students for either English 28 or English 101 based on achievement of identified competencies.

Student Learning Outcome(s):
1. Write a well developed, coherent timed essay that demonstrates skills needed for English 28. 2. Write a 750-word research paper, demonstrating ability to synthesize, analyze and evaluate ideas and sources, showing familiarity with MLA format and citations. English 101 promotion: Write a well developed, coherent timed essay that demonstrates skills needed for English 101. And write a 1000 to 1500-word research paper, demonstrating ability to synthesize, analyze and evaluate ideas and scholarly sources, showing competency using MLA format and citations.

ENGLISH 101 COLLEGE READING AND COMPOSITION I (3) UC/CSU
Lecture: 3 hours

Prerequisite: English 28 or ESL 8

In English 101, students extend their knowledge of the principles and structure of academic reading beyond the level of English 28 through the practice of writing essays and the analysis of non-fiction and select short and full-length fiction. The course includes an introduction to persuasive discourse, research skills, critical reading and thinking, and argumentation. Various compositions and extensive research assignments are required. English 101 fulfills the writing requirement for the Associate of Arts and Sciences degree and fulfills the transfer requirement to a four-year college.

Student Learning Outcome(s):
1. Write a well-developed, coherent, and unified timed essay that demonstrates interpretive, critical thinking, and analytical skills based on a written text. 2. Write a research paper (1250 to 1750 words of text) demonstrating critical thinking and analytical skills, and showing inclusion of credible sources and mastery of recognized documentation style.

ENGLISH 102 COLLEGE READING AND COMPOSITION II (3) UC/CSU
Lecture: 3 hours

Prerequisite: English 101;

This course develops critical thinking, reading, and writing skills beyond the level achieved in English 101. It emphasizes logical reasoning, analysis, and strategies of argumentation using literature and theories of literary criticism. Evaluations are made of texts that reveal the multicultural/global aspects of society, which include traditional and contemporary forms in fiction, poetry, essays, and drama.

Student Learning Outcome(s):
1. Analyze a literary work that employs themes and theories, using MLA citation, emphasizing student interpretation not synthesis of sources. Write an in-class essay.

ENGLISH 103 COMPOSITION AND CRITICAL THINKING (3) UC/CSU
Lecture: 3 hours

Prerequisite: English 101;

This course is designed to help students clarify and refine their thinking and reasoning processes, allowing them to more effectively solve problems and analyze complex issues. Students will develop skills in critical thinking, reading, and writing, which will help them succeed in their other academic coursework, regardless of discipline. Writing assignments will emphasize critical analysis and argumentation, and readings will reflect diverse points of view and cultures.
ENGLISH 127  CREATIVE WRITING (3) UC/CSU
Lecture: 3 hours
Prerequisite: English 101

This introductory workshop offers writers accessible, hands-on exercises in crafting poetry, personal narratives, short stories, and screenplays. Content includes analysis of select prose, poetry and basic vocabulary related to structure, form, genre and style, with special focus on in-class peer critiques and revision as an integral component of the writing process.

Student Learning Outcome(s):
1. Compose a variety original writings that reflect creative modes, multiple genres, and multiple techniques. 2. Analyze, interpret, and critique writings of published authors and fellow students.

ENGLISH 203  WORLD LITERATURE I (3) UC/CSU
Lecture: 3 hours
Prerequisite: English 101;

This course surveys world literature in translation, including representative selections from Asian, Greek, and Latin literature, and European masterpieces of the Middle Ages and Renaissance, and the Bible.

Student Learning Outcome(s):
1. Analyze a selection of world literature in its literary significance, cultural and historical context. 2. Discuss literary works as they relate to their political and social contexts.

ENGLISH 205  ENGLISH LITERATURE I (3) UC/CSU
Lecture: 3 hours
Prerequisite: English 101; Advisory: English 102;

This course is a chronological survey of the English language, literary forms, and ideas from the Anglo-Saxon period through the eighteenth century (Old English to the Neoclassical period), with special attention to Chaucer, Spenser, Shakespeare, Milton, Dryden, Pope, Swift, and Johnson as representatives of their respective periods. Extensive reading and discussion of works. Strong writing component and emphasis on textual analysis. Examination of the relationship between historical events and literary works.

Student Learning Outcome(s):
1. Student will demonstrate familiarity with important authors, works, genres, and themes of the period. 2. Student will analyze and interpret themes found in the literature and intellectual movements of the period. 3. Student will demonstrate understanding of an appropriate academic discourse and the conventions of critical literary analysis. 4. Student will relate the literary works to their historical, philosophical, social, political and/or aesthetic contexts.

ENGLISH 206  ENGLISH LITERATURE II (3) UC/CSU
Lecture: 3 hours
Prerequisite: English 101;

Course will consist of a chronological survey of major authors and texts of British literature from the Romantic period, the Victorian Age, The Twentieth Century, and after. There is extensive reading and discussion of works as well as a strong writing component and emphasis on textual analysis, including examination of the relationship between historical events and literary works.

Student Learning Outcome(s):
1. Demonstrate familiarity with important authors, works, genres, and themes of the period; and analyze themes found in the literature and intellectual movements of the period. 2. Relate the literary works to their historical, philosophical, social, and aesthetic contexts.

ENGLISH 207  AMERICAN LITERATURE I (3) UC/CSU
Lecture: 3 hours
Prerequisite: English 101;

This course surveys American literature from 1600 to the Civil War, emphasizing major writers and works, as well as writers who suggest the diversity of subject and opinion in American literature.

Student Learning Outcome(s):
SLO 1 Demonstrate an understanding of the contexts historical, intellectual, social, and cultural on a broad range of American literature from the Colonial Period to the Civil War Period. SLO 2 Identify literary figures and works, including those of the traditional canon as well as culturally diverse and often over-looked voices.

ENGLISH 208  AMERICAN LITERATURE II (3) UC/CSU
Lecture: 3 hours
Prerequisite: English 101;

This survey of American literature from the Civil War period to the present emphasizes major writers and works in order to understand, appreciate, and investigate multicultural influences within national identity.

Student Learning Outcome(s):
1. Demonstrate an understanding of the contexts historical, intellectual, social, and culturally diverse voices on a broad range of American literature from the Colonial Period to the Civil War Period. SLO 2 Identify major literary figures and their works in the period. 3. Assess the historical development and cultural impact of themes that recur in American literature.

ENGLISH 212  POETRY (3) UC/CSU
Lecture: 3 hours
Prerequisite: English 101;Prerequisite: English 101;

English 212 features the reading, discussion, and analysis of selected American, British, and world poetry. Students will also write poetry. The course is designed to increase the students' understanding and enjoyment of poetry.

Student Learning Outcome(s):
Demonstrate knowledge of voice, imagery, and poetic conventions of form and sound, using original language. Effectively analyze poetry in light of historical context, critical theories, and/or formal elements.

ENGLISH 215  SHAKESPEARE I (3) UC/CSU
Lecture: 3 hours
Prerequisite: English 101; Advisory: English 102;

Course introduces students to Shakespeare's prose and poetry through...
several major plays and sonnets with an additional examination of Elizabethan England and the relationship between historical events and literary works. Course features a strong reading and writing component with an emphasis on class discussion, research and textual analysis.

Student Learning Outcome(s):

1) understand dramatic technique and nuances of language in Shakespearean poetry and drama 2) recognize and analyze Shakespearean use of genre (Comedy, History, Tragedy, Romance), theme, character, setting, humor and allusion 3) Compare and interpret Shakespearean drama through theatrical presentation.

240 LITERATURE AND THE MOTION PICTURE I (3) UC/CSU

Lecture: 3 hours

Prerequisite: English 101.

This course is designed to give the student opportunities to view, analyze, and evaluate films of artistic and cultural significance. The relationship between literature and film is discussed and evaluated.

Student Learning Outcome(s):

In creating an analysis of both media, students will locate research materials on various works, issues, ideas in texts and online. Students will demonstrate an understanding of MLA format and source documentation in their essays.

ENVIRONMENTAL DESIGN

ENV 101 FOUNDATIONS OF DESIGN I (3) UC/CSU

Lecture: 2 hour / Lab: 3 hours

Students develop creative, conceptual and analytical skills by creating simple to complex two and three dimensional projects based on nature systems and structural integrity. Connections between movement, rhythm, cycle, kinematics and mathematical formulation are explored in class as a foundation for smart spaces. Students will learn to properly communicate architectural concepts through drawings, renderings, physical models, and computer 3-D modeling. Form and space design principles, theories, order and methodologies are explored and incorporated into student projects. Process and procedures are applied to personal innovative projects inspired by Gaudi, Buckminster Fuller, Frank Lloyd Wright and Peter Eiseman. The profession of architecture and its relationship to others for the life cycle and sustainable synergy in the AEC Industry (Architecture, Engineering and Construction) are defined. This course is critical for students interested in pursuing a higher degree in architectural or a related design field. Students will also create an e-portfolio of their work.

Student Learning Outcome(s):

1. Students will identify patterns found in nature. 2. Students will apply natures patterns in developing structural design model compositions. 3. Students will develop drawing using balance, rhythm, cycles, movement and mathematical formulation.

ENGLISH

ENVIRONMENTAL SCIENCE

ENV SCI 001 THE HUMAN ENVIRONMENT: PHYSICAL PROCESSES (3) UC/CSU

Lecture: 3 hours

A comprehensive study of how our environmental life support systems work, how we impact them, the social, economic and political factors that are the ultimate cause of these problems and possible solutions.

Student Learning Outcome(s):

Upon successful completion of the course, the student will be able to: 1. Describe the scientific method, the nature of scientific inquiry and apply the scientific process to assess real world problems and situations. 2. Discuss the status of environmental quality and pollution, and suggest possible remediation of problems. 3. Discuss the interrelationship between the environment and society including at least 3 influences from economics, aesthetics, culture, ethics, and/or law.

FASHION DESIGN

FASHDSN 111 CLOTHING CONSTRUCTION (5) CSU

Lecture: 2.5 hours / Lab: 7.5 hours

The students will be given instruction in single needle machine operation, sewing technique projects, garment assembly projects, occupational information and method of evaluation and relationship to the Fashion Industry. Basic information needed for entry level employment is provided.

Student Learning Outcome(s):

Student will compile a notebook consisting of industry construction techniques. Student will construct a trouser pant. Student will construct a button front shirt.

FASHDSN 112 BASIC FASHION ART AND DESIGN (5) CSU

Lecture: 2.5 hours / Lab: 7.5 hours

Instruction includes drawing the women’s fashion figure, drawing children and men’s figures, flats, various styles and details. Introduction to color, design theory, fabric properties and rendering. Merchandising a garment line.

Student Learning Outcome(s):

Student will draw a group of technical flat sketches. Student will develop a portfolio of drawings.

FASHDSN 118 ADVANCED CLOTHING CONSTRUCTION (2) CSU

Lecture: 1 hour / Lab: 3 hours

Prerequisite: Fashion Design 111;

The objective of this course is to advance the sewing skills of students using specialized machinery. Students will construct garments using knit fabric, lycra/spandex, and Chiffon.
FASHDSN 119A  
**HISTORY OF COSTUME I (1.5) CSU**  
*Lecture: 1.5 hours*

This course offers an overview of the evolution of fashion from its beginnings in the ancient world through the Baroque and Rococo Eras. Cross cultural influences on fashion through wars, trade, travel, immigration, and communication will be discussed.

**Student Learning Outcome(s):**

- Students will create a presentation board tracing the historical and or cultural influences of a present day garment.

FASHDSN 119B  
**HISTORY OF COSTUME II (1.5) CSU**  
*Lecture: 1.5 hours*

This course will examine events of each period between 1800 and the present and their influence on fashion. Emphasis is placed upon fabrications and silhouettes which represent each period. The ongoing influence of vintage fashion, on contemporary design, will be analyzed.

**Student Learning Outcome(s):**

- Students will write a research paper including multiple media resources, a bibliography and the option of including visual elements.

FASHDSN 120  
**BASIC PATTERN MAKING & DESIGN (5) CSU**  
*Lecture: 2.5 hours / Lab: 7.5 hours*

*Prerequisite: Fashion Design 111; Fashion Design 112.*

Instruction is given in torso, jacket and pant blocks, sleeves-in-one with darts, yoke styles, torso styles, and bodice silhouettes.

**Student Learning Outcome(s):**

- Student will execute a pattern and garment utilizing basic pattern manipulations. Student will design and create a sketch for an original dress style from inspiration boards.

FASHDSN 122  
**GRADING AND MARKER MAKING (5)**  
*Lecture: 2.5 hours / Lab: 7.5 hours*

Instruction is given in grading the basic block, multi-patterns, the complete pattern for men, women and children, in a variety of sizes, make a marker, manipulate the one and two darts block, draft the basic dart positions, demonstrate the slash and pivot methods, draft extensions, button placement and facing.

**Student Learning Outcome(s):**

- Student will grade a princess style pattern including facings. Student will grade a styled dress including stylized darts and facings. Student will use industry related software procedures to grade basic patterns.

FASHDSN 125A  
**TEXTILES (1.5) CSU**  
*Lecture: 1.5 hours*

This course will introduce design students to fabrications and their appropriate styling. Fabrics discussed will include cottons, woolens, synthetics, and organics as well as support fabrications. Care and handling along with machinery for construction will be covered in this course.
FASHDSN 137  BUSTIER CREATION (2) CSU
Lab: 6 hours

Research historical bustier (corset foundation) designs and construction methods and adapt them to create currently fashionable bustiers. Fundamentals of evening dress foundation.

Student Learning Outcome(s):
Students will be able to drape and fit an evening dress foundation block to fit a form and construct an evening dress foundation with pads and bones.

FASHDSN 138  TAILORING TECHNIQUES FOR READY TO WEAR (2) CSU
Lab: 4 hours

The objective of this course is to advance the tailoring skills of fashion design students. Instruction will be given on preparation and cutting of fabric, basic hand stitching, the use of steam pressing equipment, and basic elements of tailored apparel.

Student Learning Outcome(s):
Students will construct a lined jacket incorporating required elements.

FASHDSN 139  COORDINATED SPORTSWEAR (2) CSU
Lecture: 1 hour / Lab: 3 hours

Prerequisite: Fashion Design 132; Advisory: Fashion Design 118; Fashion Design 136;

Instruction is given in the specialized area of activewear. Focusing on fabrication, design, inner-construction, and sewing techniques. The student will draft basic pattern blocks, design and construct activewear garments.

Student Learning Outcome(s):
Students draft and correct a basic dartless knit block to their personal measurements and body alignment using stretch reduction calculations.

FASHDSN 140  ADVANCED DRAPING & DESIGN (2) CSU
Lecture: 1 hour / Lab: 2 hours

Prerequisite: Fashion Design 130;

This course includes the draping of selected garment types & style innovations. Students use either muslin or fashion fabric according to design and fabrication. Original designs are created & executed in fabric.

Student Learning Outcome(s):
Students will drape and create a bias gown inspired by Vionette including a complete pattern. Student will drape and create an advanced style contemporary jacket using innovative style lines and will draft a complete pattern.

FASHDSN 141  ADVANCED DESIGN (5) CSU
Lecture: 2.5 hours / Lab: 7.5 hours

Prerequisite: Fashion Design 130 and Fashion Design 132;

Instruction is given in knit blocks, specialized fabrics, dartless blocks, knock-offs, and specialized projects relating to current trends.

Student Learning Outcome(s):
Student will replicate an intricate pant style including a complete pattern and finished garment. Student will design and create a swim suit using industry required fabrications and draft of complete pattern. Student will design and construct a cocktail dress in appropriate assigned fabrications using drafting and draping techniques and complete pattern.

FASHDSN 142  MANUFACTURING PRODUCTION (5) CSU
Lecture: 2.5 hours / Lab: 7.5 hours

Prerequisite: Fashion Design 141;

Instruction is given in design and creation of garments for showing to the apparel industry. Included is the creation of children’s and men’s designs along with evening and avant garde styles and the development of a perfect production patterns for a minimum of two ensembles. Field trips, senior evaluation, and job orientation are also included.

Student Learning Outcome(s):
Student will be required to complete two original designs for selected categories to be presented in the department fashion show. Student will be required to present a current resume and demonstrate the ability to interview for a professional position.

FASHDSN 147  FASHION SHOW PRODUCTION (2) CSU
Lecture: 1.5 hours / Lab: 1.5 hours

Prerequisite: Fashion Design 141;

Instruction is given on developing a theme and overall concept for presenting a fashion show. Topics include history of fashion presentations, model selection, fitting, stage design and execution plus behind the scenes production of a department fashion show.

Student Learning Outcome(s):
Formulate a fashion show production plan including: a preliminary budget, venue description, and show categories.

FASHDSN 148  ACTIVEWEAR DESIGN (2) CSU
Lab: 6 hours

Prerequisite: Fashion Design 132 or Fashion Design 225 and 226

Instruction is given in the specialized area of activewear. Focusing on fabrication, design, inner-construction, and sewing techniques. The student will draft basic pattern blocks, design and construct activewear garments.

Student Learning Outcome(s):
Students draft and correct a basic dartless knit block to their personal measurements and body alignment using stretch reduction calculations.

FASHDSN 151  ADVANCED FASHION ART AND DESIGN (2) CSU
Lecture: 1 hour / Lab: 2 hours

Prerequisite: Fashion Design 112;

Instruction is given on developing a theme and overall concept for presenting a fashion show. Topics include history of fashion presentations, model selection, fitting, stage design and execution plus behind the scenes production of a department fashion show.

Student Learning Outcome(s):
Formulate a fashion show production plan including: a preliminary budget, venue description, and show categories.
FASHDSN 185  DIRECTED STUDY - FASHION DESIGN (1)
Lecture: 1 hour

This course allows students to pursue directed study in Fashion Design on a contract basis under the direction of a supervising instructor. Students must be enrolled in at least one fashion course to take this class.

Student Learning Outcome(s):
The outcome will vary depending on the contract with the instructor. The student will formulate a project based on a topic in Fashion Design and related topics.

FASHDSN 222  SAMPLE MAKING AND DESIGN I (2)
Lab: 6 hours

The fundamentals of garment construction using industrial patterns, marker making and industrial power machines. Students are assigned garment projects which demonstrate basic techniques, combining classic with modern manufacturing techniques, with special emphasis on pattern layouts for plaids and prints.

Student Learning Outcome(s):
Students will develop a portfolio of sewing techniques and list the sequence of assembly.

FASHDSN 223  SAMPLE MAKING AND DESIGN II (2)
Lab: 6 hours

The objective of this course is to advance the sewing skills of fashion design students. Students are assigned to create and construct a coordinated group using industrial patterns. Selected blouses, shirts, pants and jacket are made.

Student Learning Outcome(s):
Students execute a coordinated group including a shirt, pant, and jackets. This project will be completed in children’s wear.

FASHDSN 224  SAMPLE MAKING AND DESIGN III (2)
Lab: 6 hours

Instruction is provided on construction and fitting of selected commercial patterns adapted to industry standards. Students receive instruction in the theory of color, line and proportion. They create or select designs suitable to the individual and occasion. Selected soft dressmaker type coats, suits, vests, blouses, and dresses are made.

Student Learning Outcome(s):
Students will execute independent items including a lined vest and jacket, a lined pant or skirt, a shirt or blouse and 1 knit style.

FASHDSN 225  PATTERN MAKING AND DESIGN I (2)
Lab: 6 hours

Advisory: Fashion Design 222;

Entry level class offering instruction in development of a basic block, test fitting, and additional basic pattern making fundamentals.

Student Learning Outcome(s):
Student will draft and construct a basic block. Student will create and construct an original design based on required elements and quality of construction.

FASHDSN 226  PATTERN MAKING AND DESIGN II (2)
Lab: 6 hours

Prerequisite: Fashion Design 225;

Intermediate level class offering instruction on the torso bodice, dartless block and drafting a basic pant then using the blocks to create dresses, shirt styles and pant variations. Advanced skirts styling is also included.

Student Learning Outcome(s):
Students will draft and construct a torso block from the basic sloper. Students will draft a shift dress with mandarin collar, princess seams, required sleeve elements, and construct a full muslin. Students will draft and construct a princess dress including required elements.

FASHDSN 227  PATTERN MAKING AND DESIGN III (2)
Lab: 6 hours

Prerequisite: Fashion Design 226

Advanced level class offering instruction on jackets, advanced sleeve styles, contouring fundamentals, and basic bodysuits and leotards.

Student Learning Outcome(s):
Students will be able to draft or knock-off and construct a basic pant including required elements to personal measurements. Students will be able to draft a bolero with a close fitting raglan and a shawl collar and construct a muslin. Students will be able to draft a tailored jacket block, construct a shell with 2 piece sleeve, revere collar, and traditional jacket facing.

FASHDSN 228  PATTERN GRADING AND DESIGN I (2)
Lab: 6 hours

This course offers training in increasing and decreasing the pattern size for basic slopers in the several size ranges of women’s wearing apparel. Also includes practice in selected methods and in the use of ‘grading machines’ currently used in industry.

Student Learning Outcome(s):
Student will grade a princess style pattern including facings.

FASHDSN 229  PATTERN GRADING AND DESIGN II (2)
Lab: 6 hours

Selected whole garments are graded. Research and study is done on the laws of proportionate growth, size ranges, and difficult pattern shapes. Principles of design are correlated to grading problems. Marker making and cost sheets development is included in this course.

Student Learning Outcome(s):
Student will grade a stylized dress including stylized darts and facings.

FASHDSN 236  FASHION SKETCHING AND DESIGN I (2)
Lab: 6 hours

Instruction includes fashion figure drawing, rendering fabrics and garments on figures, designing selected garments, study of color theory and techniques.

Student Learning Outcome(s):
Student will draw a group of technical flat illustrations.
FASHDSN 237  FASHION SKETCHING AND DESIGN II (2)
Lab: 6 hours
Prerequisite: Fashion Design 236

Instruction includes women’s day dresses, children’s fashion figures and garment designs, watercolor or gouache techniques, illustrations, contemporary graphic layouts and the portfolio development. Techniques of quick sketching will be covered.

Student Learning Outcome(s):
Students will execute fabric rendering with various mediums for design of womens, mens and childrens styles.

FASHDSN 238  FASHION SKETCHING AND DESIGN III (2)
Lab: 6 hours
Prerequisite: Fashion Design 236; Fashion Design 237

Development of professional portfolio presentation including development of design focus and, advanced research techniques. The process will include the development of illustration techniques and design refinement. Professional readiness including; writing a resume, cover letter and calling card and developing refined job interview skills.

Student Learning Outcome(s):
Students will create a portfolio of drawings including mens and womens wear.

FASHDSN 239  GOWN DRAPING AND DESIGN I (2)
Lab: 6 hours

Instruction is offered on draping, fitting basic blocks, and transferring the drape to a paper pattern. Students will drape basic type bodices, sleeves, skirts, collars, and construction details. Theory includes basic principles of design, line, proportion, and fabric use.

Student Learning Outcome(s):
Students will drape and create a detailed blouse and skirt style including a complete pattern. Students will drape and create a stylized dress including a complete pattern.

FASHDSN 240  GOWN DRAPING AND DESIGN II (2)
Lab: 6 hours

This course includes the draping of casual knit garments and dress and jacket style innovations. Students use either muslin or fashion fabric according to their capabilities. Fashion trends are studied and original designs are created.

Student Learning Outcome(s):
Students will drape and create a detailed sleeveless and full length evening gown with a high neckline. Students will drape and create innovative coordinated separates in knit fabric using specialized machinery.

FASHDSN 241  GOWN DRAPING AND DESIGN III (2)
Lab: 6 hours

This course correlates the designer’s knowledge of designing, sketching, patternmaking, draping, and construction. Students develop confidence as they study the problems of merchandising and manufacturing. Original designs for special occasion garments are executed in various fabrics.

Student Learning Outcome(s):
Students will drape an evening gown using selected elements in specific evening fabrications.

FASHDSN 244  PHOTOSHOP FOR FASHION DESIGN (2) CSU
Lab: 6 hours

This course offers computer fashion art instruction using Adobe Photoshop software. Emphasis is placed on preparation and input of fashion images for portfolios and design presentations as required by industry standards.

Student Learning Outcome(s):
Students will learn to use Adobe Photoshop selection tools to create and communicate vision; mood or trend boards that inspire color stories.

FASHDSN 250  BEGINNING COMPUTER APPAREL SYSTEMS (2)
Lab: 6 hours

This course offers training and development of skills in apparel utilizing the latest versions of apparel pattern making software. Design students will concentrate on pattern development including, drafting, alterations, and manipulations.

Student Learning Outcome(s):
Students will create system files, digitize and verify pattern pieces using Gerber hardware and software.

FASHDSN 255  COMPUTERIZED PRODUCT DESIGN (2)
Lab: 6 hours

This course offers basic training in the apparel pre-production process, including grading and marker making. Also covered are database files including grade rules, model files, and annotation. Student will plot pieces and markers. This course uses Gerber Accuplot software.

Student Learning Outcome(s):
Students will communicate vision; mood or trend boards that inspire color stories.

FASHDSN 256  CAD APPAREL PRE-PRODUCTION TECHNIQUES (2)
Lab: 6 hours

This course offers basic training in the apparel pre-production process, including grading and marker making. Students will be able to digitize an existing pattern into the computer where it will be graded, marked and prepared for the production process. Students will be able to manipulate a basic block to create a stylized pattern.

Student Learning Outcome(s):
Students will be able to digitize an existing pattern into the computer where it will be graded, marked and prepared for the production process. Students will be able to manipulate a basic block to create a stylized pattern.
pattern development and demonstrate how two-dimensional patterns translate to the computer. Students will learn to identify menus associated with pattern applications, used for Tukatech software, and will compose a full-scale pattern on the computer as it applies to industry.

Student Learning Outcome(s):
- Students will design a computer pattern from Tukatech systems basic blocks.

**FASHDSN 258**  
**COMPUTER-AIDED PATTERN SYSTEMS (2)**  
*Lab: 6 hours*

This course is designed to expand knowledge of pattern making using Lectra Systems software programs. A variety of pattern will be created using the draft method and the use of basic blocks.

Student Learning Outcome(s):
- Students will be able to create a jacket pattern including lining, facing and two piece sleeve using the jacket foundation.

**FASHDSN 264**  
**APPLIQUE COMPUTER SYSTEMS ANALYSIS (1) CSU**  
*Lab: 3 hours*

This lab-course demonstrates how the apparel industry uses commercial and Vendor apparel technology in the global market. Topics covered are apparel software and commercial hardware used to design and manufacture products.

Student Learning Outcome(s):
- Students will use commercial software to create documents used in the manufacturing process. Student will use industry related software to perform basic manufacturing processes.

**FASHDSN 270**  
**ILLUSTRATOR FOR FASHION DESIGN (2) CSU**  
*Lab: 6 hours*

This computer sketching course focuses on the fundamental options to illustrate garments, and fabrics for clothing and accessory presentations based on current global fashion industry technology standards.

Student Learning Outcome(s):
- Students will create Fashion Flat sketches according to Fashion industry standard. Students will learn to create acceptable file formats for different output mediums like web and print.

**FASHDSN 285**  
**DIRECTED STUDY - FASHION DESIGN (2)**  
*Lecture: 2 hours*

This course allows students to pursue directed study in Fashion Design on a contract basis under the direction of a supervising instructor. Students must be enrolled in at least one fashion course to take this class.

Student Learning Outcome(s):
- The outcome will vary depending on the contract with the instructor. The student will formulate a project based on a topic in Fashion Design and related topics.

**FASHDSN 385**  
**DIRECTED STUDY - FASHION DESIGN (3)**  
*Lecture: 3 hours*

This course allows students to pursue directed study in Fashion Design on a contract basis under the direction of a supervising instructor. Students must be enrolled in at least one fashion course to take this class.

Student Learning Outcome(s):
- The outcome will vary depending on the contract with the instructor. The student will formulate a project based on a topic in Fashion Design and related topics.

**FASHDSN 941**  
**COOPERATIVE EDUCATION - FASHION DESIGN (4) CSU**  
*Lecture: 4 hours*

Cooperative Education is a work experience program involving the employer, the student-employee and the college to insure that the student receives on the job training and the unit credit for work experience or volunteer work/internship. Completion of at least seven units, including Cooperative Education, at the end of the semester is required. Students must be employed or volunteering/interning in order to participate in program.

Student Learning Outcome(s):
- The student will develop at least three learning objectives to be accomplished on the job. The objectives will be related to the educational/occupational goals of the student.

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**FASHION MERCHANDISING**

**FASHMER 001**  
**ENTREPRENEURIAL FASHION (3) CSU**  
*Lecture: 2.5 hours / Lab: 1.5 hours*

Advisory: English 101; Mathematics 105.

This course delivers the information needed to develop an effective business plan and provides a background in entrepreneurship for apparel related businesses. Students will examine the development of a fashion retail business from concept evaluation to strategy articulation. Procedures and resources for researching and opening a business are covered, as well as assortment planning, pricing and financing.

Student Learning Outcome(s):
- Students will be able to evaluate a potential business idea and write a business plan for a retail or wholesale business.

**FASHMER 010**  
**RETAIL MERCHANDISING (3) CSU**  
*Lecture: 3 hours*

Advisory: English 101; Mathematics 105.

This course introduces all phases of fashion retailing from the creative to the financial. It is designed to familiarize students to the crucial functions of merchandising and product management in a modern retail company. The course covers special aspects of retailing including: the evolution of the industry, merchandising roles and careers, market knowledge, consumer behavior, planning and control and retail pricing.

Student Learning Outcome(s):
- Students will be able to identify a consumer market for a retail store through the research of demographic, psychographic, and behavioristic traits of a target market.
**FASHMER 020  APPAREL PRODUCT DEVELOPMENT (3) CSU**

Lecture: 2.5 hours / Lab: 1.5 hours

Advisory: English 101; Mathematics 105.

This course covers the step-by-step development of apparel products in a retail or wholesale environment. Students will use research, merchandising knowledge and the application of merchandising concepts and theories in a simulated process. The course includes visual presentation of design concepts, raw materials sourcing, overviews of production technology, wholesale marketing and retail distribution. Special emphasis is placed on the California apparel industry.

Student Learning Outcome(s):
1. Students will complete wholesale cost sheets for apparel garments. 2. Students will create a line list for a seasonal delivery of garments.

**FASHMER 021  CULTURAL PERSPECTIVES OF DRESS (3) CSU**

Lecture: 3 hours

Advisory: English 101

This course covers the factors that influence human behavior in the selection of dress in societies and cultural groups, and the influence of these factors on the design and production of textiles and apparel. Students will study consumer’s purchasing decisions. Topics include the cultural context of dress, dress as nonverbal communication, dress through life stages, dress in the workplace, ethnic influences on dress, and technological changes of dress.

Student Learning Outcome(s):
1. Students will explain the symbolism of specific tattoo art as it relates to body dressing as a part of fashion culture in our society. 2. Students will demonstrate how to present oneself in a professional setting to the best advantage and relate how dress affects specific jobs in various occupations.

**FASHMER 025  FASHION AND INDUSTRY INTERCHANGE (3) CSU**

Lecture: 3 hours

Advisory: English 101

This course covers current trends and relationships in the Fashion Industry between apparel, accessories, cosmetics, and home goods. Each category of goods is reviewed from the perspectives of historical development, organization and operation, merchandising and marketing in order to gain broad insight to the unique aspects of these industry segments.

Student Learning Outcome(s):
Students will be able to identify relationships in the fashion industry between apparel, accessories, cosmetics, jewelry and hard lines. Students will understand the unique characteristics of these categories, and learn to identify and track current trends.

**FASHMER 027  ADVANCED RETAIL MERCHANDISING (3) CSU**

Lecture: 2.5 hours / Lab: 1.5 hours

Prerequisite: Fashion Merchandising 10. Advisory: English 101; Mathematics 105;

An advanced retail research and study course covering retail demographics, site selection, stock assortments, planning, retail budgets, and sales applicable to all retail environments. Merchandise coordination and seasonal planning are given detailed coverage.

Student Learning Outcome(s):
Students will be able to conduct market, fabric, and sourcing research to create a line of LATTC Logo Apparel, and illustrate their work in a Power Point presentation.

**FASHMER 030  WHOLESALE MERCHANDISING (3) CSU**

Lecture: 3 hours

Advisory: English 101; Mathematics 105.

This course prepares students for a merchandising position with an apparel manufacturing company. All phases, including line development, design, costing, sales, production, contracting and distribution are covered. Current trends and specialized knowledge in merchandising a successful line are emphasized.

Student Learning Outcome(s):
Students will understand the steps of wholesale merchandising relating to marketing the line, preproduction processes, quality assurance and distribution.

**FASHMER 035  FASHION PROMOTION (3) CSU**

Lecture: 3 hours

Advisory: English 101.

This course covers the promotional aspects of the retail fashion industry. Emphasis is given to the processes of fashion communication and how they connect company profit and performance with skillful and creative promotional strategies. Sales promotion, advertising formats, public relations, and direct marketing are presented.

Student Learning Outcome(s):
Student will be able to write a press release for a new apparel product or event. They will be proficient in the use of an industry standard template to create and write a document for the purpose of publicizing a fashion item or event.

**FASHMER 040  MODERN MERCHANDISING MATH (3) CSU**

Lecture: 3 hours

Advisory: Mathematics 105.

Students will learn to use the computer for costing, pricing, inventory control as well as vendor analysis. All current concepts in wholesale and retail merchandise planning are presented. The emphasis is on practical knowledge and the use of computers in today’s apparel business. The class will cover the principles and procedures involved in the business applications of the apparel industry using Apparel Information Management System (AIMS) software for wholesale and Microsoft Excel for making retail buying decisions.

Student Learning Outcome(s):
Students will create an inventory management and vendor analysis reports including calculations of retail price, wholesale cost, markup dollars, and markup percent for apparel items using manual and computer software applications.

**FASHMER 041  FASHION MERCHANDISE BUYING (3) CSU**

Lecture: 2.5 hours / Lab: 1.5 hours

Advisory: Fashion Merchandising 10; English 101; Mathematics 105.

This course provides specific instruction on fashion/merchandise buying tasks such as: identifying target customers, creating six month merchandise
plans, departmental assortment plans, shopping the market and placing orders, in-season sales planning and forecasting, and calculating open-to-buy. This course covers the process of retail buying for a small business as well as for larger companies.

**Student Learning Outcome(s):**

Students will be able to identify a retail product opportunity and articulate a well-developed strategy to accomplish their proposed sales and marketing plan. They will be able to demonstrate their strategy through a computer generated six-month plan (Excel), window and floor displays (Smart Draw, Photoshop, etc.), and written text presented in an organized binder/portfolio.

**FASHMER 050 INTERNATIONAL FASHION BUSINESS (3) CSU**

*Lecture: 3 hours*

*Advisory: English 101.*

This course provides an active study of the dynamics and challenges of the international apparel industry. Topics covered include: International business today; cultural diversity and dynamics; international legal issues; global opportunities in marketing; importing/exporting strategies; and international fashion business vocabulary terms.

**Student Learning Outcome(s):**

Students will analyze news articles related to class discussion topics and present key information.

**FASHMER 941 COOPERATIVE EDUCATION - FASHION MERCHANDISING (4) CSU**

*Lecture: 4 hours*

Cooperative Education is a work experience program involving the employer, the student-employee and the college to insure that the student receives on the job training and the unit credit for work experience or volunteer work/internship. Completion of at least seven units, including Cooperative Education, at the end of the semester is required. Students must be employed or volunteering/interning in order to participate in program.

**Student Learning Outcome(s):**

The student will develop at least three learning objectives to be accomplished on the job. The objectives will be related to the educational/occupational goals of the student.

**FINANCE**

**FINANCE 008 PERSONAL FINANCE AND INVESTMENTS (3) CSU**

*Lecture: 3 hours*

This course is designed to provide students with an understanding of a person’s financial affairs, including family budgeting, consumer credit, home ownership, insurance, investment/savings, banking services, and major consumer purchases.

**Student Learning Outcome(s):**

Students will evaluate the use of financial budgeting concepts to make sound decisions in managing their personal finances.
GEOL 002  CULTURAL ELEMENTS OF GEOGRAPHY (3)  UC/CSU
Lecture: 3 hours
Advisory: English 28.

This course examines how human civilization and the physical planet affect each other. This includes cultural ecology, population growth and distribution, sustainable development, languages and religions, use of natural resources, transportation and commerce, energy production, food production, globalization, as well as the social, political, and economic causes of war and climate change.

Student Learning Outcome(s):

QUESTION 1: Students will assess and list how organic agriculture improves the U.S. economy, its environment and the physical health of its citizens.

QUESTION 2: Students will report which factors lead to a decline in death rates and a maintenance of high birth rates in Stage 2 of the Demographic Transition.

GEOL 006  PHYSICAL GEOLOGY LABORATORY (2) UC/CSU
Lecture: 1 hour / Lab: 2 hours
Prerequisite: Geology 6. Corequisite: Geology 6

This course supplements Geology 1 with additional exercises in the identifi-
cation of rocks and minerals, reading of maps, and study of rock structures. Studies of local geology are made based upon field trips and the collection of specimens.

Student Learning Outcome(s):

Upon completion of this course the student will be able to: 1. Analyze the role of plate tectonics in changing the sizes of the Earth's continents and oceans; Graph seismic data to determine the magnitude of earthquakes and locate the epicenter of earthquakes. 2. Identify common minerals & rock types on the basis of their physical properties; interpret past environ-
ment through detailed observation of mineral composition, fossil types and rock structures. 3. Construct topographic cross sections and geologic cross sections to analyze the geologic and deformational history of an area. 4. Determine the relative and absolute ages of rocks based on their physical relationships; using fossils to determine their age relationships, and determine absolute ages from radiometric data. 5. Analyze landforms formed by and hazards related to surface and groundwater, oceans, glaciers and wind. Interpret global climate change patterns on the basis of variations in sea level and glacier sizes. Program SLOs: 1. Explain the interrelation-
ships between different disciplines to understand how the geological processes function. 2. Apply the scientific method to the study of the geological materials and processes. 3. Utilize information learned to make informed decisions about global and local environmental issues. Institutional SLOs: 1. Critical Thinking: Analyze problems by differentiating fact from opinions, using evidence, and using sound reasoning to specify multiple solutions and their consequences. 2. Quantitative Reasoning: Identify, analyze, and solve problems that are quantitative in nature. 3. Technical Competence: Utilize the appropriate technology effectively for informational, academic, person, and professional needs.

HEALTH

HEALTH 002  HEALTH AND FITNESS (3) UC/CSU
Lecture: 2 hours / Lab: 2 hours

This course promotes healthy physical and psychological lifestyles, with emphasis on disease prevention, including violence/abuse, nutrition, sexuality, reproduction, drugs, alcohol, tobacco, aging, stress management, and weight control. The physical fitness segment emphasizes individual improvement utilizing aerobic, flexibility, and strengthening activities.

Student Learning Outcome(s):

Students will use critical thinking skills to gather, identify, analyze, synthesize information, and evaluate problems and solutions to reaching improving their personal health and fitness.

HEALTH 006  NUTRITION FOR HEALTHFUL LIVING AND FITNESS ACTIVITIES (3) UC/CSU
Lecture: 2 hours / Lab: 2 hours

Basic nutrition theories, information for healthful food purchasing, and relation-
ship of nutrition to disease. Benefits of exercise and techniques for body conditioning are learned. Class time includes participation in fitness activities including aerobic, developmental and flexibility exercises.

Student Learning Outcome(s):

Using the components of Health and Fitness and information on nutrition gained from the class, students will develop a program that includes a struc-
tured fitness and nutritional program that they can modify and enhance yearly to promote lifelong fitness.

HEALTH 008  WOMEN'S PERSONAL HEALTH (3) UC/CSU
Lecture: 3 hours

A study of factors affecting physical, social and emotional well-being of women in our society.

Student Learning Outcome(s):

1. Student will identify the major health issues affecting women and the lifestyle changes which can be made to improve their own health and the health of their family members.

HEALTH 011  PRINCIPLES OF HEALTHFUL LIVING (3) UC/CSU
Lecture: 3 hours

This course offers concepts to use today and tomorrow as guidelines for self-directed responsible living. Health topics cover the emotional and mental health, cardiovascular fitness, nutrition, chronic and communicable diseases, environmental issues, and the life cycle. Student is provided with self-assess-
HEALTH 012 SAFETY EDUCATION AND FIRST AID (3) UC/CSU
Lecture: 3 hours
This course involves the theory and detailed demonstration of the first aid care of the injured. The student will learn to assess a victim’s condition and incorporate proper treatment. Standard first aid, CPR, and AED certification(s) will be granted upon successful completion of requirements.
Student Learning Outcome(s):
1. Student will be able to perform the culminating CPR skills final for the American Heart Association or the American Red Cross demonstrating high quality CPR techniques. 2. Student will be able to apply a pressure bandage to forearm in correct sequence.

HEALTH 021 HUMAN SEXUALITY (3) UC/CSU
Lecture: 3 hours
This course provides a comprehensive introduction to the cultural, behavioral, biological and psychosocial aspects of human sexuality. Topics presented include acquired immune deficiency syndrome and other sexually transmitted diseases, as well as sexual variance and dysfunction, and sexuality throughout the human life cycle.
Student Learning Outcome(s):
Student will define the various sexually transmitted infections, their causes and the treatment for each.

HEALTH 043 MEN'S HEALTH AND FITNESS (3) UC/CSU
Lecture: 2 hours / Lab: 2 hours
This course explores men’s health issues and adds a fitness component so that men can learn to understand and control their life long health practices, attitudes and challenges that contemporary men experience in urban areas. It studies topics important to men such as domestic abuse and violence, stress, alcoholism, disease transmission and other physical, emotional and social topics related to men’s health, fitness and wellness.
Student Learning Outcome(s):
Student will identify key factors that specifically affect a Man’s health and ways to improve a man’s health.

HEALTH 046 BASIC LIFE SUPPORT CPR/AED FOR THE HEALTHCARE PROVIDER (1)
Lecture: 1 hour
This course covers the content of the American Heart Association Basic Life Support (CPR/AED) for the Healthcare Provider. It covers care of the adult, child, and infant.
Student Learning Outcome(s):
Student will be able to perform Adult CPR techniques according to the current guidelines set by the American Heart Association CPR for Health Care Providers. Student will be able to perform Infant CPR techniques according to the current guidelines set by the American Heart Association CPR for Health Care Providers. Student will be able to correct demonstrate the use of the EPI-Pen.
HLTHOCC 062  SKILL SET FOR THE HEALTH CARE PROFESSIONAL (2)
Lecture: 1 hour / Lab: 3 hours
Advisory: English 021, Math 105

This course is an introduction of the concepts and skills that serve as a foundation for the health care professions. Topics include hygiene and safety, infection control, basic client monitoring and basic first aid, therapeutic communication and basic health documentation.

Student Learning Outcome(s):
1. Student will demonstrate understanding of principles in basic patient care skills. Student will perform basic skills of care to patients with injuries or diseases.

HLTHOCC 063  BASIC MEDICAL TERMINOLOGY, PATHOPHYSIOLOGY AND PHARMACOLOGY (2)
Lecture: 2 hours
Advisory: English 021, Math 105

This basic medical language course will discuss common diseases and injuries and their pharmacological treatment using medical terminology in English and Spanish, when appropriate.

Student Learning Outcome(s):
1. Student will analyze medical language and component parts. 2. Student will apply medical language to discussion of treatment of common diseases and injuries.

HLTHOCC 064  CULTURAL AND LEGAL TOPICS FOR HEALTH CARE PROFESSIONALS (1)
Lecture: 1 hour
Advisory: English 021, Math 105

This course provides an overview of the concepts of health and illness, cultural diversity and legal issues that affect the health care professional

Student Learning Outcome(s):
1. Student will apply legal guidelines as they relate to health care situations including privacy, confidentiality and safety. 2. Students will take action to minimize cultural conflicts in the health care setting.

HLTHOCC 065  FUNDAMENTALS FOR THE HEALTH CARE PROFESSIONAL (2.5)
Lecture: 2.5 hours
Advisory: English 021, Math 105

This course explores career options in the health care industry, healthy behavior for health care workers, work ethics, professional resumes and interviewing skills and personality traits of a health care professional. There will be an externship during which area employers will introduce students to direct and indirect patient care opportunities

Student Learning Outcome(s):
1. Student will take action that demonstrates understanding of the variation, complexity and ethical principles of the health care provider role in direct and indirect patient care settings. Student will demonstrate workplace traits that promote professional responses to patients, families, colleagues and other members of the healthcare system in simulated settings.

HLTHOCC 066  DEMENTIA FOR HEALTH CARE (3)
Lecture: 3 hour(s) / Lab: 1 hours

The course focuses on an overarching focus on health care practice to ensure quality dementia care for all.

HLTHOCC 921  COOPERATIVE EDUCATION – HEALTH OCCUPATIONS (2)
Lab: 3.34 hours

Cooperative Education is a work experience program involving the employer, the student-employee and the college to insure that the student receives on the job training and the unit credit for work experience or volunteer work/internship. Completion of at least seven units, including Cooperative Education, at the end of the semester is required. Students must be employed or volunteering/interning in order to participate in program.

Student Learning Outcome(s):
1. The student will develop at least (3) learning objectives to be accomplished on the job. The objective will be related to the educational/occupational goals of the student.

HLTHOCC 931  COOPERATIVE EDUCATION – HEALTH OCCUPATIONS (3)
Lab: 10 hours

Cooperative Education is a work experience program involving the employer, the student-employee and the college to insure that the student receives on the job training and the unit credit for work experience or volunteer work/internship. Completion of at least seven units, including Cooperative Education, at the end of the semester is required. Students must be employed or volunteering/interning in order to participate in program.

Student Learning Outcome(s):
1. The student will develop at least (3) learning objectives to be accomplished on the job. The objective will be related to the educational/occupational goals of the student.

HLTHOCC 911  COOPERATIVE EDUCATION – HEALTH OCCUPATIONS (1)
Lab: 3.34 hours

Cooperative Education is a work experience program involving the employer, the student-employee and the college to insure that the student receives on the job training and the unit credit for work experience or volunteer work/internship. Completion of at least seven units, including Cooperative Education, at the end of the semester is required. Students must be employed or volunteering/interning in order to participate in program.

Student Learning Outcome(s):
1. The student will develop at least (3) learning objectives to be accomplished on the job. The objective will be related to the educational/occupational goals of the student.
HISTORY

HISTORY 011  POLITICAL AND SOCIAL HISTORY OF THE UNITED STATES I (3) UC/CSU
Lecture: 3 hours
Advisory: English 28.

This course will examine the historical development of the United States of America from 1492 to the close of the Civil War. Emphasis is placed on the relationship of regions, the role of major ethnic and social groups, the continuity of the American experience, and its derivation from other cultures, politics, economics, social movements, and its geography.

Student Learning Outcome(s):

1. Student will demonstrate ability to interpret historical primary and secondary sources to compose an argument which uses them, as appropriate, for support. 2. Student will explain major economic, technological and scientific developments and their historical significance. 3. Student will analyze and explain the historical significance of major political trends, attitudes, conflicts and effects, including both mainstream and reform efforts.

HISTORY 012  POLITICAL AND SOCIAL HISTORY OF THE UNITED STATES II (3) UC/CSU
Lecture: 3 hours
Advisory: English 28.

This course will examine the historical development of the United States of America from the close of the Civil War to the present. Emphasis is placed on the role of the major ethnic and social groups, the continuity of the American experience, and its derivation from other cultures, politics, economics, social movements, and its geography.

Student Learning Outcome(s):

1. Students will defend a position on a debatable historical issue. 2. Students will be able to critically analyze experiences of African Americans from the post Civil War to the present, New Millennium. 1. Students will be able to critically analyze experiences of African Americans from the post Civil War to the present, New Millennium. 2. Students will analyze an event from this period and be able to link the people, issues and factors that influence the event (s).

HISTORY 041  THE AFRICAN AMERICAN IN THE HISTORY OF THE U.S. I (3) UC/CSU
Lecture: 3 hours
Advisory: English 28.

This course will examine the historical development of the African American from precolonial Africa through the Civil War. This course will examine the political, social, economic and intellectual development of the United States, as well as the State and local government and constitution of the U.S.

Student Learning Outcome(s):

1. Students will critically examine how the decade of the 1850s offered a preview of the coming of the Civil War. Students will assess the key events as primary causes of the Civil War. Students will describe the events they perceive as pivotal events that led African American participation in the Civil War. 2. Students will include the following key people, events, issues: Anti-Slavery society, Fugitive Slave Laws, the Dred Scott Decision, Kansas Nebraska Act, John Brown Raid, Frederick Douglass, Abraham Lincoln, Mary Ellen Pleasant, Thomas Sims and Martin R. Delany.

HISTORY 042  THE AFRICAN AMERICAN IN THE HISTORY OF THE U.S. II (3) UC/CSU
Lecture: 3 hours
Advisory: English 28.

This course will examine the historical development of the United States of America from the end of the Civil War to the present with special emphasis on the contributions of the Afro-American. Emphasis is placed on the relationship of regions, both internal and external, the role of major ethnic and social groups, the continuity of the American experience, and its deviation from other cultures, politics, economics, social movements, and its geography will be examined.

Student Learning Outcome(s):

1. Students will be able to critically analyze experiences of African Americans from the post Civil War to the present, New Millennium. 1. Students will be able to critically analyze experiences of African Americans from the post Civil War to the present, New Millennium. 2. Students will analyze an event from this period and be able to link the people, issues and factors that influence the event (s).

HISTORY 043  THE MEXICAN-AMERICAN IN THE HISTORY OF THE UNITED STATES I (3) UC/CSU
Lecture: 3 hours
Advisory: English 028

Examines historical development of the United States from the period of exploration to the close of the Civil War with special emphasis on the history of Mexican-Americans. Emphasis on regions, both internal and external, major ethnic and social groups, the American experience and its derivation from other cultures, politics, economics, social movements, and geography.

Student Learning Outcome(s):

1. Discuss and defend a position on a debatable Mexican-American historical issue.

HISTORY 044  THE MEXICAN AMERICAN IN THE HISTORY OF THE UNITED STATES II (3) UC/CSU
Lecture: 3 hours
Advisory: English 028

Examines historical development of the United States from the close of the Civil War to the present with special emphasis on the history of Mexican-Americans. Emphasis on regions, both internal and external, major ethnic and social groups, the American experience and its derivation from other cultures, politics, economics, social movements, and geography. The U.S. Constitution, the State of California Constitution, and local government will be examined. Political philosophies, political institutions, amendments and interpretations, rights and obligations of citizens, and Federal/State/local governments will be examined.

Student Learning Outcome(s):

1. Examine and assess the key events of the Chicano Movement. 2. Students conduct academic research to create a paper on a historical 20th century Mexican American issue using APA format.

HISTORY 052  THE ROLE OF WOMEN IN THE HISTORY OF THE U.S. (3) UC/CSU
Lecture: 3 hours
Advisory: English 28.

This course will explore the political, social, economic and intellectual history of women in the development of the United States from the early colonial era to the present, with special emphasis on their contributions, as well as...
Student Learning Outcome(s):

1. In a research essay through the evaluation of print or web primary and/or secondary sources, students will identify and critically analyze the development of a major world civilization and its culture. 2. In a research essay through the evaluation of print or web primary and/or secondary sources, students will identify and compare two major world civilizations. 3. In a research essay through the evaluation of print or web primary and/or secondary sources, students will identify and critically analyze the social, economic, and political formations of a particular culture or set of related cultures. Customs, traditions, values, historical events and trends, religious traditions, pop cultural practices, and achievements and trends in the arts are also examined. Western, Eastern, Mid-Eastern, African and other cultures and societies both past and present may be studied.

Student Learning Outcome(s):

1. Students will explore art and architecture within the context of the society to their background, medium, organization and style. Artistic achievements and trends in the arts and the sciences of the cultures studied are also examined. Western, Eastern, Mid-Eastern, African and other cultures and societies both past and present may be studied.

Student Learning Outcome(s):

1. Students will be able to analyze ways in which modern social and political history are reflected in the arts, including literature, visual arts and music. Students will explore art and architecture within the context of the society that created it. 2. Students will interpret social, religious, and psychological dimensions of works of poetry, prose and drama. 3. Students will compare and contrast art, literature and music from different cultures or time periods.

Student Learning Outcome(s):

1. Students will identify the links that have historically existed between technology and the arts. 2. Explain technological innovations within the arts.
KINESIOLOGY

KIN 180  MARATHON TRAINING COURSE FOR RUN/WALK (1.5) CSU
Lab: 3 hours
This course develops cardiovascular endurance for a student training for a marathon using a variety of tempo runs. Students utilize and understand aerobic and anaerobic energy systems and when each is used. Race analysis and race psychology are also explained.

Student Learning Outcome(s):
Compare and contrast anaerobic and aerobic development in long distance running/walking by analyzing self performances, timed trials, and heart rate.

KIN 300-1 SWIMMING NON-SWIMMER I (1) UC/CSU
Lab: 3 hours
This course will enhance the skills of the students in floating, kicking and swimming the crawl and backstroke.

Student Learning Outcome(s):
Students will be able to successfully swim Freestyle without flotation support in deep water.

KIN 300-2 SWIMMING NON-SWIMMER II (1) UC/CSU
Lab: 3 hours
This course continues to enhance the skills of the students in floating, kicking and swimming the crawl and backstroke, that were developed in Swimming-I. Additionally, skills in the sidestroke and the elementary backstroke will be taught as well as the ability to safely enter the water with a jump and a long shallow dive.

Student Learning Outcome(s):
Students will be able to successfully swim Freestyle and Backstroke.

KIN 300-3 SWIMMING NON-SWIMMER III (1) UC/CSU
Lab: 3 hours
This course continues to enhance the skills of competitive swimming in freestyle, backstroke, elementary backstroke and sidestroke that were developed in Swimming-II. Additionally, the basic skills of the Breaststroke, competitive starts and turns, and interval training will be taught.

Student Learning Outcome(s):
The student will demonstrate proficiency in at least 8 of the swimming skills and 3 of the lifelong skills.

KIN 301-1 SWIMMING SKILLS I (1) UC/CSU
Lab: 3 hours
This course is designed to further enhance the skills of competitive swimming in freestyle and backstroke including competitive flip turns, starts and finishes. The course will also introduce the basic principles of training.

Student Learning Outcome(s):
Student will complete 30 lengths (750 yards) in a combination of freestyle and backstroke within 20 minutes.

KIN 301-2 SWIMMING SKILLS II (1) UC/CSU
Lecture: 0.5 hours / Lab: 2.5 hours
This course is designed to further enhance the skills of competitive swimming in freestyle and backstroke learned in 301-1 as well as introduce the basic principles of the competitive Breaststroke. The course will also use slightly advanced principles of training and increased yardage.

Student Learning Outcome(s):
Student will complete 40 lengths (1000 yards) in a variety of strokes within 20 minutes Successfully complete a 100 Ind. Medley Swim.

KIN 301-3 SWIMMING SKILLS III (1) UC/CSU
Lab: 3 hours
This course is designed to further enhance the skills of competitive swimming in freestyle and backstroke learned in 301-2 for the competitive breaststroke and introduce the skills of the competitive butterfly. The course will also use advanced principles of training and increased yardage.

Student Learning Outcome(s):
Student will be able to successfully complete a 200 IM and demonstrate the proper techniques and skills within the swim.

KIN 303-1 AQUA AEROBICS I (1) UC/CSU
Lab: 3 hours
Instruction and practice in deep water exercise to increase knowledge and levels of cardiovascular fitness, muscular strength and endurance, and flexibility. No swimming skills required.

Student Learning Outcome(s):
Students will engage in and assess their performance in a variety of shallow water exercises that promote overall health and fitness.

KIN 303-2 AQUA AEROBICS II (1) UC/CSU
Advisory: KIN 303-1
Instruction and practice in deep water exercise to increase knowledge and levels of cardiovascular fitness, muscular strength and endurance, and flexibility. No swimming skills required. This course builds upon knowledge acquired in kin 303-1.

Student Learning Outcome(s):
Students will engage in and assess their performance in a variety of deep water exercises that promote overall health and fitness.

KIN 303-3 AQUA AEROBICS III (1) UC/CSU
Advisory: KIN 303-1 and 303-2
This course applies the knowledge and experience gained from KIN 303-1 and KIN 303-2 to exercise at intensities designed to prevent and reverse Type 2 Diabetes. Students will journal their workouts and caloric intake to
focus on reducing body fat and insulin resistance. Exercises will be done in both shallow and deep water with specialized water resistance equipment designed to exhaust stored muscle glycogen.

Student Learning Outcome(s):
Students will engage in and assess their performance in a variety of water activities at a level capable of reducing insulin resistance.

KIN 303-4 AQUA AEROBICS IV (1) UC/CSU
Lab: 3 hours
Advisory: KIN 303-1 and 303-2
This course applies the knowledge and experience gained from KIN 303-1 and KIN 303-2 to develop personal water exercise programs to meet the demands of career, improve posture, and alleviate pain caused by muscle imbalances. Students will utilize water exercises and resistance equipment in both shallow and deep water to strengthen weaker muscles. Water Yoga techniques will be used to stretch muscles and build core strength.

Student Learning Outcome(s):
Students will engage in and assess their performance in a variety of water activities that promote muscle balance.

KIN 307-1 SWIM AND RUN I (1) UC/CSU
Lab: 3 hours
This course develops cardiovascular conditioning and fitness through running and swimming laps. It enables students to gain awareness of the importance of proper running techniques/postural alignment, including progressive resistance training and conditioning for the purpose of training for a triathlon. Nutrition and concepts of fitness are also covered.

Student Learning Outcome(s):
The student will be able to run and swim with the proper techniques and skills for an extended period of time.

KIN 307-2 SWIM AND RUN II (1) UC/CSU
Lab: 3 hours
This course develops cardiovascular conditioning and fitness through running and swimming laps. It enables students to gain awareness of the importance of proper running techniques/postural alignment, including progressive resistance training and conditioning for the purpose of training for a triathlon.

Student Learning Outcome(s):
The student will be able to run and swim with the proper technique with an emphasis on the principles of training including overload and specificity of training.

KIN 307-3 SWIM AND RUN III (1) UC/CSU
Lab: 3 hours
This course develops cardiovascular conditioning and fitness through running and swimming laps.

Student Learning Outcome(s):
The student will be able to run and swim with the proper technique with an emphasis on the principles of training including overload and specificity of training, and be able to transition between the run and swim phases of a biathlon.

KIN 329-1 BODY CONDITIONING I (1) UC/CSU
Lab: 3 hours
This class is designed to incorporate forms, concepts and techniques associated with body conditioning, including Pilates, Core Strengthening, Cardiovascular Exercise and Muscular Strength and Endurance exercises.

Student Learning Outcome(s):
Students will learn basic fitness principles and techniques and will be able to show proficiency.

KIN 329-2 BODY CONDITIONING II (1) UC/CSU
Lab: 3 hours
This class is designed to incorporate intermediate forms, concepts and techniques associated with body conditioning, including Pilates, Core Strengthening, Cardiovascular Exercise and Muscular Strength and Endurance exercises.

Student Learning Outcome(s):
Students will be able to incorporate fitness principles and techniques and create a personalized fitness program.

KIN 329-3 BODY CONDITIONING III (1) UC/CSU
Lab: 3 hours

Student Learning Outcome(s):
Students will learn basic fitness principles and techniques and will be able to show proficiency.

KIN 330-1 CARDIO KICKBOXING I (1) UC/CSU
Lecture: 0.5 hours / Lab: 2.5 hours
This is the first level of a non-contact activity course designed to use basic kicking and punching techniques to improve overall fitness including: cardiorespiratory endurance, muscular strength and endurance, flexibility, and body composition.

Student Learning Outcome(s):
Student Learning Outcome: Student will be able to demonstrate a jab/reverse punch combination.

KIN 330-2 CARDIO KICKBOXING II (1) UC/CSU
Lab: 3 hours
This is the second level of a non-contact activity course designed to build on basic kicking and punching techniques from Cardio Kickboxing-1. New techniques and combinations will be added to improve overall fitness including: cardiorespiratory endurance, muscular strength and endurance, flexibility, and body composition.

Student Learning Outcome(s):
Including the jab/reverse combination from Cardio Kickboxing-1, student will be able to demonstrate the proper Kenpo self-defense technique against one of four attacks.
KIN 330-3 CARDIO KICKBOXING III (1) UC/CSU
Lab: 3 hours

This is the third level of a non-contact martial arts activity course designed to build on techniques from Cardio Kickboxing-1 and Cardio Kickboxing-2. New techniques and combinations will be added to improve overall fitness including: cardiorespiratory endurance, muscular strength and endurance, flexibility, and body composition.

Student Learning Outcome(s):

Students will demonstrate the proper Kenpo self-defense technique against one of eight attacks.

KIN 332-1 STEP AEROBICS I (1) UC/CSU
Lab: 3 hours

This course is designed to improve cardiovascular fitness and strengthen select muscle groups by performing stepping skills in rhythm with music. Stepping is primarily a low impact aerobic exercise. Activity includes muscle conditioning and flexibility exercises.

Student Learning Outcome(s):

Students will demonstrate an understanding of cardiovascular fitness by performing a group fitness routine and achieving BASIC skills on the Rubric.

KIN 334-1 FITNESS WALKING I (1) UC/CSU
Lecture: 0.5 hours / Lab: 2.5 hours

Walking for Fitness level 1 focuses on achieving cardiovascular fitness, building upon level 1 workouts and enhancing a healthy lifestyle through walking. Includes such topics as fitness walking training principles overload and specificity, proper nutrition, differences of aerobic versus anaerobic workouts, Target Heart Rate, proper technique, shoe selection, posture, gait, flexibility, clothing, and safety limitations. This course will assess fitness levels and identify the physical health benefits from walking.

Student Learning Outcome(s):

Students will complete the Mile Walk Test to determine cardiorespiratory fitness.

KIN 334-2 FITNESS WALKING II (1) UC/CSU
Lecture: 0.5 hours / Lab: 2.5 hours

Walking for Fitness level 2 focuses on achieving cardiovascular fitness, building upon level 1 workouts and enhancing a healthy lifestyle through walking. Includes such topics as fitness walking training principles overload and specificity, proper nutrition, differences of aerobic versus anaerobic workouts, Target Heart Rate, proper technique, shoe selection, posture, gait, flexibility, clothing, and safety limitations. This course will assess fitness levels and identify the physical health benefits from walking.

Student Learning Outcome(s):

Students will demonstrate an optimal healthy flexibility range. Students will complete the Mile Walk Test to determine aerobic capacity.

KIN 334-3 FITNESS WALKING III (1) UC/CSU
Lecture: 0.5 hours / Lab: 2.5 hours

Walking for Fitness level 3 focuses on developing cardiovascular fitness at an advanced level. This course will introduce principles and strategies of interval training building upon level 1 and 2 workouts and developing a healthy lifestyle through walking.

Student Learning Outcome(s):

Students will demonstrate an optimal healthy flexibility range. Students will complete the Mile Walk Test to determine aerobic capacity. Students will determine Target Heart Rate to monitor intensity of workouts.

KIN 334-4 FITNESS WALKING IV (1) UC/CSU
Lecture: 0.5 hours / Lab: 2.5 hours

Walking for Fitness level 4 is for the advanced Fitness Walker. Level 4 focuses on achieving developing fitness walking programs based upon exercise physiological principles.

Student Learning Outcome(s):

Students will demonstrate an optimal healthy flexibility range. Students will complete the Mile Walk Test to determine aerobic capacity. Students will determine Target Heart Rate to monitor intensity of workouts Students will determine BMI for optimal healthy body weight.

KIN 350-1 WEIGHT TRAINING I (1) UC/CSU
Lecture: 0.5 hours / Lab: 2.5 hours

This course enhances training skills, including enhanced spotting techniques, enhanced lifting techniques and an introduction to more advanced exercises used in a weight training program. An increased emphasis will be placed in the knowledge, understanding, value and practical application of building muscle strength and endurance. The course will include an increased understanding of the human muscular system. The objective is to further enhance the student’s ability to prepare their own physical fitness program at any time in their life and to assist others based upon sound physiological and bio-mechanical principles.

Student Learning Outcome(s):

Demonstrate and increased knowledge in weight training, including safety techniques and level 2 exercises. Define the main muscles in the human muscular system.

KIN 350-2 WEIGHT TRAINING II (1) UC/CSU
Lecture: 0.5 hours / Lab: 2.5 hours

Designed for intermediate weight training students who desire a deeper knowledge and understanding of weight training and conditioning and it’s relationship to personal fitness. This class is open to intermediate weight trainers only.

Student Learning Outcome(s):

Student will demonstrate the proper procedures for spotting a bench press lift. Student will show an increase in muscular strength between a pre and post strength test.

KIN 351-1 YOGA I (1) CSU
Lecture: 0.5 hours / Lab: 2.5 hours

This introductory course teaches a 5,000 year old form of mostly isometric poses (asanas), breathing techniques, and meditation. Yoga promotes mental, physical, and spiritual fitness. In addition there are brief lectures covering basic information on hypertension, exercise precautions, body composition and how to live a healthy lifestyle.

Student Learning Outcome(s):

1. Identify and practice safe movement mechanics. 2. Demonstrate improved strength, cardiovascular endurance and flexibility.
KIN 366-1 BADMINTON SKILLS I (1) UC/CSU
Lecture: 0.5 hours / Lab: 2.5 hours

Students learn the basic fundamental skills and knowledge necessary to play badminton such as the serve, forehand, backhand, clear, drop, and smash shots. Also covered are singles and doubles strategy, along with the history of badminton, basic terminology, rules, and scoring. Safety and selection of equipment are included.

Student Learning Outcome(s):

The students will develop the basic knowledge and skills in the game of badminton to use for recreation and lifelong fitness demonstrated by achieving the NOVICE level of the Skill Rubric.

KIN 366-2 BADMINTON SKILLS II (1) UC/CSU
Lecture: 0.5 hours / Lab: 2.5 hours

In this course, students learn intermediate skills and knowledge necessary to play badminton such as cross court, down the line and reverse cross-court clears; at the net, from the back court, and from the mid-court drops; and forehand and backhand service. The course also covers offensive and defensive techniques of the smash as well as training drills, agility, endurance, and court coverage for competitive play.

Student Learning Outcome(s):

The student will demonstrate advanced skills needed to play badminton recreationally and competitively, demonstrate the ability to teach basic skills in the game and use the game for lifelong fitness by completing skills at the Intermediate level on the attached Rubric.

KIN 387 BASKETBALL (1) UC/CSU
Lecture: 0.5 hours / Lab: 2.5 hours

This course is designed to teach all levels of basketball skills. It not only emphasizes fundamental basketball skills such as dribbling, passing and shooting but it also includes the selection and care of equipment, rules, offense and defense strategy, etiquette, terminology and the components of fitness.

Student Learning Outcome(s):

Student will be able to identify the basic rules of the game of basketball. 
Students will be able to participate in a game situation basketball scrimmage using proper skills.

KIN 391-1 VOLLEYBALL I (1) UC/CSU
Lecture: 0.5 hours / Lab: 2.5 hours

This course is designed to teach the basic volleyball skills of passing, setting, spiking, serving and blocking. The course will introduce individual and team offense and defense systems, as well as the rules, etiquette, terminology and strategies for volleyball.

Student Learning Outcome(s):

Student will demonstrate a minimum of NOVICE in each of the skill areas tested on the rubric.

KIN 500 BASKETBALL THEORY (3) UC/CSU
Lecture: 2 hours / Lab: 2 hours

This course will help the advanced basketball student acquire a more in depth understanding of the various offensive and defensive theories in the sport of basketball. Analysis of strategies and outcomes will be emphasized.

Student Learning Outcome(s):

At the conclusion of this course, students will be able to diagram offensive and defensive plays.

KINESIOLOGY ATHLETICS

KIN ATH 504 INTERCOLLEGIATE ATHLETICS-BASKETBALL (3) UC/CSU RPT 3
Lab: 10 hours

Fundamental, intermediate and advanced principles/theories and skills of Basketball. Instruction, demonstration and practice of basic basketball skills, include passing, dribbling, shooting, rebounding, individual and team offense/defense and basketball intercollegiate competition.

Student Learning Outcome(s):

Students will demonstrate the skills and strategies necessary to succeed in a game, meet or match.

KIN ATH 513 INTERCOLLEGIATE ATHLETICS-SWIMMING AND DIVING (3) UC/CSU RPT 3
Lab: 10 hours

Intercollegiate Athletic competitive swimming and diving team course. Instruction, demonstration and practice of fundamental and advanced swimming and diving techniques, including starts, turns, stroke technique, breathing, interval training and intercollegiate competition.

Student Learning Outcome(s):

Students will compete in Intercollegiate Athletics.

KIN ATH 516 INTERCOLLEGIATE ATHLETICS-VOLLEYBALL (3) UC/CSU RPT 3
Lab: 10 hours

This course provides the skills, training and allows for participation in the intercollegiate volleyball team. Students who take this class must meet eligibility requirements as requested by the conference and/or CCCAA.

Student Learning Outcome(s):

Students will demonstrate the skills and strategies necessary to succeed in a game, meet or match.

KIN ATH 517 INTERCOLLEGIATE ATHLETICS-WATER POLO (3) UC/CSU RPT 3
Lab: 10 hours

Intercollegiate Athletic competitive Water Polo team course. Fundamental and advanced principles/theories of water polo techniques. Instruction, demonstration and practice of swimming, eggbeater, offense, defense, counter attack, man up and man down situations.

Student Learning Outcome(s):

Students will demonstrate the skills and strategies necessary to succeed in a game, meet or match.

KIN ATH 552 INTERCOLLEGIATE SPORTS-CONDITIONING & SKILLS TRAINING (1) UC/CSU RPT 3
Lab: 3 hours

This course is designed for the student athlete. The following areas are emphasized: the analysis and training of athletic skills, the analysis of offensive and defensive systems, physical conditioning, strength training and aerobic conditioning.
Graduation Requirements, Pathways and Programs of Study

Student Learning Outcome(s):

Students will demonstrate the skills and strategies necessary to succeed in a game, meet or match.

KIN ATH 560    INTERCOLLEGIATE SWIMMING/DIVING-FITNESS & SKILLS TRAINING (1) UC/CSU RPT 3

Lab: 3 hours

The course provides strength and fitness training for current or perspective intercollegiate athletes in the sport of swimming. The class provides the groundwork for an upcoming season through various swimming skills, drills, and aerobic and anaerobic conditioning.

Student Learning Outcome(s):

Student will Complete Eligibility Standards. Students will demonstrate improved swim conditioning levels. Students will demonstrate increased speed and decreased time in competitive events.

KIN ATH 561    INTERCOLLEGIATE WATER POLO-FITNESS & SKILLS TRAINING (1) UC/CSU RPT 3

Lab: 3 hours

The course is designed to provide strength and fitness training for current or perspective intercollegiate athletes in the sport of water polo. The class provides conditioning for an upcoming season, the rules and regulations of the sport as well as provides information on the requirements of being a competitive player.

Student Learning Outcome(s):

1.) Students will demonstrate exceptional ball handling skills in passing and receiving. 2.) Students will demonstrate exceptional defensive play in game situations. 3.) Students will meet eligibility standards. 4.) Students will demonstrate exceptional shooting abilities.

KIN ATH 563    INTERCOLLEGIATE VOLLEYBALL-FITNESS & SKILLS TRAINING (1) UC/CSU RPT 3

Lab: 3 hours

This course is designed for the student athlete. It is intended to provide focused strength and conditioning and flexibility exercises, emphasize safety and injury prevention and present new rules and game plays for volleyball.

Student Learning Outcome(s):

Students will demonstrate physical improvements in volleyball skills and game play.

KINESIOLOGY MAJOR

KIN MAJ 100    INTRODUCTION TO KINESIOLOGY (3) CSU

Lecture: 3 hours

Introduction to the discipline of Kinesiology/Physical Education; examination of the study of physical activity from the perspectives of experience, research, and professional practice. Topics include career opportunities, history, philosophy, current trends and curriculum development.

Student Learning Outcome(s):

The student who successfully completes this course will be able to do the following: 1. Evaluate different career paths in Kinesiology and describe the basic requirements needed to pursue a career in this field. 2. Explain the importance of physical activity in daily life and its relationship to health. 3. Identify the career options available to students graduating from departments of kinesiology, and the qualifications associated with 3 different careers.

KIN MAJ 101    FIRST AID AND CPR (3) UC/CSU

Lecture: 3 hours

This course covers and expands standard emergency first aid to include situations where help is delayed, during natural disasters and major catastrophies. This course also covers the recommendations by the American Heart Association, National Safety Council and the American National Red Cross for community members to respond to non-breathing and sudden cardiac emergencies. Includes techniques for all ages along with emergency action plans, safety, and prevention of disease transmission.

Student Learning Outcome(s):

Students will be able to identify emergency situations and provide the appropriate emergency care to victims. Students will be able to demonstrate the first aid care that is needed in common medical emergencies. Demonstrate cardiopulmonary resuscitation and the use of the AED.

KIN MAJ 106    SPORTS ETHICS (3) CSU

Lecture: 3 hours

This course addresses a wide range of moral and ethical issues in sports. Topics include values, principles, racial and gender equity, coaching, commercialization, enhancing stimulants and ergogenic aids, eligibility, violence, sportsmanship and Code of Ethics in sports. Examines current and historical events, rules, laws and governing organizations.

Student Learning Outcome(s):

Identify of performance substances used in sports and the impact they have had to the game.

KIN MAJ 108    ANCIENT OLYMPIC GAMES (3) CU

Lecture: 3 hours

This course addresses a wide range of topics that are specific to the field of the Ancient Olympic Games. Topics include Prehistory of the Games, Athletics and Education, The Olympic Games in Ancient Greece, The Events, Sport in the Hellenistic and Roman Periods. The course will examine the historical and continuing effect of the Ancient Games on the present day Olympic movement.

Student Learning Outcome(s):

Define the role of Ancient Athletes in Greek society.

KIN MAJ 120    HISTORY OF PHYSICAL EDUCATION, KINESIOLOGY AND SPORT (3) CSU

Lecture: 3 hours

This course introduces students to the history and foundations of physical education, kinesiology and sport. From the ancient non-western civilizations to current times, students will learn the contributions of cultures, individuals and events to the physical education, kinesiology and sport fields. Through lecture, reading sources and class discussions, students will gain a better understanding of the disciplines, the differences between the disciplines and the future directions for physical education, kinesiology and sport.
Graduation Requirements, Pathways and Programs of Study

Student Learning Outcome(s):
Identify the contributions of various people and groups to the modern day physical education, kinesiology and sport field.

KIN MAJ 134 ADVANCED LIFESAVING (2) CSU
Lecture: 1 hour / Lab: 2 hours
This class provides training in and the opportunity to get certified in the latest Red Cross Lifeguarding program. The Red Cross Lifeguarding certificate includes training in cardiopulmonary resuscitation (CPR), first aid, automated external defibrillator (AED), oxygen administration, and CA Title 22 materials.

Student Learning Outcome(s):
Students are prepared to respond to emergencies in and around the swimming pool.

KIN MAJ 135 WATER SAFETY INSTRUCTION (3) CSU
Lecture: 2 hour(s) / Lab: 2 hours
This American Red Cross water safety instructor certification course teaches individuals how to instruct students in all levels of swimming and water safety skills. A qualifying swim test is required, and an ARC-WSI certificate is granted upon successful course completion.

Student Learning Outcome(s):
Students will develop lesson plans to teach swimming skills and water safety to a diverse population.
Students will demonstrate age-appropriate techniques to teach swimming skills and water safety to both kids and adults.

KIN MAJ 150 SENIOR FITNESS ASSESSMENT, STRENGTH & CONDITIONING PROGRAMMING (3) CSU
Lecture: 3 hours
This course prepares the student to administer the Senior Fitness Tests, interpret the results, and recommend strength, balance and conditioning activities based upon the results.

Student Learning Outcome(s):
1. Conduct the Senior Fitness Tests (SFT) following the prescribed testing protocol. 2. Propose a fitness program based upon the results of the SFT. 3. Collect, manipulate, and analyze data associated with an exercise program.

KIN MAJ 151 SENIOR FITNESS EXERCISE LEADER (3) CSU
Lecture: 3 hours
This course prepares the student to lead balance, resistance training, and fitness games and activities in a safe and highly interactive social environment. Students write lesson plans and practice teaching the Walk With Ease program by the Arthritis foundation, and portions of FallProof, Matter of Balance, chair exercises, resistance band and tube exercises, and flexibility/stretching activities.

Student Learning Outcome(s):
1. Compose a lesson plan and conduct one session of the Walk with Ease program. 2. Compose a lesson plan and conduct one session of a balance class. 3. Collect, manipulate and analyze data associated with an exercise program.

LABOR STUDIES

LABR ST 001 US LABOR HISTORY (3) UC/CSU
Lecture: 3 hours
This course covers the often untold story of workers’ struggle to improve their lives through union organizing and collective bargaining, ranging from early craft unions, the bloody battles to form industrial unions, and the rise of labor federations and public sector unions.

Student Learning Outcome(s):
Students will describe the lessons learned from labor history and their current relevance.

LABR ST 002 COLLECTIVE BARGAINING (3) CSU
Lecture: 3 hours
This course examines the dynamics of collective bargaining including: preparation of demands and negotiation strategies, offers and counter-offers, major bargaining trends, contract campaigns, and ‘mock’ bargaining.

Student Learning Outcome(s):
Students will demonstrate the skills and knowledge to bargain a union contract.

LABR ST 003 LABOR RELATIONS LAW (3) CSU
Lecture: 3 hours
This course provides a comprehensive overview of labor relations laws, primarily for the private sector, covering employee, employer and union rights and obligations, unfair labor practices, union representation elections and other Labor Board procedures.

Student Learning Outcome(s):
The student will be able to recognize the main provisions of the National Labor Relations Act.

LABR ST 004 LABOR IN AMERICA (3) UC/CSU
Lecture: 3 hours
Examines how labor organizations and labor laws impact workers, families and American society focusing on worksite-related issues such as job security, income, workers’ rights, immigration and role of unions.

Student Learning Outcome(s):
Students will identify the role unions play in the United States and how unions benefit all workers.

LABR ST 005 GRIEVANCE AND ARBITRATION PROCEDURES (3) CSU
Lecture: 3 hours
Students learn to identify, investigate, write and present grievances and arbitrations with emphasis on participant’s own contract, grievance procedure and experiences.

Student Learning Outcome(s):
Students will identify, investigate, write and present grievances and arbitrations.
LABR ST 006 LABOR AND COMMUNITY SERVICES (3) CSU
Lecture: 3 hours
This course is designed to train Union Counselors to aid members in need. Topics include: financial assistance, debt counseling, unemployment/disability, health and mental health services, child care and other important community support.

Student Learning Outcome(s):
Students will be able to identify public and private agencies that provide assistance to members in need. Students will be able to develop a program to assist their members in need.

LABR ST 007 LABOR AND POLITICAL ACTION (3) CSU
Lecture: 3 hours
Covers current political issues facing working people, labor movement, methods and techniques for lobbying, political action, member mobilization, monitoring legislation and campaign laws.

Student Learning Outcome(s):
The student will be able to use effective electioneering techniques, including methods to mobilize members to political action.

LABR ST 009 ORGANIZING STRATEGIES AND TECHNIQUES (3) CSU
Lecture: 3 hours
Students will learn basic skills and techniques needed to organize new workers, build and strengthen their unions and learn about relevant laws and winning strategies.

Student Learning Outcome(s):
The student will be able to effectively use organizing strategies and techniques. The student will be able to formulate effective non-NLRA strategies.

LABR ST 011 LABOR IN THE PUBLIC SECTOR (3) CSU
Lecture: 3 hours
This course covers public employment practices, policies, laws and labor relations at the federal, state and local levels.

Student Learning Outcome(s):
Students will identify the legal framework of public sector labor relations and the impact of public policy on public sector unions.

LABR ST 013 UNION LEADERSHIP (3) CSU
Lecture: 3 hours
This class covers basic leadership skills for building influence and advancing in a union. Includes public speaking, parliamentary procedure, strategic planning, staff development, motivating and mobilizing members.

Student Learning Outcome(s):
Students will develop a strategic plan to build power for their union to organize and mobilize members for contract and political campaigns.

LABR ST 020 WORKERS’ RIGHTS (3) CSU
Lecture: 3 hours
Basic legal rights for workers, including: wage and hour laws, overtime, leaves, workplace privacy including e-mail and computers, accommodating disabilities, including pregnancy, and combating sexual harassment and employment discrimination.

Student Learning Outcome(s):
Students will identify workers’ rights deriving from federal, California and local labor laws.

LABR ST 021 THE WORKING CLASS AND CINEMA (3) UC/CSU
Lecture: 3 hours
This course will examine and analyze how feature film portrayals of the working class and labor unions may shape public perception.

Student Learning Outcome(s):
The student will be able to describe how Hollywood portrayals affect Americans’ views of unions.

LABR ST 024 ENFORCING WORKERS’ RIGHTS (3) CSU
Lecture: 3 hours
Advisories: LABR ST 020
Skills needed to work in the Labor Commissioner’s office and other state agencies to ensure workers are paid their wages.

Student Learning Outcome(s):
Students will be able to investigate, analyze, prepare and write cases to enforce labor laws.

LABR ST 029 INTRODUCTION TO UNIONS (1) CSU
Lecture: 1 hour
Overview of union impact on wages, benefits, working conditions and public policies by industry. Surveys basic union structures, operation and governance.

Student Learning Outcome(s):
Students will identify the role of unions in society and how unions work in a particular industry.
LABR ST 102  CONTRACT NEGOTIATIONS SKILLS (1) CSU  
**Lecture: 1 hour**  
This course covers the basics of union contract negotiations, including preparation of demands, negotiations strategies and tactics, contract language, and major bargaining trends.

**Student Learning Outcome(s):**  
Students will learn and demonstrate the skills and techniques needed to bargain union contracts.

LABR ST 103  LABOR LAW UPDATE (1) CSU  
**Lecture: 1 hour**  
This course covers recent changes in labor law related to labor relations, state and local bargaining, federal, state and local labor boards, employment and discrimination, union organizing, and campaign election laws.

**Student Learning Outcome(s):**  
The student will be able to identify recent changes in labor relations and related laws which govern the relationships between labor unions, employees and employers.

LABR ST 104  CURRENT ISSUES FOR LABOR (1) CSU  
**Lecture: 1 hour**  
This course explores issues facing the American Labor Movement, including strategies to address them.

**Student Learning Outcome(s):**  
Students will describe key issues facing Labor and strategies to address them.

LABR ST 105  GRIEVANCE HANDLING SKILLS (1) CSU  
**Lecture: 1 hour**  
The student will investigate, write and present union grievances.

**Student Learning Outcome(s):**  
Students will acquire knowledge of the grievance process, including how to investigate, evaluate, document, write and present a union grievance.

LABR ST 106  LABOR AND DISASTER RELIEF (1) CSU  
**Lecture: 1 hour**  
Training labor representatives to respond to disasters, emergencies, acts of terrorism or union/employer economic actions through utilizing appropriate community, public and private resources and agencies.

**Student Learning Outcome(s):**  
Students will be able to identify public and private agencies that provide assistance to members in need. Students will be able to develop a program to assist your members in need.

LABR ST 107  ORGANIZING FOR POLITICAL ACTION (1) CSU  
**Lecture: 1 hour**  
A primer for political activists: phone banks, precinct walks, polling, get out the vote, and vote-by-mail, campaign financing regulations, and communication strategies to mobilize members and the public.

**Student Learning Outcome(s):**  
The student will be able to identify the essential elements of a grassroots political campaign and how to recruit and mobilize members.

LABR ST 108  LABOR AND GLOBALIZATION (1)  
**Lecture: 1 hour**  
Explores how globalization affects the economy and jobs.

**Student Learning Outcome(s):**  
Students will be able to describe current economic issues regarding globalization and labor strategies to address the issues.

LABR ST 109  UNION BUILDING STRATEGIES (1) CSU  
**Lecture: 1 hour**  
Skills and techniques to build a strong union through strategic planning, leadership development, communication techniques, 1-to-1 techniques.

**Student Learning Outcome(s):**  
Student will develop a plan to organize and build strong unions.

LABR ST 113  UNION LEADERSHIP SKILLS (1) CSU  
**Lecture: 1 hour**  
Basic leadership skills for building influence and advancing in your union. Includes strategic planning, parliamentary procedure, running effective meetings, communications and public speaking.

**Student Learning Outcome(s):**  
Students develop leadership skills to be effective union leaders.

LABR ST 114  WORKER’S LEGAL RIGHTS (1) CSU  
**Lecture: 1 hour**  
Basic workers’ rights such as privacy, leaves, wage and hour laws, accommodating disabilities, including pregnancy and protections against wrongful discharge, etc.

**Student Learning Outcome(s):**  
Students will be able to identify and explain the basic legal rights and protections of workers.

LABR ST 115  WORKPLACE HEALTH AND SAFETY (1) CSU  
**Lecture: 1 hour**  
Strategies to identify and address current issues in workplace health and safety, such as stress, understaffing, workload, chemical hazards and ergonomic problems. Strategies covered: hazard identification, legal rights, Cal/OSHA, contract language, effective Health & Safety Committees, outside resources, and training programs.

**Student Learning Outcome(s):**  
The student will be able to identify and create an action plan to address workplace health and safety hazards.
LABR ST 118  EMPLOYEE BENEFITS PLANS (1) CSU  
Lecture: 1 hour  
This course covers employee health and retirement plans: how they work, how they are funded, how workers can maximize their benefits, proposed changes in these plans, and labor’s role in negotiating and preserving employee benefits.  
Student Learning Outcome(s):  
The student will list and describe the three basic elements of employee retirement security - employer based pensions, social security, and personal savings. The student will recognize how health plans are negotiated, funded, and maintained.

LABR ST 121  LABOR COMMUNICATIONS (1) CSU  
Lecture: 1 hour  
This course surveys methods and techniques that modern labor organizations use in e-communications, including web sites, text messaging, Twitter and Facebook, list serves, and e-blasts.  
Student Learning Outcome(s):  
The student will be able to list and explain the different new media tools currently available.

LABR ST 122  FRAMING THE MESSAGE FOR LABOR (1) CSU  
Lecture: 1 hour  
Students examine the language of labor and progressive action and learn to sharpen the message to broaden public support, build power, and gain political results.  
Student Learning Outcome(s):  
The student will be able to craft effective messages based on the union’s goals and audience assessment.

LABR ST 123  STEWARD TRAINING (1) CSU  
Lecture: 1 hour  
In this course, students will survey the role of union stewards and practice basic skills necessary. Students will overview skills and procedures for communicating with members, processing grievances, solving problems, organizing and mobilizing members.  
Student Learning Outcome(s):  
Students will employ the steps necessary to handle employee grievance under a union contract. Students will develop a plan to mobilize members.

LABR ST 125  LABOR ARBITRATION (1) CSU  
Lecture: 1 hour  
The arbitration process covers: selection and authority of arbitrators, preparation and elements of cases, how arbitrators decide cases, settlement techniques, and tips for effective use of arbitration.  
Student Learning Outcome(s):  
The student will be able to prepare and present a case for labor arbitration.

LABR ST 126  ISSUES IN LABOR ARBITRATION (1) CSU  
Lecture: 1 hour  
This course provides an overview of the two major issues in arbitration: discipline and discharge cases, covering: just cause, absenteeism, insubordination, substance abuse, and theft/dishonesty.  
Student Learning Outcome(s):  
The student will be able to evaluate facts and contract language to present an effective discipline and discharge case.

LABR ST 127  WORKER’S COMPENSATION (1) CSU  
Lecture: 1 hour  
The course provides a basic understanding of how Workers Compensation works, including: types of injuries and disability benefits, medical care, rehabilitation and financial support; and procedures for filing a claim and appeals.  
Student Learning Outcome(s):  
Students will describe basic California Workers’ Comp benefits, procedures, and how to file claims.

LABR ST 128  SEXUAL HARASSMENT AND DISCRIMINATION (1) CSU  
Lecture: 1 hour  
This course surveys sexual harassment and job discrimination including: criteria for claims, the law, court decisions, and protective agencies, policies and procedures for prevention.  
Student Learning Outcome(s):  
The student will be able to describe the legal elements of employment discrimination and sexual harassment and identify ways for employers, employees and unions to prevent job discrimination.

LABR ST 132  STRATEGIC BARGAINING (1) CSU  
Lecture: 1 hour  
Building bargaining power through the strategic use of leverage and pressure tactics, such as power analysis and member and community involvement.  
Student Learning Outcome(s):  
Students will develop a strategic contract campaign which includes pressure and leverage techniques.

LABR ST 134  CALIFORNIA WORKERS’ RIGHTS (1) CSU  
Lecture: 1 hour  
This course examines how the California Labor Code extends basic rights beyond federal law, including: minimum wage, maximum hours, timely pay, overtime and meal periods, right to know, parental and other leave rights, and enforcement procedures.  
Student Learning Outcome(s):  
Students will learn and demonstrate an understanding of California labor laws and protections, leaves and enforcement procedures.
### Graduation Requirements, Pathways and Programs of Study

**LABR ST 136 WHEN THE PAYCHECK STOPS (1) CSU**  
**Lecture: 1 hour**  
Union representatives occasionally must counsel members when the paycheck stops due to strikes, layoff, or plant closure. This course overviews professional services available for referral and teaches strategies for negotiating with landlords, mortgage companies, utility companies and other creditors.  
**Student Learning Outcome(s):**  
Students will create a portfolio of activities that include self assessments dealing with study habits, learning styles, character traits, time management tool, and organizational strategies.

**LAW**

**LAW 018 MARRIAGE AND FAMILY LAW (3) CSU**  
**Lecture: 3 hours**  
Students will examine and evaluate the ramifications of marriage, legal separation, divorce, custody and support, adoption, and guardianship on parental prerogatives and/or their statuses and capacities as legally recognized adults.  
**Student Learning Outcome(s):**  
Upon successful completion of this course a student will be able to: 1. Brief family law cases 2. Prepare legal documents, complete legal forms pertaining to marriage dissolution, or domestic violence, or modification of child support and custody orders.

**LAW 038 CRIMINAL LAW & PROCEDURE (3)**  
**Lecture: 3 hours**  
This course will introduce the student to Criminal Law and Criminal Procedure. The student will learn the elements of a crime that must be proven as to the allegations of the commission of that particular crime. The student will learn the regulatory procedures, both federal and state, that must be followed in order to realize criminal culpability. The student will also examine the roles of the parties to a criminal action.  
**Student Learning Outcome(s):**  
1) Student will be able to define a crime in terms of its elements and properly classify it. 2) Student will be able to determine if the parties to a crime have met their requisite juridical obligations and procedures in defending against the allegation of having engaged in a criminal act.

**LEARNING SKILLS**

**LRNSKL 068 STUDY SKILLS (1)**  
**Lecture: 0.5 hours / Lab: 1 hour**  
This course helps students develop basic study skills needed for college success. Study skills covered include but are not limited to: time management, organization skills, vocabulary building, reading, note taking, and listening strategies.

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**LIBRARY SCIENCE**

**LIB SCI 101 LIBRARY RESEARCH METHODS (1) UC/CSU**  
**Lecture: 1 hour**  
Students learn to conduct research using the library’s print and electronic resources, to distinguish between academic and popular sources, to develop research and organizational strategies for research assignments, to apply citation rules to their assignments, and to understand the basic requirements of copyright law and academic integrity.  
**Student Learning Outcome(s):**  
At the completion of the course, students will be able to: -Access books and articles electronically -Gather, identify, and analyze library resources -Appraise a Web site for its currency, accuracy and authority -Evaluate sample paraphrases to detect plagiarism and explain how a paraphrase is or is not plagiarized -Construct MLA and APA citations and a Works Cited List.

**MACHINE SHOP**

**MSCNC 111 PRINCIPLES OF MACHINE TOOLS I (2) CSU**  
**Lecture: 1.5 hours / Lab: 1.5 hours**  
MSCNC 111 (Principles of Machine Tools I) is a course that will engage students with Machine Shop specific topics including: safety practices, hand tools, precision measuring tools, set-up and operation of band saws, drill presses, lathes, mills, pedestal grinders, power saws as well as computer numerical control (CNC) machine tools. Theoretical and manipulative exercises will challenge students’ understanding of practical subject matter.  
**Student Learning Outcome(s):**  
Students will utilize applied machine shop theory to identify and know the safe use of various basic hand and machine tools.

**MSCNC 112A TECHNOLOGY AND APPLICATION OF MACHINING IA (3)**  
**Lab: 9 hours**  
MSCNC 112A (Technology and Application of Machining IA) is a lab course that will engage students with machine shop specific topics including: shop safety, speeds, feeds, set-up, operation and technology of basic machine tools. Band saws, drill presses, lathes, mills, pedestal grinders, power saws as well as computer numerical control (CNC) machine tools will be introduced and used by the students. Along with the machine tools, students will be expected to identify, manipulate and properly use and read basic hand tools and precision measuring instruments.  
**Student Learning Outcome(s):**  
Students will demonstrate knowledge of safety practices in the shop.
MSCNC 112B  TECHNOLOGY AND APPLICATION OF MACHINING (CAD) IB (1)

Lab: 3 hours

MSCNC 112B (Technology and Application of Machining (CAD) IB) is a course that will engage students with Machine Shop specific topics related to computer aided design (CAD). Topics will include solid model creation, blueprint creation, dimensioning, product development and assembling individual parts into completed assemblies.

Student Learning Outcome(s):

Students will utilize the computer aided design (CAD) software to create a solid model and generate a blueprint.

MSCNC 114  PRINT INTERPRETATION & SKETCHING (BLUEPRINT I) (3) CSU

Lecture: 3 hours

MSCNC 114 (Print Interpretation & Sketching (Blueprint I)) is a course that will engage students in Machine Shop topics that are related to blueprint reading, interpretation and sketching techniques. Mechanical drawings of multiple views, different drawing standards, dimensioning techniques, as well as sketching techniques for free hand drawings will also be covered.

Student Learning Outcome(s):

Students will utilize industry specific blueprint reading skills to visualize and communicate part shape, form and function.

MSCNC 115  BASIC APPLIED MATHEMATICAL CALCULATIONS (3) CSU

Lecture: 3 hours

MSCNC 115 (Basic Applied Mathematical Calculations) is a course that will engage students with machine shop specific topics related to calculations and calculator manipulation. Number theory, inch & metric calculations, algebra, ratios & proportions and fractions will all be covered in this course.

Student Learning Outcome(s):

Students will utilize applied machine shop calculations to perform addition, subtraction, multiplication & division of whole numbers, decimals, fractions & mixed numbers.

MSCNC 121  PRINCIPLES OF MACHINE TOOLS II (2) CSU

Lecture: 1.5 hours / Lab: 1.5 hours

MSCNC 121 (Principles of Machine Tools II) is a course that will engage students with Machine Shop specific topics including: safety practices, Principles of lathes, milling machines, attachments, and special lathes and milling operations. Introduction to other special machinery and basic CNC programming will also be covered.

Student Learning Outcome(s):

Students will utilize applied machine shop theory to identify and know the safe use of various milling and turning machines as well as their accessories.

MSCNC 122A  TECHNOLOGY AND APPLICATION OF MACHINING IIA (3) CSU

Lab: 9 hours

MSCNC 122A (Technology and Application of Machining IIA) is a course that will engage students with Machine Shop specific topics, such as implementation of safety, speeds, feeds, form tools, setups including related attach-

ments and accessories for lathe and milling machine operations. Inspection techniques and CNC machine set-up and operations will also be covered.

Student Learning Outcome(s):

Students will utilize CNC programming techniques to write and run part programs.

MSCNC 122B  TECHNOLOGY AND APPLICATION OF MACHINING IIB (1)

Lab: 3 hours

MSCNC 122B (Technology and Application of Machining IIB) is a course that will engage students with Machine Shop specific topics related to computer aided design (CAD). Topics will include geometric dimensioning and tolerancing (GD&T), section views, auxiliary views and advanced modeling and assembling techniques.

Student Learning Outcome(s):

Students will utilize a computer aided design (CAD) program to create intermediate part models, product assemblies and related blueprints.

MSCNC 124  PRINT INTERPRETATION AND INSPECTION (BLUEPRINT II) (3) CSU

Lecture: 3 hours

MSCNC 124 (Print Interpretation and Inspection (Blueprint II)) is a course that will engage students in Machine Shop specific topics such as; advanced interpretation of machine shop-CNC related drawings with introduction to inspection, geometric tolerancing, and SPC.

Student Learning Outcome(s):

Students will utilize industry accepted standards for reading, form, fit and function of parts described on MSCNC related blueprints.

MSCNC 125  INTERMEDIATE APPLIED MATHEMATICAL CALCULATIONS (3) CSU

Lecture: 3 hours

MSCNC 125 (Intermediate Applied Mathematical Calculations) is a class that will engage students with Machine Shop specific topics such as; algebraic formulas related to good machining practices and geometric relationships and formulas are used to get correct cutting positions and programming code.

Student Learning Outcome(s):

Students will utilize applied machine shop calculations to perform machine shop related algebraic & geometric calculations.

MSCNC 131A  PRINCIPLES OF MACHINE TOOLS IIIA (2)

Lecture: 1.5 hours / Lab: 1.5 hours

MSCNC 131A (Principles of Machine Tools IIIA) is a course that will engage students with Machine Shop specific topics including; shop safety, engine lathe, milling machine, vertical milling machine, grinders as well as materials, inspection techniques and machining topics. Theoretical and manipulative exercises will challenge students’ understanding of practical subject matter.

Student Learning Outcome(s):

Students will utilize applied machine shop theory to identify and know the safe use of various materials, saving machines, grinding machines & specialized tools and equipment.
MSCNC 131B PRINCIPLES OF MACHINE TOOLS (CNC) IIIB (3)

Lecture: 3 hours

MSCNC 131B (Principles of Machine Tools (CNC) IIIB) is a course that will engage students with Machine Shop specific topics related to machine tool programming. Both numerical control (NC) and computer numerical control (CNC) machine tools must have ‘part programs’ written for them to perform their intended function and create parts that are correct in fit, form and function.

Student Learning Outcome(s):

Students will utilize CNC programming knowledge to draw a picture that represents the “part” that the machine tool program would make.

MSCNC 132A TECHNOLOGY AND APPLICATION OF MACHINING IIIA (3)

Lab: 9 hours

MSCNC 132A (Technology and Application of Machining IIIA) is a course that will engage students with Machine Shop specific topics related to the set-up, operation, and/or programming of grinding machines, milling machines, engine lathes, CNC machining centers, CNC turning centers and EDM machines. Assigned projects will allow students to continue to build their skills on previously encountered machine tools as well as being introduced to new technologies, including unconventional machining techniques.

Student Learning Outcome(s):

Students will utilize industry accepted procedures to create shop projects.

MSCNC 132B TECHNOLOGY AND APPLICATION OF MACHINING (CAM) IIIB (1)

Lab: 3 hours

MSCNC 132B (Technology and Application of Machining (CAM) IIIB) is a course that will engage students with Machine Shop specific topics regarding computer aided manufacturing (CAM) computer programs. Students will create geometry, cutting tools, process information in order for the CAM program to create cutter paths that will create the correct fit, form and function on the part.

Student Learning Outcome(s):

Students will utilize the computer aided manufacturing (CAM) program to create simple geometry, cutting tools and processes and then have the CAM program write a part program.

MSCNC 135 ADVANCED APPLIED MATHEMATICAL CALCULATIONS (3) CSU

Lecture: 3 hours

MSCNC 135 (Advanced Applied Mathematical Calculations) is a course that will engage students with Machine Shop specific topics as they relate to trigonometric and compound angular calculations.

Student Learning Outcome(s):

Students will utilize applied machine shop calculation problems related to machine shop trigonometric problems and programming related problems.

MSCNC 141 PRINCIPLES OF MACHINE TOOLS (CNC) IV (2)

CSU

Lecture: 1.5 hours / Lab: 1.5 hours

MSCNC 141 (Principles of Machine Tools (CNC) IV) is a course that will engage students with Machine Shop specific topics: Advanced theory related to safety, programming, set-up and operation of CNC machine tools. Introduction to specialized machining for intricate parts and/or tool and die and/or mold making will also be covered.

Student Learning Outcome(s):

Students will engage students with Machine Shop specific topics related to machine tool programming.

MSCNC 142A TECHNOLOGY AND APPLICATION OF MACHINING IV A (3)

Lab: 9 hours

MSCNC 142A (Technology and Application of Machining IV A) is a course that will engage students with Machine Shop specific topics: advanced safety, application, programming, set-up and operation of CNC lathes and milling machines. Set-up and operation of precision machine tools for intricate parts and/or tool and die and/or plastic mold fabrication will also be covered.

Student Learning Outcome(s):

Students will utilize industry approved techniques and procedures to program, set-up and machine several parts to create a multiple part assembly.

MSCNC 142B TECHNOLOGY AND APPLICATION OF MACHINING IV B (1)

Lab: 3 hours

MSCNC 142B (Technology and Application of Machining IV B) is a course that will engage students with Machine Shop specific topics: shop safety, advanced manufacturing techniques, CNC operations, advanced inspection techniques and manufacturing economy.

Student Learning Outcome(s):

Students will utilize knowledge of computer aided design (CAD) and computer aided manufacturing (CAM) programs to model, generate a part program and then cut the part on a CNC machine tool.

MSCNC 161A COMPUTER ASSISTED MACHINE PROGRAMMING (CAM) IA (3) CSU

Lecture: 3 hours

MSCNC 161A (Computer Assisted Machining Programming (CAM) IA) is a course that will engage students with Machine Shop specific topics: application of Computer Aided Manufacturing (CAM) systems for development of computer numerical control (CNC) programs for complex two and three axis machined parts. Use of 3-D graphics and part verification software systems will also be explored.

Student Learning Outcome(s):

Students will utilize the computer aided manufacturing (CAM) program to generate a part program for a specified CNC machine tool control.

MSCNC 161B COMPUTER ASSISTED MACHINE PROGRAMMING (CAM) IB (3)

Lecture: 3 hours

MSCNC 161B (Computer Assisted Machine Programming (CAM) IB) is a course that will engage students with Machine Shop specific topics: advanced topics of
**Graduation Requirements, Pathways and Programs of Study**

**MANAGEMENT**

**MGMT 002**  
**ORGANIZATION AND MANAGEMENT THEORY**  
(3) CSU  
Lecture: 3 hours

As part of the study of industrial organization, this course covers such topics as financing enterprise, building the internal organization, and plant layout. The study of industrial operations includes production planning and control, inventory and materials handling, quality control, and methods analysis and work simplification. In addition, this course includes a consideration of the principles of industrial relations and personnel management, office management, and internal coordination and environmental issues.

**Student Learning Outcome(s):**

1. Students will understand the overview of organization development.  
2. Student will understand the nature of planned change in organizations.  
3. Student will be able to diagnose organizations along with groups and jobs.  
4. Students will understand individual, interpersonal and group process approaches in organizations.  
5. Student will be able to evaluate the restructuring of an organization.  
6. Student will understand work design and performance management.  
7. Student will understand organizational transformation that includes cultural change, organization learning and knowledge management.  
8. Student will understand organizational development in global settings.  
9. Students will be able to examine future trends in organizational development.

**MGMT 013**  
**SMALL BUSINESS ENTREPRENEURSHIP**  
(3) CSU  
Lecture: 3 hours

This course will present a systematic approach to successful small business operation. The course covers personnel evaluation, pre-ownership evaluation, management and leadership, financing, location, taxation, records, employees, purchasing, advertising, sales, and credit. The course emphasizes the development of a business plan.

**Student Learning Outcome(s):**

Students will be able to research, compose, and write a comprehensive business plan. Students will be able to apply the principles of marketing, financial requirements, operations, and management to a small business. Students will be able to analyze and evaluate the competitive environment and identify direct competition. Students will be able to understand, evaluate and compare starting a business versus buying an ongoing business.

**MGMT 033**  
**HUMAN CAPITAL MANAGEMENT**  
(3) CSU  
Lecture: 3 hours

This course is concerned with the development of the personnel function, personnel tools and records, and the use of psychology in personnel administration. Training and education of employees, incentives, special problems of personnel administration and management, employee representation, and social controls are included as topics of discussion.

**Student Learning Outcome(s):**

Students will utilize the computer aided manufacturing (CAM) program to generate a part program to run a CNC machine with a specified control.
equipment components. Upon completion of this course students will (1) add, subtract, multiply, divide whole numbers, fractions, mixed numbers and decimals, (2) round off decimals to one or more places, (3) use measuring devices to determine size, length, angle or distance, (4) use a calculator to perform basic arithmetic operations, and (5) convert mixed numbers fractions to decimals and vice versa. 3. Students will pass the GMAW-S welder performance qualification test (AWS EDU-3) on carbon steel. 4. Students will pass the GMAW welder performance qualification test (AWS EDU-2) on carbon steel.

**MIT 222 GAS TUNGSTEN ARC WELDING I IN ADVANCED MANUFACTURING (4.5)**

Lecture: 1.5 hours / Lab: 9 hours

This course is designed to provide students with basic performance qualification skills in Gas Tungsten Arc Welding (TIG) needed for employment in the modern manufacturing industry. This course follows AWS standardized curriculum leading to students performance qualifications to the AWS Specifications for Fusion Welding for Aerospace Applications.

Student Learning Outcome(s):

1. Student will perform a safety inspection while identifying GTAW equipment components. 2. Students will interpret basic elements of a drawing or sketch. 3. Students will pass the welder performance qualification test (Module 3) on carbon steel.

**MIT 223 SEMI-AUTOMATIC WELDING II (FCAW) IN ADVANCED MANUFACTURING (4.5)**

Lecture: 1.5 hours / Lab: 9 hours

This course provides detailed knowledge including welder's performance qualifying skills using the Flux-Cored Arc Welding process used in the modern manufacturing industry. This course follows the American Welding Society Curriculum Guide for the Training of Welding Personnel: Level I-Entry Welder leading to qualifications outlined in American Welding Society (AWS) D1.1-Structural Steel Welding Code and the American Society of Manufacturing Engineers (ASME) Section IX Code.

Student Learning Outcome(s):

1. Students will perform a safety inspection while identifying GMAW and FCAW equipment components. 2. Upon completion of this course students will make metric system measurements, geometric measurements, angular measurements, and bends, stretchouts, economical layout, and takeoffs. 3. Students will pass the FCAW welder performance qualification test (AWS EDU-1) on carbon steel using both FCAW-S and FCAW-G processes.

**MIT 224 GAS TUNGSTEN ARC WELDING II IN ADVANCED MANUFACTURING (4.5)**

Lecture: 1.5 hours / Lab: 9 hours

This course is designed to provide students with advanced performance qualification skills in Gas Tungsten Arc Welding (TIG) needed for employment in the modern manufacturing industry. This course follows AWS standardized curriculum leading to students performance qualifications to the AWS Specifications for Fusion Welding for Aerospace Applications.

Student Learning Outcome(s):

1. Students will interpret advanced elements of a drawing or sketch. 2. Students will pass the GTA welder performance qualification test (AWS EDU-4) on stainless steel. 3. Students will pass the GTA welder performance qualification test (AWS EDU-5) on aluminum.

**MIT 225 GAS TUNGSTEN ARC WELDING III (PIPE) IN ADVANCED MANUFACTURING (4.5)**

Lecture: 1.5 hours / Lab: 9 hours

This course provides the advance knowledge needed to weld pressure vessels using the Gas Tungsten Arc Welding (TIG) process. This course follows the American Welding Society Curriculum Guide for the Training of Welding Personnel: Level II-Advance Welder, leading to welder’s qualifications outlined in the American Society of Manufacturing Engineers (ASME) Section IX Code.

Student Learning Outcome(s):

1. Students will interpret advanced elements of a drawing or sketch. 2. Students will pass the GTA welder’s Performance Qualification Test on Pipe in the Fixed 45° Position to AWS Standard-Level II-Advance Welder-Workmanship Test, (AWS2-5) and (AWS2-6).

**MIT 226 INTRODUCTION TO ROBOTIC WELDING AND AUTOMATION (4.5)**

Lecture: 1.5 hours / Lab: 9 hours

The course provides fundamental theory and hands-on application of robotic welding and automation. Emphasis is placed on safety awareness, programming techniques, and basic gas metal arc welding applications using a six-axis robotic welding systems.

Student Learning Outcome(s):

1. Students will have understanding of the robotic interfacing system. 2. Students will have the ability to make changes to the weld data, torch angles, electrode stickout, starting techniques, and other welding variables.

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**MARKETING**

**MARKET 001 PRINCIPLES OF SELLING (3) CSU**

Lecture: 3 hours

This course includes the development of the fundamental principles of wholesale and specialty selling, including such phases as developing the sales plan, securing prospects, effective goods and service presentation, product analysis, closing the sale, and service after the sale.

Student Learning Outcome(s):

Student will be able to determine appropriate technique to suit the sale of a product or service.

**MARKET 011 FUNDAMENTALS OF ADVERTISING (3) CSU**

Lecture: 3 hours

This course will provide students the introduction to the role of advertising in our economy. It gives a comprehensive overview of the planning and managing of advertising. The course also covers how the major forms of media, such as television, radio, newspapers, magazines, the Internet are integrated into the advertising campaign.

Student Learning Outcome(s):

Analyze and apply the advertising strategies and concepts in the advertising industry along with the core advertising components of the advertising agency, media, research and sales promotion services.
MATH 105 ARITHMETIC (3) CSU
Lecture: 3 hours

This course reviews fundamentals of arithmetic in college and business. Topics include basic operations with fractions, decimals, percent, and measurement. The course emphasizes problem solving techniques that are useful in practical situations.

Student Learning Outcome(s):
Students will explain and analyze the marketing concepts and its core components.

MARKET 025 SMALL BUSINESS MARKETING INTERNSHIP (3)
Lecture: 3 hours

Prerequisite: Management 13 and Marketing 21

This course will provide students with the opportunity to test their entrepreneurial potential and experience firsthand what entrepreneurship entails. Students will immerse themselves in the entrepreneurial process by participating in a comprehensive real-world small business simulation and participating in an external internship provided by local small businesses. Students will also work with entrepreneurial faculty to successfully develop and launch their own small business in addition to receiving valuable knowledge, resources and one-on-one support to aid them in sustainable, long-term small business success.

Student Learning Outcome(s):
Students will be able to recognize entrepreneurial opportunities and demonstrate the understanding of how to launch their entrepreneurial career. Students will be able to utilize their critical thinking and problem solving abilities to develop a small business operations, marketing, human resources and financial plan, develop strategies for ongoing small business advancement and success, utilize computer technology to support small business management and determine relevant federal, state, and city licensing regulations and requirements.

MARKET 040 RETAIL MANAGEMENT (3) CSU
Lecture: 3 hours

This course provides a systematic approach to the principles and procedures of retailing, including a study of store location, store layout, store organization, buying, pricing, stock planning, and the retail communication mix.

Student Learning Outcome(s):
Students will be able to analyze and apply various marketing concepts in the industry of retail management, such as identification of market needs and/ or wants and buying behavior. They will also understand marketing planning, retail strategies, and the retail mix to design, to develop and operate a retail business.

MATH 110 INTRODUCTION TO ALGEBRAIC CONCEPTS (5)
Lecture: 5 hours

Prerequisite: Placement Exam

This course discusses abstract ideas necessary for understanding algebra and reviews selected topics in arithmetic relevant to algebra. Students are introduced to fundamental notions of algebra including signed numbers, variables, simple equations, proportional reasoning, applications, and modeling. This course also includes instruction in mathematics study skills.

Student Learning Outcome(s):
Upon successful completion of this course 1. Students will define and manipulate signed number and variables. 2. Students will solve simple linear equations in one variable. 3. Students will locate signed numbers on the number line and use a number line to add and subtract signed numbers. 4. Students will apply a known formula to a given situation.

MATH 112 PRE-ALGEBRA (3)
Lecture: 3 hours

Prerequisite: Math 105

This course prepares students for their first course in Algebra. Topics include brief review of arithmetic, operations with signed numbers, evaluate and follow the mathematical principles, order of operations to evaluate numerical expressions involving rational number problems. Solve application problems by using critical-thinking skills.

Student Learning Outcome(s):
Upon the completion of the course students will be able to: Perform the four basic operations on rational numbers Apply and follow the mathematical principles and order of operations to evaluate numerical expressions involving rational number problems. Solve application problems by using critical-thinking skills.
In order to receive an Associate Degree at LATTC, you are required to complete the Math competency requirements of Math 125, Intermediate Algebra.

To transfer to a university, depending on your major, one or more college level math course(s) beyond Math 125, Intermediate Algebra, will be required. Based on your current learning needs, as demonstrated by the assessment, one of the courses below will be recommended for you. We strongly encourage you to enroll in your recommended math course your first semester. Based on your math placement level it may take you several semesters to complete the math requirement(s) for your educational goal.

Transfer Math Level is a 200 Course
If you take the Math Assessment Test and believe that your score does not accurately reflect your skill level, you may retake the Assessment Test the next term. Note that once you have enrolled /started the course sequence in a math course, you may not retake the Assessment Test.

### Math for non-Stem Majors

*For CSU Business Majors*

- Math 105 Arithmetic 3 units
- Math 112 Pre-Algebra 3 units
- Math 113 Elem. Alg. (A) 3 units
- Math 114 Elem. Alg. (B) 3 units
- Math 115 Elem. Alg. 5 units
- Math 116 Intro. To Algebraic Concepts 5 units (Combo or 105 & 112)
- Math 125 Int. Algebra 3 units
- Math 225 Int. Stats 3 units UC:CSU
- Math 227 Statistics 4 units UC:CSU
- Math 235 Finite Math (5) UC:CSU
- Math 240 Trigonometry 3 units
- Math 260 Pre Calculus 5 units UC:CSU
- Math 265 Calculus 1 5 units UC:CSU
- Math 266 Calculus 2 5 units UC:CSU
- Math 267 Calculus 3 5 units UC:CSU
- Math 269 Ord. Dif. Equations 5 units UC:CSU
- Math 270 Lin. Algebra 3 units UC:CSU
- Math 275 Ord. Dif. Equations 5 units UC:CSU
- Math 276 Lin. Algebra 3 units UC:CSU
- Math 275 Ord. Dif. Equations 5 units UC:CSU
MATH 115 ELEMENTARY ALGEBRA (5)
Lecture: 5 hours
Prerequisite: Mathematics 110 or 112.
Topics include signed numbers, variables, the order of operations; addition, subtraction, multiplication, and division of signed numbers and polynomials. Solve linear equations, inequalities, factoring, graphs. Solve word problems, systems of equations, rational equations, radicals and quadratic equations.

Student Learning Outcome(s):
Upon successful completing this course: 1. The student will be able to define and manipulate linear expressions and polynomials. 2. The student will be able to solve any linear equation, factorable quadratic equations and various systems of two-variable linear equations. 3. The student will be able to plot points and graph linear equations on a Cartesian coordinate system. 4. The student will be able to set up linear equations representing situations, solve, justify, and interpret the solution in the context of the problem.

MATH 120 PLANE GEOMETRY (3)
Lecture: 3 hours
Prerequisite: Mathematics 115.
This course is an introduction to Euclidean geometry and it is equivalent to one year of high school geometry. This course covers introduction to logic, and analytical reasoning, the study of plane figures such as triangles, parallelograms and other polygons, and circles with related definitions, postulates, theorems, and construction of a formal proof, construction of plane figures using compass and straight edge, and computations for perimeter, area and volume.

Student Learning Outcome(s):
1. Determine angle measures in different geometric figures. 2. Construct geometric figures using a straightedge and compass. 3. Write direct and indirect proofs of theorems and corollaries.

MATH 121 ELEMENTARY GEOMETRY FOR COLLEGE STUDENTS (3)
Lecture: 3 hours
Prerequisite: Mathematics 115.
This course is an introduction to Euclidean geometry and it is equivalent to one year of high school geometry. This course reviews the basic geometric construction, definitions, postulates, theorems and their proofs for triangles, parallel lines and circles.

Student Learning Outcome(s):
SLOs: Determine angle measures in different geometric figures. Construct geometric figures using a straightedge and compass. Write direct and indirect proofs of theorems and corollaries. Solve problems involving geometric figures using definitions, postulates, and theorems.

MATH 125 INTERMEDIATE ALGEBRA (5)
Lecture: 5 hours
Prerequisite: Mathematics 114 or Mathematics 115.
This course is a study of the properties of real numbers, laws of exponents, radicals, equations & inequalities in linear and quadratic form, system of equations, matrices, graphing in two variables, rational expressions & equations, complex numbers, conic sections & their graphs, exponential and logarithmic functions.

Student Learning Outcome(s):
Upon successful completing this course: 1. The student will be able to define and manipulate nonlinear and linear functions and relations. 2. The student will be able to solve a variety of nonlinear equations, e.g. logarithmic, inverse, quadratic equations, absolute value, rational. 3. The student will be able to create, analyze, and interpret graphs of linear and nonlinear relations. 4. The student will be able to apply algebraic skills to a variety of applications such as: growth and decay, logic, reasoning, geometry, optimization, quadratic applications (motion, mixture, work).

MATH 225 INTRODUCTORY STATISTICS (3) UC/CSU
Lecture: 3 hours
Prerequisite: Mathematics 125.
The course discusses basic concepts and techniques of descriptive and inferential statistics including sampling, probability, statistical distributions, tables and graphs, central limit theory, hypothesis testing, confidence interval estimation, correlation and regression.

Student Learning Outcome(s):
Upon successful completing this course: 1. The student will be able to test the hypothesis for sample proportion, mean and standard deviation. 2. The student will be able to determine the probability of an event given a distribution. 3. Student will perform correlation and linear regression analysis.

MATH 227 STATISTICS (4) UC/CSU
Lecture: 4 hours
Prerequisite: Mathematics 125.
Discusses basic concepts and techniques of descriptive and inferential statistics including sampling, probability, statistical distributions, tables and graphs, central limit theory, hypothesis testing, confidence interval estimation, correlation and regression. Most analysis will be done using Excel spreadsheet program.

Student Learning Outcome(s):
Upon successful completing this course: 1. The student will be able to test the hypothesis for sample proportion, mean and standard deviation. 2. The student will be able to determine the probability of an event given a distribution. 3. Student will perform correlation and linear regression analysis.
MATH 235 FUNDAMENTAL MATHEMATICS (5) UC/CSU
Lecture: 5 hours
Prerequisite: Mathematics 125.

This course consists of the basic concepts and operations of algebra essential to business, life and social science majors. The course includes the study of rational exponents, quadratic equations, graphs, logarithms, mathematics of finance, linear programming and an introduction to probability and statistics.

Student Learning Outcome(s):
Upon of successful completion of the course student will: (1) Graph and model with polynomial, rational, exponential and logarithmic functions. (2) Solve polynomial, rational, exponential and logarithmic equations. (3) Solve linear and nonlinear system of equations and inequalities and their applications.

MATH 236 CALCULUS FOR BUSINESS AND SOCIAL SCIENCE (5) UC/CSU
Lecture: 5 hours
Prerequisite: Mathematics 125.

This course is an introduction to one and two variable calculus as applied to business, economics, and social sciences, included are applications of partial derivatives and multiple integrals to extrema problems.

Student Learning Outcome(s):
1) Apply the methods of differential calculus to analyze problems in Business and Economics. 2) Apply the methods of differential calculus to sketch the graph of functions, determine maxima and minima in optimization problems, find rates of change and tangent lines and analyze revenue, cost and profit, in addition to marginal revenue, marginal cost and marginal profit. 3) Apply the methods of integral calculus to solve problems in Business and Economics.

MATH 240 TRIGONOMETRY (3) CSU
Lecture: 3 hours
Prerequisite: Mathematics 125; Mathematics 121.

Topics in this course include trigonometric functions, circular functions; trigonometric equations; trigonometric identities; solutions of right and oblique triangles; inverse trigonometric functions, graphing; complex numbers and DeMoivre’s Theorem; polar coordinates; vectors and applications.

Student Learning Outcome(s):
Upon successful completion students will be able to: 1. Develop reciprocal, quotient and Pythagorean identities from the definitions of the trigonometric functions. 2. Solve application problems that are right-triangle based. 3. Graph the trigonometric functions; define and graph the inverse circular functions. 4. Use the Law of Sines and Law of Cosines to solve vector applications. 5. Solve such application problems as length of an arc, area of a sector, velocity and angular speed.

MATH 245 COLLEGE ALGEBRA (3) UC/CSU
Lecture: 3 hours
Prerequisite: Mathematics 125.

Upon successful completion of this course, students will reinforce the concept of functions and their graphs important in later courses of mathematics, science, business, nursing, or computer science. Polynomial, rational, radical, exponential, and logarithmic equations, both linear and nonlinear systems, sequences and series, and basics of probability are covered to allow students to solve a wide variety of real-life applications.

Student Learning Outcome(s):
Upon of successful completion of the course student will: (1) Graph and model with polynomial, rational, exponential and logarithmic functions. (2) Solve polynomial, rational, exponential and logarithmic equations. (3) Solve linear and nonlinear system of equations and inequalities and their applications.

MATH 260 PRECALCULUS (5) UC/CSU
Lecture: 5 hours
Prerequisite: Mathematics 240.

After a brief review of algebra with real and complex numbers, this course will cover the following topics: polynomial and rational functions with informal limits; exponential, logarithmic and trigonometric functions; systems of equations and matrices; sequences, series and the binomial theorem; conics and polar coordinates.

Student Learning Outcome(s):
Upon successful completion students will be able to: 1. Analyze and graph exponential and logarithmic functions; solve exponential and logarithmic equations. 2. Analyze and graph trigonometric functions; solve trigonometric equations; verify and use trigonometric identities and formulas. 3. Write recursive and explicit formulas for sequences; evaluate partial sums and infinite series; apply the Binomial Theorem. 4. Write equations of conics, and graph conics; convert equations from rectangular to polar coordinates, and vice versa.

MATH 265 CALCULUS WITH ANALYTIC GEOMETRY I (5) UC/CSU
Lecture: 5 hours
Prerequisite: Mathematics 260.

The first Calculus course in a three-course sequence. Topics include: functions, limits, continuity, techniques and applications of differentiation and integration, mean value theorem, Fundamental Theorem of Calculus, definite integrals.

Student Learning Outcome(s):
Upon successful completion students will be able to: 1. Use and interpret derivatives algebraically, graphically, and numerically to model rates of change in application problems (for example, velocity, acceleration, population growth) 2. Use and interpret integrals algebraically, graphically, and numerically to model summation in application problems (for example, distance traveled, average value, and areas of geometric figures).

MATH 266 CALCULUS WITH ANALYTIC GEOMETRY II (5) UC/CSU
Lecture: 5 hours
Prerequisite: Mathematics 265.

This is the second course in the Calculus sequence. Topics include: application of the definite integral to geometry, science and engineering; techniques of integral evaluation; introduction to differential equations; sequences and infinite series; parametric and polar curves; conic sections.

Student Learning Outcome(s):
Upon completion of the course, a student will be able to: 1. Select and use the appropriate technique to evaluate a given non-elementary integral. 2. Use the definite integral to solve problems in geometry, science and engineering. 3. Select an appropriate test and apply it to determine whether a given infinite series converges, apply the theory of power series to applications.
MATH 267 CALCULUS WITH ANALYTIC GEOMETRY III (5) UC/CSU
Lecture: 5 hours
Prerequisite: Mathematics 266.

This is the third course in Calculus series. It reviews operations with vectors in two and three-dimensional spaces as well as vector-valued functions with their applications. Topics include partial derivatives, Lagrange multiplier, Line integrals, multiple integrals in polar, cylindrical and spherical coordinates, Green’s theorem, Surface integrals, Divergence and Stokes’ theorems.

Student Learning Outcome(s):
Upon the successful completion of the course, students will be able to: 1. Use and interpret derivatives algebraically, graphically, and numerically to model rates of change in application problems such as: locate relative and absolute extreme of functions of several variables, derive equations of lines and planes, analyze the motion of a particle in space, use differentials to find local linear approximations, find directional derivatives, and gradient. 2. Use and interpret integrals algebraically, graphically, and numerically to model summation in application problems such as: find volume of a solid region, center of a mass, moments of inertia, surface area, flux, work, and energy.

MATH 270 LINEAR ALGEBRA (3) UC/CSU
Lecture: 3 hours
Prerequisite: Mathematics 266.

Introduction to linear algebra and matrix theory. Topics include: linear systems, matrices and determinants; vector spaces and linear transformations; eigenvalues and eigenvectors; inner product spaces and canonical forms.

Student Learning Outcome(s):
Upon the successful completion of the course students will: 1. Be able to apply basic chemical principles in microbiology. 2. Be able to differentiate cellular structures in procaryotic and eucaryotic cells. 3. Be able to discuss fundamental concepts in microbial metabolism, microbial growth, and microbial genetics. 4. Be able to compare and contrast bacteria, fungi, algae, protozoa, helminthes, and viruses. 5. Be able to differentiate nonspecific and specific defenses of the host. 6. Be able to discuss infectious diseases of the human organ systems.

MATH 275 ORDINARY DIFFERENTIAL EQUATIONS (3) UC/CSU
Lecture: 3 hours
Prerequisite: Mathematics 266.

Topics include ordinary differential equations with concentration on first and higher-order, homogeneous and non-homogeneous linear differential equations with or without initial-value conditions and their applications; establishing existence of solutions as the techniques for obtaining solutions, including, series solutions, and singular points, Laplace transforms and linear systems. System of linear first-order differential equations: Cauchy-Euler equation; series solutions; Laplace transform; numerical solutions.

Student Learning Outcome(s):
Upon the successful completion of the course students will: 1. Solve first-order separable linear differential equations and use these methods to solve applied problems. 2. Solve higher order constant-coefficient linear differential equations and systems of differential equations and use these methods to solve applied problems. 3. Apply appropriate transform methods to solve differential equations. 4. Construct power series solutions for various classes of ordinary differential equations.

MICROBIOLOGY

MICRO 001 INTRODUCTORY MICROBIOLOGY (5) UC/CSU
Lecture: 3 hours / Lab: 6 hours
Prerequisite: ANATOMY 001 or BIOLOGY 003 or 005 or 006 and CHEMISTRY 026, 051 or 101.

This course covers fundamental principles of microbiology and standard laboratory techniques. It includes systematics, morphology, physiology, genetics, ecology and evolution of microorganisms. Medical applications include concepts in microbial growth and control, epidemiology, immunology and disease. Industrial and environmental applications cover use of microorganisms’ diverse metabolic abilities in the production of food, chemicals and medicine, including role in biotechnology and environment.

Student Learning Outcome(s):
1. Be able to apply basic chemical principles in microbiology. 2. Be able to differentiate cellular structures in procaryotic and eucaryotic cells. 3. Be able to discuss fundamental concepts in microbial metabolism, microbial growth, and microbial genetics. 4. Be able to compare and contrast bacteria, fungi, algae, protozoa, helminthes, and viruses. 5. Be able to differentiate nonspecific and specific defenses of the host. 6. Be able to discuss infectious diseases of the human organ systems.

MICRO 020 GENERAL MICROBIOLOGY (4) UC/CSU
Lecture: 3 hours / Lab: 3 hours
Prerequisite: ANATOMY 001 or BIOLOGY 003 or 005 or 006 and CHEMISTRY 026, 051 or 101.

This is a comprehensive course for nursing and allied health majors. It covers fundamental principles and laboratory techniques related to systematics, morphology, physiology, genetics, ecology and evolution of microorganisms. Medical applications include basic concepts of microbial growth and control, epidemiology, immune response and a survey of important human diseases.

Student Learning Outcome(s):
1. Be able to apply basic chemical principles in microbiology. 2. Be able to differentiate cellular structures in procaryotic and eucaryotic cells. 3. Be able to discuss fundamental concepts in microbial metabolism, microbial growth, and microbial genetics. 4. Be able to compare and contrast bacteria, fungi, algae, protozoa, helminthes, and viruses. 5. Be able to differentiate nonspecific and specific defenses of the host. 6. Be able to discuss infectious diseases of the human organ systems.

MICROCOMPUTER TECHNICIAN

MICROT077 CISCO NETWORKING ACADEMY - SEMESTER I (3)
Lecture: 2 hours / Lab: 3 hours

The first in a four course sequence, that qualifies the student to take the CISCO CCNA Certification Test; and covers Fundamentals of Computer Internet-working, Safety Technology, Protocols, Network Theory and Standards, Cat6ing, Electrical Considerations, OSI Models, IP Addressing and basic networking Hardware.

Student Learning Outcome(s):
The student will have an understanding of network terminology and theory, recognize various ethernet configurations.
MICROTK 078    CISCO NETWORKING ACADEMY - SEMESTER II (3)
Lecture: 2 hours / Lab: 3 hours

This is the second course in a four course sequence that qualifies the student to take the CISCO CCNA Certification Test; and covers router fundamentals, beginning router setup and configuration, routed and routing protocols, WAN fundamentals, network troubleshooting and network management.

Student Learning Outcome(s):

The student will understand beginning router setup and configuration, routed and routing protocols, wide area inter networking fundamentals, network troubleshooting, and network management.

MICROTK 079    CISCO NETWORKING ACADEMY - SEMESTER III (3)
Lecture: 2 hours / Lab: 3 hours

This is the third course in a four course sequence that qualifies the student to take the CISCO CERTIFICATION TEST; and covers advanced router set-up and configurations, LAN switching theory and VLANs, advanced LAN and LAN switched design, Novell IPX, and Threaded case studies.

Student Learning Outcome(s):

The student will demonstrate an understanding of the following: Single-Area OSPF, EIGRP, Switching Concepts, Switches and Switch Configuration, the Spanning Tree Protocol, Virtual LANs, Trunking Protocols, and Scaling IP Addresses. The WAN technologies PPP, ISDN and DDR, and Frame Relay are introduced. The student will also become familiar with Network Administration.

MICROTK 080    CISCO NETWORKING ACADEMY - SEMESTER IV (3)
Lecture: 2 hours / Lab: 3 hours

This is the fourth course in a four course sequence that qualifies the student to take the CISCO CCNA Certification Exam; and covers advanced WAN theory and design; WAN Technology, PPP, Frame Relay, ISDN; Application of National SCANS skills in managing a network and network threaded case studies.

Student Learning Outcome(s):

Students will demonstrate an understanding of the following: advanced WAN theory and design, WAN technologies PPP, Frame Relay, ISDN, applications of national SCANS skills in managing a network, and Network Threaded case studies.

MICROTK 162    IT ESSENTIALS NETWORKING PERSONAL COMPUTERS (4)
Lecture: 2 hours / Lab: 6 hours

The course will assist students in designing, selecting, configuring and installing local area networks. System administration and troubleshooting is also covered in detail.

Student Learning Outcome(s):

Upon completion students will be able to connect to the Internet and share resources in a network environment.

MICROTK 164    IT ESSENTIALS MICROCOMPUTER THEORY AND SERVICING (5)
Lecture: 3 hours / Lab: 6 hours

The course provides servicing techniques for microcomputers and their related peripherals. Hands-on instruction is provided in diagnosing a range of microcomputers malfunctions.

Student Learning Outcome(s):

Students will assemble a computer system and troubleshoot the system using appropriate tools and diagnostic software.

MICROTK 165    LINUX SURVIVAL COURSE (3) CSU
Lecture: 2 hours / Lab: 3 hours

This course provides an introduction to the world of Linux (considered the success story of Open Source Software development). Linux and Open Source fundamentals will be taught as well as configuration and basic troubleshooting.

Student Learning Outcome(s):

Students will be able to deploy and troubleshoot a Linux installation.

MICROTK 166    CCNA SECURITY (3)
Lecture: 2 hours / Lab: 3 hours

This course provides knowledge and skills to administer network devices and applications in a security infrastructure, recognize network vulnerabilities, and detect security threat. This course offers an overview of security challenges and solutions, and installing, monitoring, and troubleshooting Cisco security solutions to secure a network.

Student Learning Outcome(s):

Students will be able to control administrative access to network devices using ssh and configure administrative roles on network devices for network security.

MICROTK 080    IT ESSENTIALS APPLICATION SOFTWARE FUNDAMENTALS (2) CSU
Lecture: 1 hour / Lab: 3 hours

Instruction and demonstrations are provided on the application, set-up, configuration and operation of a wide range of computer programs.

Student Learning Outcome(s):

Students will demonstrate the ability to install a computer Operating System with all its driver devices.

MCYCMK 210    MOTORCYCLE FUEL INDUCTION AND POLLUTION CONTROL (4) CSU
Lecture: 3 hours / Lab: 3 hours

Instruction is offered in the areas of motorcycle fuel systems including carburetion, fuel injection, and pollution controls.
MCYCMEK 212  MOTORCYCLE TUNE-UP AND CHASSIS MAINTENANCE (4) CSU
Lecture: 3 hours / Lab: 3 hours
Course offers instruction in the areas motorcycle tune-up, general motorcycle repair and maintenance, including chassis components.
Student Learning Outcome(s):
Perform tune-up, valve adjustment and clutch/brake system maintenance.

MCYCMEK 214  MOTORCYCLE ELECTRICAL PRINCIPLES AND REPAIR (4) CSU
Lecture: 3 hours / Lab: 3 hours
Instruction is offered in electrical theory, diagnosis, and repair as applied to the electrical systems of multi-cylinder motorcycles. Shop practices are given on testing procedures and test equipment, and repair.
Student Learning Outcome(s):
Perform diagnosis, repair and adjustment of motorcycle electrical systems.

MCYCMEK 216  MOTORCYCLE ENGINE OVERHAUL AND DIAGNOSIS (4) CSU
Lecture: 3 hours / Lab: 3 hours
Multi-cylinder engine principles, operation and overhaul methods are stressed. Shop instruction on diagnosis, disassembly, repair, overhaul and assembly of multi-cylinder engines is offered.
Student Learning Outcome(s):
Perform engine overhaul.

MUSIC

MUSIC 101  FUNDAMENTALS OF MUSIC (3) UC/CSU
Lecture: 3 hours
This course provides an introduction to Western music theory and composition. The goal is to increase students’ enjoyment and appreciation of music by understanding musical terminology, theory, and techniques. By the end of the course, students will be able to write a short musical composition.
Student Learning Outcome(s):
1. Students will understand the fundamentals of Western music theory and composition through an awareness of music terminology, theoretical structures, and techniques. 2. Students will be able to identify the notes of a piano keyboard. 3. Students will be able to write and read melodic, harmonic, and rhythmic notation in treble and bass clef. 4. Students will be able to write a short musical composition.

MUSIC 116  SURVEY AND HISTORY OF ROCK, POP AND SOUL MUSIC (3) UC/CSU
Lecture: 3 hours
Introduction to rock, pop, and soul music styles covering their origins, stylistic development and cultural impact. This course is designed to increase student awareness of the relationship between popular music and society.
Student Learning Outcome(s):
1. Student will know and understand the origins and development of the diverse elements/styles associated in rock music and identify and distinguish the various style periods aurally. 2. Student will identify various people important in the creation of rock music and identify the musical instruments they played(s) and/or other important accomplishments by them. 3. Student will analyze the sociological trends as reflected in musical styles and song lyrics.

MUSIC 141  JAZZ APPRECIATION (3) UC/CSU
Lecture: 3 hours
A survey of twentieth century ragtime, blues, New Orleans and Chicago jazz, stride piano, swing, bebop, cool jazz, hard bop, modal jazz, third stream, avant-garde and free jazz, fusion, and experimental jazz styles.
Student Learning Outcome(s):
Students will be aware of and breakdown various styles and genres of jazz music.

MUSIC 650  BEGINNING GUITAR (2) UC/CSU
Lecture: 1 hour / Lab: 2 hours
Learning the basics of guitar with emphasis on right and left hand techniques, tuning, chords, strumming and notation. Students will learn to read and play simple melodies and accompaniments to gain a firm grasp of the instrument. Student must possess a guitar.
Student Learning Outcome(s):
1. Students will demonstrate the understanding of the fundamentals of left and right hand technique for both finger style and pick style guitar playing. 2. Students will be able to identify Major, minor, and seventh chords. 3. Students will use the skills they have learned to perform melodies and songs. 5. Students will be able to perform a song demonstrating proper left hand and right hand technique.

REGNRSG 119  INTRODUCTION TO NURSING (1)
Lecture: 1 hour
This course will introduce nursing students to the RN Program Conceptual Framework and ethics as applied to nursing. It will identify student learning styles and guide students in study and test taking techniques to promote success in the program
Student Learning Outcome(s):
Student will demonstrate basic understanding of conceptual framework of nursing education.
REGNRSG 121  FUNDAMENTALS OF NURSING (3) CSU
Lecture: 1 hour / Lab: 6 hours
Prerequisites: REGNRSG 119 and REGNRSG 125

This course introduces the basic knowledge and bedside skills needed by the registered nurse. Quality and Safety (QSEN) competencies, Maslow’s Hierarchy of Needs and nursing process for the theoretical framework. Concurrent with the theory, the nursing student will have basic client care experience in the skills lab and hospital setting.

Student Learning Outcome(s):
1. The student will demonstrate knowledge and understanding of fundamental principles of nursing care. 2. The student will be able to provide basic nursing care to a hospitalized patient using principles of nursing process and Maslow’s Hierarchy of Needs.

REGNRSG 122  INTRODUCTION TO MEDICAL SURGICAL NURSING (3) CSU
Lecture: 1 hour / Lab: 3 hours
Prerequisites: REGNRSG 119 and passing of Dosage Calculation Exam.

This course is designed to introduce the student to basic principles of medical surgical nursing using Maslow’s Hierarchy of Needs, Nursing Process and emphasizing Quality and Safety (QSEN) competencies as a conceptual framework.

Student Learning Outcome(s):
The student will be able to utilize the nursing process and Maslow’s Hierarchy of Needs to assess and plan how to meet the basic needs of medical surgical client.

REGNRSG 123  NURSING PROCESS AND COMMUNICATION (2) CSU
Lecture: 2 hours
Prerequisites: REGNRSG 119 and REGNRSG 125

This course is designed to acquaint the students with the application of therapeutic communication and the components of Nursing Process: assessment, nursing diagnosis, planning, implementation and evaluation. Students will use Nursing Process in conjunction with Maslow’s Hierarchy of Needs to make appropriate nursing judgments.

Student Learning Outcome(s):
Student will be able to utilize the nursing process in the care of patients in an acute healthcare setting. Student will use therapeutic communication skills in assessment of clients in acute healthcare setting.

REGNRSG 125  NURSING PHARMACOLOGY (2) CSU
Lecture: 1.5 hours / Lab: 1.5 hours

This course focuses on the effects of drug therapy on human body systems. The body systems include: the central nervous system, autonomic nervous, cardiovascular, renal, endocrine, respiratory and Gastro-intestinal systems. Also included are anti-infective, anti-inflammatory, immune and biological modifiers, chemotherapeutic, hematological, dermatologic, ophthalmic and otic agents. The students will learn and practice principles of medication administration.

Student Learning Outcome(s):
1. Students will be able to identify uses, actions, side effects, and adverse reactions to commonly used medications. 2. Students will demonstrate administration of oral, enteral, and parenteral medications.

REGNRSG 126  MEDICAL-SURGICAL NURSING I (5) CSU
Lecture: 3 hours / Lab: 6 hours
Prerequisite: Registered Nursing 122 and Registered Nursing 124 and Registered Nursing 125 and Registered Nursing 134

This basic course focuses on the nursing care of the adult client with moderate stress posed by common endocrine, gastrointestinal, cardiac and respiratory disorders. The student will function as a member of the health care team and beginning leadership skills will be presented. Emphasis will be placed on classroom and clinical application of critical thinking and therapeutic nursing interventions in acute, chronic and community health care settings.

Student Learning Outcome(s):
Student will be able to care for clients with fluid and electrolyte imbalances, acid-base imbalances, infections, endocrine disorders, gastrointestinal disorders, cardiovascular disorders, and respiratory disorders in the acute healthcare setting.

REGNRSG 127  MEDICAL-SURGICAL NURSING II (5) CSU
Lecture: 3 hours / Lab: 6 hours
Prerequisite: Registered Nursing 126 and Registered Nursing 129 and Registered Nursing 130 and Registered Nursing 134

This intermediate level medical/surgical nursing course focuses on nursing care of adult clients with high acuity problems within hospital and community settings. Students will use nursing process and Maslow’s Hierarchy of needs to plan and implement nursing care. The course builds on the theory and skills presented in RN 126. Leadership role will be expanded.

Student Learning Outcome(s):
Student will formulate a comprehensive plan of care, organize and prioritize the needs of high acuity clients based upon Maslow’s Hierarchy of Needs and nursing process for clients with intermediate high acuity problems, and multi-system illnesses in the acute healthcare environment.

REGNRSG 128  MEDICAL-SURGICAL NURSING III (5) CSU
Lecture: 3 hours / Lab: 4.5 hours
Prerequisite: Registered Nursing 127 and Registered Nursing 131 and Registered Nursing 134

This course focuses on the nursing care of medical-surgical clients in a variety of setting. Emphasis will be on classroom and clinical application of critical thinking and caring interventions in chronic, acute, critical care and community health care settings.

Student Learning Outcome(s):
Students will demonstrate classroom and clinical application of critical thinking and caring interventions for medical-surgical clients in chronic, acute, critical care and community health care settings.

REGNRSG 129  GERONTOLOGY & COMMUNITY BASED NURSING (2) CSU
Lecture: 1 hour / Lab: 3 hours
Prerequisite: Registered Nursing 122; Registered Nursing 123; Registered Nursing 125; Registered Nursing 134

This course focuses on nursing care of the older adult client with common health and illness needs. Emphasis will be on classroom and clinical application of critical thinking and caring therapeutic nursing interventions in acute, chronic and community health care settings for the older adult population.
REGNRSG 130  PSYCHIATRIC-MENTAL HEALTH NURSING (3)  
CSU
Prerequisite: Registered Nursing 122 and Registered Nursing 124 and Registered Nursing 125 and Registered Nursing 134;
This course focuses on nursing care of clients with common psychiatric mental health needs/disorders across the lifespan. Students will apply the nursing process, critical thinking, psychosocial theory and Maslow’s Hierarchy of Needs to care of clients in acute, chronic and community-based psychiatric-mental health settings.
Student Learning Outcome(s):
Students will use the nursing process in providing psychiatric and mental health care to patients. Student will use therapeutic communication techniques to form therapeutic alliances with psych-mental health patients.

REGNRSG 131  REPRODUCTIVE NURSING AND WOMEN'S HEALTH (3.5)  
CSU
Prerequisite: Registered Nursing 126 and Registered Nursing 129 and Registered Nursing 130 and Registered Nursing 134;
This course focuses on the nurse as a provider of care, manager of care and a member of the profession in a variety of maternal/newborn and women’s health settings.
Student Learning Outcome(s):
The student will demonstrate an understanding of the reproductive system and the characteristics of normal pregnancy, physiological and psychological elements, process of labor and delivery, post-partum care, and care of the newborn.

REGNRSG 132  CARE OF CHILDREN AND FAMILY (3.5)  
CSU
Prerequisite: Registered Nursing 127 and Registered Nursing 131 and Registered Nursing 134;
This course focuses on the nurse as a provider of care, manager of care and a member of the profession in a variety of settings involving children and families. Course content includes physiological, psychological, developmental and socio-cultural needs of children and families. Course content in Pediatric Nursing will be presented within the framework of the wellness/illness continuum of the client and family from birth through adolescence.
Student Learning Outcome(s):
Utilize biopsychosocial concepts and theories, communication skills, and principles of critical thinking to apply the nursing process when caring for children and their families.

REGNRSG 133  NURSING LEADERSHIP & MANAGEMENT (3)  
CSU
Prerequisite: Registered Nursing 128 and Registered Nursing 132 and Registered Nursing 134;
This course focuses on the transitioning role of the graduating Associate Degree nurse as a provider of care, manager of care and member of the profession. Concepts and issues to be examined include effective leadership styles, advanced therapeutic communication, delegation, conflict resolution, time management, nursing ethics and professional issues. Clinical experience is in the form of a preceptorship.
Student Learning Outcome(s):
Demonstrate leadership skills and ability to practice as entry-level registered nurse.

REGNRSG 134  NURSING SIMULATION LAB (1)  
CSU
Lab: 3 hours
This course is designed to allow students to practice nursing skills in a structured setting. It will make use of patient care scenarios in which evidence based practice will be emphasized. It must be taken in semesters 1, 2 and 3.
Student Learning Outcome(s):
Demonstrate proficiency in applying patient care skills to simulated clinical setting.

REGNRSG 135  TRANSITION FROM LVN TO RN (2)  
CSU
Lecture: 2 hours
This is a bridge course for students who have a valid current California Vocational Nursing License. It focuses on content necessary to make the role transition from LVN to RN. Content will include Professional Nursing, Nursing Process, Maslow’s Hierarchy of Needs, communication skills, ethical and legal issues affecting nursing practice, cultural assessment techniques and pharmacology and dosage calculation review.
Student Learning Outcome(s):
Student will compare and contrast current LVN role with RN role. Student will demonstrate competence in applying Nursing Process and Maslow’s Hierarchy of needs to RN Nursing Care Plans. Student will demonstrate understanding of basic concepts in pharmacology and dosage calculation.

REGNRSG 136  NURSING SIMULATION LAB INTERMEDIATE (1)  
CSU
Lab: 3 hours
This course is designed to allow students to practice intermediate nursing skills in a structured setting. It will make use of complex patient care scenarios in which evidence based practice will be emphasized. It must be taken in semester 2. The class will be individualized to meet student’s needs.
Student Learning Outcome(s):
Demonstrate proficiency in applying patient care skills to simulated clinical setting.

REGNRSG 137  NURSING SIMULATION LAB ADVANCED (1)  
CSU
Lab: 3 hours
This course is designed to allow students to practice advanced nursing skills in a structured setting. It will make use of patient care scenarios in which evidence based practice will be emphasized. It must be taken in semester 3. The class will be individualized to meet student’s needs but will focus on administration of care to patient’s with complex nursing problems.
Student Learning Outcome(s):
Demonstrate proficiency in applying patient care skills to simulated clinical setting.
OFFICE MACHINES

OFF MCH 002  ADDING AND CALCULATING MACHINES (1) CSU
Lab: 2 hours
Advisory: Mathematics 105.
This course demonstrates the 10-key touch method and explains the various computerized calculator function keys. The methods used help develop the proper skills needed to use computerized 10-key calculators in the workplace. The review of basic math functions, with emphasis on practical business problems.
Student Learning Outcome(s):
1. Understand calculator functions. 2. Calculate complex functions used in business. Calculations will include interest, discounts, investments in stocks and bonds, and converting fractions to percentages. 3. Understand touch method addition, subtraction, decimal point key, percents, constant multiplication, division rounding, mixed operations, and decimals.

PARALEGAL

PALEGAL 003  CIVIL RIGHTS AND THE LAW (3) CSU
Lecture: 3 hours
This course will analyze United States Supreme Court decisions as they relate to civil rights in the context of their historical periods. Its ultimate purpose is to give the student an understanding of how the United States Supreme Court has had to respond to social movements within the United States, including but not limited to movements relating to racial equality, gender equality, religious expression, and sexual orientation, and how its interpretations of associated laws have impacted those movements as to their objectives, carriage, and reach.
Student Learning Outcome(s):
1. Student will be able analyze the sociopolitical impact of Court decisions upon specific societal groups as those groups perceive protections guaranteed them by the United States Constitution. 2. Student will be able to assess conflicts between U.S. Supreme Court mandates and Congressional prescriptions.

PALEGAL 004  LEGAL INTERNSHIP (3) CSU
Lecture: 1 hour / Lab: 6 hours
Prerequisite: Paralegal 10; Advisory: English 101.
Under the instructor’s direction and according to guidelines, paralegal student will be assigned to a law related institution, a local court, district attorney’s office, city attorney’s office, private law firm or a law library to demonstrate their career technical education skills and abilities.
Student Learning Outcome(s):
Student will gain an intimate understanding of how a legal institution operates. Student will experience first-hand the demands of a legal institution such as those of a law office. Student will experience first-hand how to interact with office personnel and clients/customers of diverse interests and socioethnic backgrounds.

PALEGAL 010  INTRODUCTION TO LAW AND LEGAL PROFESSION (3) CSU
Lecture: 3 hours
This introductory course provides an introduction to legal terminology, research of legal problems, law and ethics, and the role of the paralegal as a legal assistant.
Student Learning Outcome(s):
1. Comprehend and use legal terminology. 2. Access and utilize traditional and electronically formatted resources related to legal research. 3. Draft documents outlining and/or summarizing their research findings and conclusions based on those findings.

PALEGAL 011  INTRODUCTION TO CIVIL LITIGATION II (3) CSU
Lecture: 3 hours
Focus on civil litigation in California. Student will learn the rules of local California courts and learn to prepare forms required to begin the litigation process and subsequent forms needed until the final settlement/resolution of the civil case. Areas of civil law applications will include Tort law, Family Law, Personal Injury Law, Probate Law, and the Law of Contract.
Student Learning Outcome(s):
1. Student will be able to complete documents needed to begin civil litigation. 2. Student will be able to write motions necessary to advance a the litigation in favor of one party or another. 3. Student will become familiar with and complete other court forms such as subpoenas, etc.

PALEGAL 012  TORT LAW (3)
Lecture: 3 hours
This course provides an overview of the fundamentals of Tort Law including intentional torts to the person and to property, negligence, and strict liability. Additionally students will study personal injury investigation, preparation of legal pleadings, preparation and analysis of discovery materials, and how to prepare for tort litigation.
Student Learning Outcome(s):
1. Comprehend when and under what circumstances another owes them a legal duty to prevent harm to their person and/or property. 2. Initiate and engage an appropriate course of lawful action toward realizing a commensurate remedy for the harm or harms suffered to themselves and/or their property.

PALEGAL 013  WILLS, TRUSTS, AND PROBATE ADMINISTRATION (3)
Lecture: 3 hours
Study of the fundamental principles of the law of wills, trusts, and probate including an examination of the organization and jurisdiction of the California Probate Court and the administration of estates through that court.
Student Learning Outcome(s):
1. Determine legal characteristics of different forms of property possession 2. Devise a plan for the distribution of a decedent’s property according to the rules of California Probate Law as it applies to intestacy or contested wills. 3. Compose a legal will or establish a legal trust as to the disposition of a person's personal and/or real properties.
PALEGAL 014 \textbf{LAW OFFICE MANAGEMENT AND PROCEDURES} (3) \hfill PALEGAL 016 \textbf{CIVIL AND CRIMINAL EVIDENCE} (3) CSU

\textit{Lecture: 3 hours} \hfill \textit{Lecture: 3 hours}

\textit{Advisory: English 101 and Paralegal 010.}

Students will examine the role of the paralegal in realizing fundamental objectives of managing a law office including understanding basic accounting principles, client services, personnel oversight, use of office technology, case indexing and filing, and office correspondence between colleagues and between clients.

\textbf{Student Learning Outcome(s):}

At the completion of this course student will be able to: 1. Establish and maintain a client file. 2. Research a case and provide a case brief for that researched case.

PALEGAL 017 \textbf{LEGAL WRITING} (3) \hfill PALEGAL 018 \textbf{LEGAL RESEARCH} (3) CSU

\textit{Lecture: 3 hours} \hfill \textit{Lecture: 3 hours}

Students will examine the rules of court including deposition and interrogatory preparations and how each affects the admissibility of evidence in a civil or criminal proceeding.

\textbf{Student Learning Outcome(s):}

1. Utilize resource materials in determining applicable evidentiary rules as codified at the federal and state levels of the judiciary. Apply rules of evidence in determining whether offered evidence may be legally admitted for consideration at a civil or criminal proceeding.

PALEGAL 051 \textbf{LEGAL RESEARCH} (3) CSU

\textit{Lecture: 3 hours}

\textit{Concurrent: Paralegal 10; Advisory: English 101.}

Students will learn to acquire information from traditional and electronic resources. Student will perform research in law libraries and through computer-based catalogs. Student will be taught to access and utilize primary, secondary, and CALPR research resources to resolve legal problems. Resources will include federal and state statutes, federal and state court decisions, federal and state regulations, digests, law reviews, treatises, and other practice works...

\textbf{Student Learning Outcome(s):}

1. Student will be able to conduct legal research using primary and secondary authorities. 2. Student will be able to utilize traditional and electronically-formatted resources

\section*{PHILOSOPHY}

PHILOS 001 \textbf{INTRODUCTION TO PHILOSOPHY} (3) UC/CSU

\textit{Lecture: 3 hours}

This course introduces students to philosophy, covering the topics of ethics, logic and language, metaphysics, theory of knowledge, philosophy of religion, and political philosophy. Some of the questions examined include: ‘What is the good life?’ ‘What is right and wrong, and how do we know?’ ‘What is knowledge and what are its sources?’ ‘Is it possible that we know nothing at all?’ ‘Does God exist?’ ‘Could we ever know?’ ‘What is the mind?’ ‘What is justice?’ ‘What is the basic nature of reality?’ An emphasis is placed on developing critical reasoning skills, and relating the topics to larger cultural issues and debates.

\textbf{Student Learning Outcome(s):}

The student will be able to describe the impact of philosophy on past and present society and to begin to critically examine their own ideas about truth, methods of thinking, and the nature of reality.

PHILOS 008 \textbf{DEDUCTIVE LOGIC} (3) UC/CSU

\textit{Lecture: 3 hours}

This is an introductory course in logic. The student is introduced to the standards and techniques of correct thought with regular practice with short specimens of correct and incorrect reasoning taken from daily life. Consistency, thoroughness, and other aspects of rational thought are fostered.

\textbf{Student Learning Outcome(s):}

(a) identify parts of simple arguments (premises and conclusions) (b) identify basic logical fallacies in short passages (c) test categorical syllogisms for validity (d) translate simple English sentences into categorical logic.
PHYSICS

PHYSICS 001  MECHANICS OF SOLIDS (4) UC/CSU
Lecture: 3 hours / Lab: 3 hours
Prerequisite: Physics 11 or Physics 12; Corequisite: Mathematics 265;

This course covers elements of classical mechanics, including motion in three dimensions, vectors, laws of motion, circular motion, energy and energy transfer, linear momentum, rigid body rotation, angular momentum, static equilibrium and elasticity.

Student Learning Outcome(s):

To deduce the value and its uncertainty of physical observables based on empirical values. To deduce the value of the density of a liquid based on measurements of the mass and the volume of the liquid. Use the experimental uncertainties in the measurements of the mass and the volume to determine the uncertainty in the deduced value of the density of the liquid. A level of performance of 60% is expected as a minimum.

PHYSICS 002  MECHANICS OF FLUIDS, HEAT, AND SOUND (4) UC/CSU
Lecture: 3 hours / Lab: 3 hours
Prerequisite: Physics 1; Corequisite: Mathematics 266.

This course covers elements of classical mechanics, thermodynamics, fluid dynamics, mechanical waves and geometrical optics, including universal gravitation, hydrostatics, hydrodynamics, oscillations, wave motion, sound, superposition of waves, temperature, first and second laws of thermodynamics, kinetic theory, entropy, nature of light and lenses. Differential and integral calculus are often needed.

Student Learning Outcome(s):

To deduce the mass of the Moon from data taken by the NASA Explorer satellite. Using the experimental uncertainties of the satellite orbit parameters and the orbital period, one should determine the uncertainty in the deduced value of the Moon mass.

PHYSICS 003  ELECTRICITY AND MAGNETISM (4) UC/CSU
Lecture: 3 hours / Lab: 3 hours
Prerequisite: Physics 1; Mathematics 266.

This course covers the elements of electricity and magnetism, including electric and magnetic fields and circuits and their application as well as inductance. Capacitance, Gauss’s law, Ampere’s law, Faraday’s law, and resonance.

Student Learning Outcome(s):

1) Be able to demonstrate the understanding of theoretical and experimental concept of Coulomb’s law, electrical and magnetic forces, electrical circuits and Ohm’s law. 2) Be able to describe the Gauss’s law, batteries, generators, motors and electrical circuits. 3) Be able to discuss the Faraday’s law of Induction, properties of electromagnetic waves, and electromagnetic spectrum. 4) Be able to describe the Maxwell’s equations of Electromagnetism and the principles of optics.

PHYSICS 004  OPTICS AND MODERN PHYSICS (4) UC/CSU
Lecture: 3 hours / Lab: 3 hours
Prerequisite: Mathematics 267.

This course covers the fundamentals of physical optics including radiation, spectra, wave mechanics, uncertainty principle, radioactivity and nuclear physics.

Student Learning Outcome(s):

For the lecture course content: 1) Be able to describe Young’s double-slit experiment using the Michelson Interferometer, and demonstrate the understanding of diffraction of light from narrow slits and diffraction gratings. 2) Be able to discuss the nature of light as an electromagnetic wave, and how it is expressed in Maxwell’s equations. 3) Be able to discuss Einstein’s Special Theory of Relativity, especially in terms of time dilation, length contraction and relativistic energy and momentum. 4) Be able to describe Quantum Physics, including the photoelectric and Compton effects, the dual nature of matter and Heisenberg’s Uncertainty Principle, Schrödinger’s wave equation and different particle scenarios. 5) Be able to discuss atomic spectra and Bohr’s Model of the atom, the wave function of hydrogen, the Pauli Exclusion Principle and the Periodic Table. 6) Be able to describe the molecular bonds in solids, energy states and spectra of molecules, electrical conduction in metals, insulators and semiconductors. 7) Be able to discuss the nature of atomic nuclei, different forms of radioactivity, nuclear fission and fusion, and Elementary Particle Physics. For the lab course content: 1) Be able to use a red Helium/Neon laser shining through a double slit plate and analyze the separation of the bright fringes and calculate the average wavelength of the laser. 2) Be able to use the Michelson Interferometer and demonstrate that if the path distance changes, the fringe pattern changes also, and calculate the number of fringes that travel for a given change in path difference. 3) Be able to use known spectra of Helium and calibrate the spectrometer, and measure the wavelength of the incoming light and compare to the standard value. 4) Be able to use a prism spectrometer to calculate the group velocity of packets of waves based on the Quantum Mechanics theory. 5) Be able to use the Hall Effect apparatus and measure the Hall voltage of two different metal strips, and compare to their actual Hall voltage. 6) Be able to use the Franck Hertz apparatus and analyze the quantization of atomic energy levels, and measure/calculate the amount of energy absorbed by an electron in the mercury atom in the gas. 7) Be able to plot a graph of radioactivity and examine the half-life of radioactive decay.

PHYSICS 006  GENERAL PHYSICS I (4) UC/CSU
Lecture: 3 hours / Lab: 3 hours
Prerequisite: Mathematics 240.

This course provides a survey of physics at the pre-calculus level, with emphasis on mechanics, wave motion, fluids, heat and thermodynamics. The laboratory consists of engineering applications and problem solving.

Student Learning Outcome(s):

At the completion of this course the student will: 1. Demonstrate understanding of the Laws of Physics, and have hands on experience, as applied to linear motion, Newton’s laws of Motion, and rotation, the law of conservation of energy, conservation of momentum, conservation of angular momentum.

PHYSICS 007  GENERAL PHYSICS II (4) UC/CSU
Lecture: 3 hours / Lab: 3 hours
Prerequisite: Physics 6.

This course provides a survey of physics at the pre-calculus level, with emphasis on electricity and magnetism, optics and modern physics. The laboratory consists of engineering applications and problem solving.

Student Learning Outcome(s):

1. At the completion of this course the student will know and understand the Laws of Physics and how to use the laws of Physics to do problem solving in the areas described in 2 below. 2. The student will have a basic
understanding of Elasticity, Oscillations and Waves, Electricity, Magnetism, Optics, Theory of Relativity and Modern Physics. 3. The student will be able to perform simple experiments that demonstrate the laws and principles of Physics.

**PHYSICS 011**  INTRODUCTORY PHYSICS (4) UC/CSU
Lecture: 3 hours / Lab: 3 hours
Corequisite: Mathematics 114 or Mathematics 115 or Chemical Technology 111 or Chemical Technology 113.

This is a survey course describing the major areas of physics: mechanics, heat, wave motion, electricity and magnetism, electromagnetic radiation and optics. Mathematical solutions of simple problems are covered. This course is not open to students receiving credit for Physics 11.

Student Learning Outcome(s):

Students will: 1) Convert measurements into metric and US system of units. 2) Determine accuracy and precision of a given measurement or calculation. 3) To demonstrate knowledge and to solve problems on kinematics, force, momentum, work, energy, power, rotational motion, density, pressure, heat energy, electricity, magnetism, light, sound, and, optics.

**PHYSICS 012**  PHYSICS FUNDAMENTALS (3) UC/CSU
Lecture: 3 hours
Corequisite: Math 113 or Math 115 or Chemical Technology 111;

This is a survey course describing the major areas of physics: mechanics, heat, wave motion, electricity and magnetism, electromagnetic radiation and optics. Mathematical solution of simple problems are covered. This course is not open to students receiving credit for Physics 11.

Student Learning Outcome(s):

The student will be able to convert measurements into metric or US units.

**PHYSICS 014**  PHYSICS FUNDAMENTALS LABORATORY (1) UC/CSU
Lab: 3 hours
Corequisite: Physics 12;

This course covers laboratory experiments in basic measurements, mechanical, thermal, sound, electrical and optical phenomena at an introductory level.

Student Learning Outcome(s):

The student will be able to convert measurements into metric or US units.

**PHYSICS 029A**  BASIC PHYSICS FOR TECHNICIANS (3)
Lecture: 3 hours
Corequisite: Mathematics 114 or Mathematics 115 or Physics 11.

This course covers basic mechanical, fluid, thermal, electrical, magnetic, and optical topics at an introductory level.

Student Learning Outcome(s):

The student will be able to analyze a problem in the area of mechanics.

**PHYSICS 029B**  BASIC PHYSICS FOR TECHNICIANS (1)
Lab: 3 hours
Corequisite: Mathematics 114 or Mathematics 115 or Physics 11.

This course covers basic mechanical, fluid, thermal, electrical, magnetic, and optical topics at an introductory level.

Student Learning Outcome(s):

The student will be able to analyze a problem in the area of mechanics.

**PHYSICS 101**  PHYSICS FOR ENGINEERS AND SCIENTISTS I (5) CSU
Lab: 3 hours/Lab: 6 hours
Prerequisite: MATH 265; Advisory: PHYSICS 011 or 012

This course covers elements of Classical Mechanics, including motion in three dimensions, vectors, laws of motion, circular motion, energy and energy transfer, momentum, rigid body rotation, angular momentum, static equilibrium, elasticity, gravity, and fluid mechanics.

Student Learning Outcome(s):

1. To deduce the value and its uncertainty of physical observables based on empirical values. 2. To deduce the value of the density of a liquid based on measurements of the mass and the volume of the liquid. 3. Use the experimental uncertainties in the measurements of the mass and the volume to determine the uncertainty in the deduced value of the density of the liquid. A level of performance of 60% is expected as a minimum.

**PHYSICS 102**  PHYSICS FOR ENGINEERS AND SCIENTISTS II (5) CSU
Lab: 3 hours/Lab: 6 hours
Corequisite: PHYSICS 101; Corequisite: MATH 266

The student learns the fundamental principles and applications of introductory thermodynamics (temperature, heat, heat engines, entropy and other topics), and electricity and magnetism (electric forces, electric fields, potential, magnetism, magnetic fields and fields, capacitance, resistance, inductance, DC and AC circuits and other topics) at the beginning calculus level of mathematics. The laboratory includes both quantitative and qualitative experiments that permit students to verify, illustrate, and deduce various laws of physics.

Student Learning Outcome(s):

1. The student will analyze and solve given problem(s) related to a variety of physical systems and situations, including Thermodynamics, Electrostatics, Electric and Magnetic Fields, Induction, Resistance, DC and AC circuits, and Maxwell's Equations. 2. The student will conduct experiments involving the principles of physics, analyze data and report results.

**PHYSICS 103**  PHYSICS FOR ENGINEERS AND SCIENTISTS III (5) CSU
Lab: 3 hours/Lab: 6 hours
Corequisite: PHYSICS 102; Corequisite: MATH 267

Students learn the topics of mechanical waves, electromagnetic waves, light and optics, relativity, introductory quantum mechanics, atomic and nuclear physics. Topics in molecular physics and condensed matter as well as particle physics may also be included. The laboratory includes both quantitative and qualitative experiments which enable students to verify, illustrate, and deduce some of the laws of physics that apply to the topics covered.
Student Learning Outcome(s):

1. The student will analyze and solve given problem(s) related to a variety of physical systems and situations such as mechanical waves, geometric optics, special relativity, quantum mechanics and atomic physics. 2. The student will conduct experiments involving the principles of physics, analyze data, and report results.

PHYSIOLOGY

PHYSOL 001 INTRODUCTION TO HUMAN PHYSIOLOGY (4)
UC/CSU
Lecture: 3 hours / Lab: 3 hours
Prerequisite: ANATOMY 001 and CHEM 051 or CHEM 065 or CHEM 101
A detailed study of the function of major systems of the human body. Laboratory experiments will be based on physiological processes covered in lecture.

Student Learning Outcome(s):

Student will demonstrate technical skills to study physiology including use of computer simulations and ECG recording devices. Student will apply scientific method to lab experiments. Student will describe physiological processes and control mechanisms of the human body. Student will explain health applications and pathologies for each body system.

PLUMBING

PLUMBNG 026 PLUMBING LAYOUT AND ESTIMATING I (3)
Lecture: 3 hours
This course covers fundamentals of blueprint reading for residential plumbing with an introduction to piping layout and design and basic estimating procedures. An overview of piping and fitting nomenclature, measurements and related calculations, as well as techniques in sketching, along with orthographic, and isometric drawing creation are included.

Student Learning Outcome(s):

Student will be able to read a basic blueprint for plumbing symbols and requirements. The student will take information from a set of plumbing plans.

PLUMBNG 027 PLUMBING LAYOUT AND ESTIMATING II (3)
Lecture: 3 hours
This course is a study of blueprints and specifications as related to plumbing layout and estimating. Knowledge and experience of students, including the application of codes and standards, are utilized in the creation of estimates. Principles of estimating, including materials, labor, overhead, and profit are reviewed. Layout procedures for one-and two-story residential, commercial and industrial units are examined as well as estimating procedures for each of these units. Pricing methods and bidding practices are included.

Student Learning Outcome(s):

Plumbing SLO#1 Water Distribution Design and Material Take off: Student will create an isometric plumbing plan for the water distribution system from a set of blueprints and determine pipe and fittings required to perform job.

PLUMBNG 028 PLUMBING CODE I (3)
Lecture: 3 hours
Introduction is given in plumbing codes and ordinances that affect rough-in work, in city and county areas. Installation of wastes, vents, clean-outs, traps, gas fittings, gas vents and water pipe requirements are reviewed.

Student Learning Outcome(s):

SLO 1: Student will apply plumbing trade calculations and measurements.
2: Student will calculate fixture unit values for DWV.
3: Student will design a basic residential drainage system.

PLUMBNG 029 PLUMBING CODE II (3)
Lecture: 3 hours

Instruction is given in the uniform plumbing code that involves the current regulations of water and gas systems, fixture installation, water heaters, joints and connections, introduction to appendix 'A' and reference standards.

Student Learning Outcome(s):

Student will calculate building available pressure, fixture load values by the application of plumbing trade mathematical techniques.

PLUMBNG 031 BACKFLOW PREVENTION DEVICES (3)
Lab: 6 hours
This course is designed to prepare student for Backflow Prevention Assembly Tester Certification. Instruction is given in fundamentals of cross-connection control including State, County, County Health Department, and Municipal codes. Water Purveyor rules and regulations are also reviewed in this course. Emphasis is given to laboratory work in installing, operating, testing, troubleshooting, and maintaining Pressure, Spill Resistant Pressure, and Two Check Type Pressure, Vacuum Breakers as well as Double Check Valve, Double Check Valve-Detector, Reduced Pressure Principle, and Reduced Pressure Principle-Detector Backflow prevention Assemblies.

Student Learning Outcome(s):

The trainee will use hand tools to perform plumbing operations by using the differential pressure test gauge and the test tubes to fully test a Pressure Vacuum Breaker Assembly. Skill #1 The trainee will: test air inlet using test tube procedure Skill #2 The trainee will: test checking member using test tube procedure. Skill #3 The trainee will: test air inlet using differential test gauge procedure. Skill #4 The trainee will: test checking member using differential test gauge procedure.

PLUMBNG 033 PLUMBING CODE III (3)
Lecture: 3 hours

This course presents in-depth coverage of plumbing standards, including acceptable installation practices and acceptable materials. All standards are based on the current IAPMO uniform plumbing code.

Student Learning Outcome(s):

It is expected that student will be able to; calculate load values for fuel gas systems design a fuel gas system identify basic materials and agencies convert heat calculations of buts.

PLUMBNG 111 INTRODUCTION TO PLUMBING (3)
Lab: 7 hours
This course surveys the history of the Plumbing Industry; Highlights occupational information, Evokes job ethics and instructs on career information; The course also covers occupational health and safety hazards; provides an overview of Plumbing systems, and introduces the tools of the trade.
Student Learning Outcome(s):

Student will use common power tools to perform basic plumbing operations by drilling holes through wood framing members using the Milwaukee Hole Hawg. Skill #1 The student will Measure and mark stud bay and calculate to locate center of drilled hole in stud bay. Drill hole in center of bay and plumb using Hole Hawg and self-feeding-bit safely without binding drill bit. Mark second hole in simulated fireblock plumb and centered under first hole in top plate. Drill second hole centered and plumb through top plate using auger bit safely without binding bit.

PLUMBNG 112  FUNDAMENTALS OF PLUMBING (3)
Lecture: 3 hours

This course studies fundamentals of plumbing calculations and elementary drawings for beginners. Topics include pipe sizes and calculations, flow in pipe, friction design application. Instruction is given in the principles and design of water supply, fuel gas distribution, and D.W.V. (Drain, Waste and Vent).

Student Learning Outcome(s):

1. The student will be able to calculate grade and fall of drainage and building drain to sewer.

PLUMBNG 113  BASIC PLUMBING PRINCIPLES AND PRACTICES (6)
Lecture: 4 hours / Lab: 7 hours

This course introduces fundamentals of plumbing principals and practices. Topics include installation, repair and nomenclature of pipes, fittings, and fixtures. Instruction is given on elementary drawings, plan reading, general specifications, and trade calculations as related to construction documents.

Student Learning Outcome(s):

The student will be able to scale drawings using an architects scale or a rule. The student will take measurements off a scaled floor plan using the architects scale. The student will use an architect scale and a floor plan to: Measure how far apart, center to center, the stub outs are for the water closets in the Girls Restroom. Measure and calculate number of feet of 2 type L copper tubing required for job plus/minus 20 ft. Measure how far apart, center to center, the urinals are in the Boys Restroom. Measure distance from exterior of South Wall West side of building to center line of Plumbing Wall behind water closets on South Side of Girls Restroom.

PLUMBNG 121  WORKING DRAWINGS AND LAYOUT I (3)
Lecture: 3 hours

This course offers instruction in basic blueprints, estimating and drafting related to the plumbing industry: proper methods and procedures of plan interpretation and application. This course also offers exposure to the plumbing code, manufacturer's data sheets, and plumbing specifications.

Student Learning Outcome(s):

Student will utilize basic drawing tools to create and design a basic isometric plumbing systems according to the current UPC. Student will identify and list load values and pipe sizes according to the current UPC.

PLUMBNG 122  PLUMBING MATHEMATICS AND PROCEDURES II (3)
Lecture: 3 hours

This course offers instructions in measuring, material purchases and return procedures, capacity loading, pressure calculations and gas conversions related to the plumbing industry, with emphasis on formulas calculations peculiar to the industry.

Student Learning Outcome(s):

Student will apply plumbing trade calculations and measurements to calculate fixture load values, pipe sizes, and grade and fall.

PLUMBNG 123  PLUMBING PRACTICES AND INSTALLATION (6)
Lab: 15 hours

This course offers the study and practice of the proper methods and procedures used in installing plumbing fixtures and accessories. Installing, fabricating and testing fixtures applicable to residential and commercial plumbing are covered.

Student Learning Outcome(s):

The student will list various plumbing system components: gas, water, and D.W.V. The student will identify and calculate fixture unit values and capacities for fixtures and pipes. The student will apply current and legal installation methods, procedures, and practices as adopted by the UPC.

PLUMBNG 131  WORKING DRAWING II (3)
Lecture: 3 hours

This course is a study of blueprints, plans, and drawings as related to the plumbing trade. Skills, including the interpretation of applicable code and standards. Basic principles of estimating, including materials and their quantities are reviewed.

Student Learning Outcome(s):

Students will be able to demonstrate knowledge of and proficiency in the study blueprints, plans and drawings including the interpretation of applicable plumbing codes and standards: The student will locate and properly mark the centerline of water closet. The student will locate and properly mark the centerline of the toilet flange. The student will locate and properly mark the height and distance for the center of the water closet for the water supply stub out.

PLUMBNG 132  PLUMBING CALCULATIONS AND PROCEDURES II (3)
Lab: 7 hours

Instruction is given in layout procedures involving applied calculations concerning the plumbing trades. Instruction is also given in layout and design criteria with hands on laboratory procedures.

Student Learning Outcome(s):

Student will apply trade calculations related to sizing roof drainage systems, roof drains, conduits, and horizontal pipe usage.

PLUMBNG 133  INSTALLATION AND PLUMBING FIXTURES (6)
Lecture: 3.5 hours / Lab: 7.5 hours

This course covers fabrication, erection of piping, layout methods, process piping, blueprint installations and testing of plumbing fixtures and appliances.

Student Learning Outcome(s):

Using technical documents and manuals student will calculate developed lengths on branch lines, pipe sizes, and fittings for a gas system.
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PLUMBING 141  ADVANCE LAYOUT AND PROCEDURES (3)
Lecture: 3 hours

This course covers proper methods of layout and installation procedures, fabrication, and erection of piping in commercial buildings in compliance with local and national codes.

Student Learning Outcome(s):

Students will apply information in plumbing manuals to determine adequate size DWV piping utilizing correct correct table.

PLUMBING 142  SERVICING OF PLUMBING FIXTURES AND APPLIANCES (3)
Lab: 6 hours

This course covers proper methods of repairing plumbing fixtures and appliances, preparing for the repair job, and estimating the job.

Student Learning Outcome(s):

Finding Information in manufacturers manuals to repair basic parts of a water closet  Student will correctly identify different parts in a water closet  Student will correctly find replacement parts in manufacture manual Student will correctly find and total price of replacement parts.

PLUMBING 143  PLUMBING CODE I (3)
Lab: 6 hours

This course covers building codes as they relate to plumbing, with emphasis on the effective use of applicable codes and hands-on laboratory projects.

Student Learning Outcome(s):

Students will be able to use Technical Plumbing Manual to calculate support systems for piping systems  Students will be able to correctly calculate support of ABS DWV piping systems  Students will be able to correctly calculate support for copper potable water piping  Students will be able to correctly calculate support for PEX potable water piping.

PLUMBING 144  SPECIAL PURPOSES INSTALLATION (3)
Lab: 6 hours

This course covers fabrication and erection of piping for the proper installation of special appliances and fixtures and special methods used in the construction of these fixtures, as well as testing procedures.

Student Learning Outcome(s):

Students will be able to demonstrate knowledge and proficiency in finding and applying information from technical plumbing manuals  The student will be able to identify wet vented sections  The student will be able to determine correct fixture unit values  The student will be able to determine proper pipe size.

PLUMBING 185  DIRECTED STUDY-PLUMBING (1)
Lecture: 1 hour

This course allows students to pursue a directed study in plumbing technology on a contract basis under the direction of a supervising instructor.

Student Learning Outcome(s):

The outcome will vary depending on the contract with the instructor. The student will formulate a research paper based on a topic in plumbing technology.

PLUMBING 185L  DIRECTED STUDY, PLUMBING TECHNOLOGY (LAB) (1)
Lab: 3 hours

This course allows students to pursue a directed study in plumbing technology on a contract basis under the direction of a supervising instructor.

Student Learning Outcome(s):

The outcome will vary depending on the contract with the instructor. The student will design and construct a lab project based on a topic in plumbing technology.

PLUMBING 246  PRINCIPLES AND PRACTICES OF PLUMBING DESIGN (4)
Lecture: 2.5 hours / Lab: 4.5 hours

Students are trained on skills such as measuring with an architect’s scale, construction drawings that include piping layout, fixture layout, disability requirements, orthographic drawings and basic isometric drawings

Student Learning Outcome(s):

Apply basic plumbing calculations Utilize basic drawing tools Name basic plumbing tools.

PLUMBING 285  DIRECTED STUDY - PLUMBING (2)
Lecture: 2 hours

This course allows students to pursue a directed study in Plumbing technology on a contract basis under the direction of a supervising instructor.

Student Learning Outcome(s):

The outcome will vary depending on the contract with the instructor. The student will formulate a research paper based on a topic in plumbing technology.

PLUMBING 285L  DIRECTED STUDY, PLUMBING TECHNOLOGY (LAB) (2)
Lab: 6 hours

This course allows students to pursue a directed study in plumbing technology on a contract basis under the direction of a supervising instructor.

Student Learning Outcome(s):

The outcome will vary depending on the contract with the instructor. The student will design and construct a lab project based on a topic in plumbing technology.

PLUMBING 385  DIRECTED STUDY - PLUMBING (3)
Lecture: 3 hours

This course allows students to pursue a directed study in plumbing technology on a contract basis under the direction of a supervising instructor.

Student Learning Outcome(s):

The outcome will vary depending on the contract with the instructor. The student will formulate a research paper based on a topic in plumbing technology.
PLUMBING 385L  DIRECTED STUDY, PLUMBING TECHNOLOGY (LAB) (3)
Lab: 9 hours
This course allows students to pursue a directed study in plumbing technology on a contract basis under the direction of a supervising instructor.

Student Learning Outcome(s):
The outcome will vary depending on the contract with the instructor. The student will design and construct a lab project based on a topic in plumbing technology.

PLUMBING 941  COOPERATIVE EDUCATION - PLUMBING (4)
Lecture: 4 hours
Cooperative Education is a work experience program involving the employer, the student-employee and the college to ensure that the student receives on the job training and the unit credit for work experience or volunteer work/internship. Completion of at least seven units, including Cooperative Education, at the end of the semester is required. Students must be employed or volunteering/interning in order to participate in program.

Student Learning Outcome(s):
The student will develop at least three learning objectives to be accomplished on the job. The objectives will be related to the educational/occupational goals of the student.

POLITICAL SCIENCE

POL SCI 001  THE GOVERNMENT OF THE UNITED STATES (3) UC/CSU
Lecture: 3 hours
Advisory: English 28.
Political Science 1 is an introductory course in the principles, institutions and policy processes of the American Political System and an examination of major tenets in Federalism, Representative Government and the scope of the Executive, Legislative and Judicial powers. It offers an overview of local, state and national governance.

Student Learning Outcome(s):
Students will be able to evaluate current political situations and develop defendable positions on the events.

POL SCI 002  MODERN WORLD GOVERNMENTS (3) UC/CSU
Lecture: 3 hours
Advisory: English 28.
This course will explore a selected variety of major nation-states to develop a comparative overview of political philosophies, constitutions, political processes, systems and institutions. Emphasis is placed on geographic, cultural, historic, economic, and demographic factors that contribute to differences in the development and establishment of nation-states.

Student Learning Outcome(s):
To increase knowledge of diverse political systems around the world, including empirical area-based knowledge; broader theoretical understanding of different political systems, institutions and processes; and the changing domestic and global contexts within which they operate.

POL SCI 007  CONTEMPORARY WORLD AFFAIRS (3) UC/CSU
Lecture: 3 hours
Advisory: English 28.
This course will focus on the relationships of nations in modern times emphasizing the nation-state system, diplomacy, international law, and international organizations. Students will explore the causes, consequences, and methods of resolving international conflicts, and the impact of internal economic, political, and military factors on foreign policy.

Student Learning Outcome(s):
Students will demonstrate an ability to analyze relations between nations, international government and non-governmental organizations, and global actors, organize ideas and synthesize the critical overall objectives of the assignment or presentation.

POWERLINE MECHANIC TRAINEE

ELECL 601 POWER LINE MECHANIC - TRAINEE (600 HOURS) (15)
Lecture: 6 hours / Lab: 27 hours
Prerequisite: Electrical Construction and Maintenance 119 or Electrical Construction and Maintenance 173 and Electrical Construction and Maintenance 116.

The goal of this course is to produce qualified candidates for various Power Line Mechanic training programs. Development of basic pre-apprentice skills needed to be successful will be emphasized. These skills include: overall safety considerations, power pole and tower climbing skills, knowledge of the basic tools and materials involved with the electrical line crafts, general construction standards, basic rigging principles, and basic electrical theory that is specific to this trade. A power pole-climbing certificate of competencies is granted to students who successfully complete this course. This course meets or exceeds the equivalent industry recognized 600 hour programs. Special Note: Students during the course of instruction will be required to lift up to 60 lbs with repetition and will be required to climb and perform installation and maintenance operations at the top of 30 foot power poles. Physical or psychological impairments that might limit your abilities to succeed should be considered.

Student Learning Outcome(s):
SLO: Students will complete pole climbing certificate including successful completion of three climbs: Climb 1 - Free climb, circle, adjust belt. Climb 2 - Combination free climb and belted climb over obstructions. Climb 3 - 55 foot pole climb with maximum reach left and right.

ELECL 601A POWER LINE MECHANIC - TRAINEE (600 HOURS) PART A (6)
Lecture: 6 hours
Prerequisite: Electrical Construction and Maintenance 119 or Electrical Construction and Maintenance 173.

The goal of this course is to produce qualified candidates for various Power Line Mechanic training programs. Development of basic pre-apprentice skills needed to be successful will be emphasized. These skills include: overall safety considerations, power pole and tower climbing skills, knowledge of the basic tools and materials involved with the electrical line crafts, general construction standards, basic rigging principles, and basic electrical theory.
that is specific to this trade. A power pole-climbing certificate of competencies is granted to students who successfully complete this course. This course meets or exceeds the equivalent industry recognized 600 hour programs. Special Note: Students during the course of instruction will be required to lift up to 60 lbs with repetition and will be required to climb and perform installation and maintenance operations at the top of 30 foot power poles. Physical or psychological impairments that might limit your abilities to succeed should be considered. Part A is the lecture module of the standard 601 class, allows for offering the program over an extended period.

**Student Learning Outcome(s):**


<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Total Hours</th>
<th>Origin</th>
<th>Lab Hours</th>
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<tbody>
<tr>
<td>ELECL 601B</td>
<td>POWER LINE MECHANIC - TRAINEE (600 HOURS) PART B (3)</td>
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<td>CSU</td>
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**Prerequisite:** Electrical Construction and Maintenance 116.

The goal of this course is to produce qualified candidates for various Power Line Mechanic training programs. Development of basic pre-apprentice skills needed to be successful will be emphasized. These skills include: overall safety considerations, power pole and tower climbing skills, knowledge of the basic tools and materials involved with the electrical line crafts, general construction standards, basic rigging principles, and basic electrical theory that is specific to this trade. A power pole-climbing certificate of competencies is granted to students who successfully complete this course. This course meets or exceeds the equivalent industry recognized 600 hour programs. Special Note: Students during the course of instruction will be required to lift up to 60 lbs with repetition and will be required to climb and perform installation and maintenance operations at the top of 30 foot power poles. Physical or psychological impairments that might limit your abilities to succeed should be considered. Part B is first of 3 laboratory modules of the standard 601 class, allows for offering the program over an extended period.

**Student Learning Outcome(s):**

SLO: Students will complete first 1/3 of pole climbing certificate including successful completion of one climb: Climb 1 Free climb, circle, adjust belt.

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Total Hours</th>
<th>Origin</th>
<th>Lab Hours</th>
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<tbody>
<tr>
<td>ELECL 601C</td>
<td>POWER LINE MECHANIC - TRAINEE (600 HOURS) PART C (3)</td>
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<td>CSU</td>
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</tbody>
</table>

**Prerequisite:** Electrical Construction and Maintenance 116.

The goal of this course is to produce qualified candidates for various Power Line Mechanic training programs. Development of basic pre-apprentice skills needed to be successful will be emphasized. These skills include: overall safety considerations, power pole and tower climbing skills, knowledge of the basic tools and materials involved with the electrical line crafts, general construction standards, basic rigging principles, and basic electrical theory that is specific to this trade. A power pole-climbing certificate of competencies is granted to students who successfully complete this course. This course meets or exceeds the equivalent industry recognized 600 hour programs. Special Note: Students during the course of instruction will be required to lift up to 60 lbs with repetition and will be required to climb and perform installation and maintenance operations at the top of 30 foot power poles. Physical or psychological impairments that might limit your abilities to succeed should be considered. Part C is the second of 3 laboratory modules of the standard 601 class, allows for offering the program over an extended period.

**Student Learning Outcome(s):**

SLO: Students will complete second 1/3 of pole climbing certificate including successful completion of one climb: Climb 1 Combination free climb and belted climb over obstructions.

### PROCESS TECHNOLOGY

**PRPLTEK 100**

**INTRODUCTION TO INDUSTRIAL PROCESS (3) CSU**

**Lecture:** 3 hours

The purpose of this course is to provide an overview or introduction into the field of Process Operations within the Chemical Process Industries, such as the oil refinery and wastewater industries. Students will be introduced to the roles and responsibilities of Process Technicians, the environment in which they work, and the equipment and systems in which they operate.

**Student Learning Outcome(s):**

1. Define key terms used in process technology.
2. Explain the basic principles of safety, health, and environment in the process industry.
3. Describe the basic hand tools, equipment, and instruments used in industry.
4. Describe various systems operated in industry.
5. Describe the fundamental principles of chemistry and physics.

**PRPLTEK 102**

**PROCESS MEASUREMENT AND CONTROL FUNDAMENTALS (3) CSU**

**Lecture:** 3 hours

The purpose of this course is to provide an introduction to the fundamentals of process variables and a variety of instruments used to sense, measure, transmit, and control process plant operations within chemical manufacturing, oil refineries and wastewater treatment industries.

**Student Learning Outcome(s):**

Define terms associated with industrial instrumentation. Describe the major process variables controlled in the Process Industry. Explain the relationship between common process variables. Describe the components of control loops. Explain the function of process control loops. Define and describe the symbols used in Process and Instrumentation Diagrams and Process Flow diagrams.
PRPLTEK 103  PROCESS PLANT EQUIPMENT (3) CSU
Lecture: 2 hours / Lab: 3 hours

This course introduces the student to the generic equipment used in the process plant industry. Students will learn the fundamental principles of operation, construction, and application of piping, pipe fitting, steam traps, valves, pumps compressors, steam turbines, electric motors, furnaces, heat exchangers, cooling towers, storage tanks, distillation towers reactors and process instrumentation.

Student Learning Outcome(s):

- Define terms associated with process equipment
- Explain the function of process equipment
- Describe the internal components of the equipment
- Explain the operating principles of the equipment
- Explain the role in safe operation of equipment
- Explain the operators role in troubleshooting equipment malfunction
- Describe the general maintenance procedures that operators are expected to perform.

PRPLTEK 104  INTRODUCTION TO APPLIED SCIENCES (4)
Lecture: 1 hour/Lab: 6 hours

This course provides an introduction to the field of environmental, safety, and health within the chemical laboratory, biotechnology, biomanufacturing, waste water treatment and chemical process industries. Students will be introduced to various types of laboratory and plant safety techniques and hazards. In addition, multiple field visits will provide an overview of various job functions and career paths in the chemical laboratory, biotechnology, biomanufacturing, waste water treatment and chemical process industries.

Student Learning Outcome(s):

- Students will ID and describe four main types of hazards
- Students will recognize physical and chemical hazards in the chemical, bio-manufacturing and process industries
- Students will ID and describe GLP and cGMP regulations.

PRPLTEK 200  PROCESS PLANT SYSTEMS (3) CSU
Lecture: 3 hours

The purpose of this course is to provide an introduction to the unique combinations of equipment and systems used to separate materials in chemical manufacturing, oil refineries, wastewater treatment, pharmaceutical industries, biomanufacturing, and others. The study will include process systems such as, reactions, water treatment, distillation, absorbing/stripping, evaporation, extraction and fundamental organic chemistry principles involved in process systems.

Student Learning Outcome(s):

- Define terms associated with process systems
- Explain the function of process systems
- Describe the components and equipment in process systems
- Explain the operating principals of the process systems
- Explain the role in safe operation of process systems
- Explain the operators role in troubleshooting process system malfunction
- Identify the different equipment systems used to make up a distillation system
- Explain how the methods of heat transfer apply to the distillation process.

PRPLTEK 202  INTRODUCTION TO PROCESS PLANT TROUBLESHOOTING (3)
Lecture: 3 hours

This course introduces students to the troubleshooting processes involved in the investigation, identification and eliminating of the type of faults which are common to process plant operations.

Student Learning Outcome(s):

- Recognize the difference between trial and error and systematic troubleshooting methodologies
- Differentiate the categories of potential causes:
  - probable, plausible and possible
  - Describe the phases and steps that constitute an effective troubleshooting methodology
  - Successfully apply the phases of the troubleshooting process to a variety of operational problems
  - Recognize the adverse impact that human, organization and system behavior have on effective troubleshooting.

PRPLTEK 204  PTECH INSTRUMENTATION - COMPUTER APPLICATIONS (2)
Lecture: 2 hours

This advanced course introduces students to the computerized software used to manipulate process operations in chemical industries including petrochemical, wastewater, pharmaceutical and numerous other operations.

Student Learning Outcome(s):

- 1) Define terms associated with industrial instrumentation
- 2) Describe the major process variables controlled in the process industry
- 3) Explain the relationship between common process variables
- 4) Describe the components of control loops
- 5) Explain the function of process control loops
- 6) Define and describe the symbols used in process and instrumentation diagrams and process flow diagrams
- 7) Define terms associated with process control
- 8) Demonstrate the following Console Operator duties:
  - Change controller mode
  - Change setpoint
  - Change valve output
  - Access process history

PRPLTEK 206  PTEC-ADVANCED INSTRUMENTATION II (3)
Lecture: 3 hours

This course provides students with exposure to advanced process operation variables and a variety of instruments used to sense, measure, transmit, and control plant operations within the chemical manufacturing, biopharma/manufacturing, oil refinery, wastewater treatment and other chemical industries.

Student Learning Outcome(s):

- Define terms associated with process control and controllers
- Describe the relationship between measuring instruments and their role in control loops
- Explain the purpose and operation transmitters and transducers
- Describe/demonstrate the operation of local, remote, split range, cascade and ratio controllers
- Describe/how to switch between control modes
- Given a process control schematic, explain how the control loop functions
- Identify the components of a control valve
- Describe how the components of a control valve interact
- Explain fail Safe positions for various types of control scheme
- Describe and explain the operation of regulators
- Describe common switches and their function
- Explain how relays are used in process industries
- Describe methods for maintaining integrity and reliability of signal transmission
- Perform scaling calculations
- Identify and describe the various control schemes used in process industries
- Demonstrate bumpless transition between control modes.

PRPLTEK 210  APPLIED INSTRUMENTATION ANALYSIS - I (4)
Lecture: 3 hours / Lab: 2 hours

This class offers students hands-on experience with the analytical instruments used in typical laboratories such as gas chromatography and chemical titration equipment. Students will learn to apply various methods of sampling and analyzing to determine the composition of typical liquids, solids, and gases used by the chemical industry.

Student Learning Outcome(s):

- Describe the types of petrochemical and refining industry drawings that contain instrumentation
- Explain the importance of process knowledge in troubleshooting
- Describe the differences between analog and digital control
- Explain and define the terms associated with PLCs
- Define terms associated with advanced control schemes
- Define terms associated with instrumentation power supply
- Explain advantages of a DCS system
- Define terms associated with ESD
- Recall the methods used for determining if a sensing device functions properly.
PRPLTEK 214  INDUSTRY TRENDS: EMPLOYMENT AND REGULATIONS (3)
Lecture: 3 hours

The purpose of this course is to provide a career preparation through a relevant introductory overview involving process and laboratory validation and quality performance regulations for product and process operations in the biotechnol ogy, biomanufacturing/biopharmaceutical, waste water treatment, cosmetic, food and beverage, biofuels, quality control, petroleum refining and other chemical and health industries. Some topics covered will be monitoring quality and process performance, operating consistency, continuous improvement, government regulations and guidelines. Additionally instruction will be offered in personal appearance, employment trends, professional organizations. The course also includes writing resumes, cover and thank you letters, as well as job search techniques.

Student Learning Outcome(s):
1. Students will describe the origin of validation and its function in the pharm aceutical and biopharmaceutical processes. 2. Students will discuss the various aspects and importance of validation principles and practices including total quality control and economics involved in successful chemical and biotechnol ogy, biomanufacturing industries. 3. Students will describe the development studies and validation that are carried out through pre-approved protocols. 4. Students will discuss analytical methods scientifically developed to evaluate product residual reduction and other pre-determined acceptance limits.

PSYCHOLOGY

PSYCH 001  GENERAL PSYCHOLOGY I (3) UC/CSU
Lecture: 3 hours
Prerequisite: English 28 or English 101 or Placement in English 101

This is an introductory course in psychology as the scientific study of behavior and mental processes. Topics treated include history and systems of psychology, biological bases of behavior, sensation and perception, states of consciousness, learning, memory, cognition, personality, human development, motivation and emotion, health and stress, psychological disorders, and therapies.

Student Learning Outcome(s):
Per the APA Guidelines: Demonstrate psychology information literacy a. Read and summarize general ideas and conclusions from psychological sources accurately b. Describe what kinds of additional information beyond personal experience are acceptable in developing behavioral explanations (i.e., popular press reports vs. scientific findings) c. Identify and navigate psychology databases and other legitimate sources of psychology information d. Articulate findings, and historical trends in Abnormal psychology.

PSYCH 002  BIOLOGICAL PSYCHOLOGY (3) UC/CSU
Lecture: 3 hours
Prerequisite: Psychology 1; Advisory: English 28

This course introduces the scientific study of the neurological processes and its fundamental role in the neurosciences. Physiological, hormonal, and neurochemical mechanisms, and brain-behavior relationships underlying the psychological phenomena of sensation, perception, regulatory processes, emotion, learning, memory, and psychological disorders will be addressed. The course also notes historical scientific contributions and current research principles for studying brain-behavior relationships and mental processes. Ethical standards for human and animal research are discussed in the context of both invasive and non-invasive experimental research.

Student Learning Outcome(s):
1. Analyze elements of a scientific approach to understanding human behavior in a psycho-socio context. 2. Identify biological and cultural influ ences on social behavior. 3. Discriminate between individual differences and socio-cultural influences. 4. Explain the major scientific studies which form the basis for current theories of social psychology. 5. Describe the ways in which principles gleaned from social psychological research apply to real world problems and issues. 6. Apply models of intervention into social behavior designed to address social problems (e.g., those based on gender, ethnic, racial, or cultural differences and those based on disability). 7. Com pare basic concepts and theories across the areas of social psychology.

PSYCH 013  SOCIAL PSYCHOLOGY (3) CSU
Lecture: 3 hours
Prerequisite: PSYCH 001

This course considers individual human behavior in relation to the social environment. The power of the situation, other individuals, and the social group will be examined. Emphasized topics include: aggression, prejudice and stereotypes, interpersonal attraction, attitudes and attitude change, conformity, group phenomena, gender roles, cultural norms, person perception, and social cognition.

Student Learning Outcome(s):
1. Analyze elements of a scientific approach to understanding human behavior in a psycho-socio context. 2. Identify biological and cultural influ ences on social behavior. 3. Discriminate between individual differences and socio-cultural influences. 4. Explain the major scientific studies which form the basis for current theories of social psychology. 5. Describe the ways in which principles gleaned from social psychological research apply to real world problems and issues. 6. Apply models of intervention into social behavior designed to address social problems (e.g., those based on gender, ethnic, racial, or cultural differences and those based on disability). 7. Com pare basic concepts and theories across the areas of social psychology.

PSYCH 014  ABNORMAL PSYCHOLOGY (3) UC/CSU
Lecture: 3 hours
Prerequisite: PSYCH 001; Advisory: ENGLISH 028

This course examines the definition, possible causes, signs and symptoms and treatment of psychological disorders. Topics such as anxiety, mood disorders, schizophrenia, substance-related disorders, and personality disorders are emphasized. Additional topics will include cognitive disorders, disorder’s of childhood and adolescence, as well as sexual dysfunctions and substance-related disorders.

Student Learning Outcome(s):
Per APA Guidelines: Knowledge Base of Psychology: Students will demon strate familiarity with the major concepts, theoretical perspectives, empirical findings, and historical trends in Abnormal psychology.

PSYCH 032  PSYCHOLOGY OF WOMEN (3) UC/CSU
Lecture: 3 hours
Advisory: English 28

This course explores the biological and cultural determinants of women’s personality development. Explores cultural stereotypes, sex role development, female sexuality, and women’s health issues in terms of the implications for personal and social change.

Student Learning Outcome(s):
Students will demonstrate their knowledge of the biological and cultural determinants of women’s personality development, including cultural stereotypes, sex role development, female sexuality, and women’s health issues in terms of the implications for personal and social change.
PSYCH 041 LIFE-SPAN PSYCHOLOGY: FROM INFANCY TO OLD AGE (3) UC/CSU
Lecture: 3 hours
Prerequisite: Psychology 1; Advisory: English 28
This course examines the interaction of physical, psychological, and social factors and their impact on human development and behavior from conception to death.

Student Learning Outcome(s):
Students will demonstrate their knowledge in the physical, cognitive, and socio-emotional domains at various points throughout the human lifespan.

PSYCH 069 PSYCHOLOGY IN FILM (3) UC/CSU
Lecture: 3 hours
Advisory: English 28
This course will survey a variety of films that portray specific human behaviors, characteristics, and disorders as discussed in General Psychology I. A lecture/discussion will accompany each film that provides a more in depth analysis of the relevant topics than are covered in General Psychology I. Topics covered will be drawn from research methods, biological psychology, sensation & perception, states of consciousness, learning, memory, intelligence, motivation, human development, personality, emotions & stress, human sexuality & gender, social psychology, abnormal psychology, and clinical psychology.

Student Learning Outcome(s):
Students will demonstrate critical observational skills through a rubric designed to evaluate students’ ability to deconstruct and analyze films for accuracy in their depictions of the associated psychological topics discussed.

PSYCH 074 RESEARCH METHODS IN THE BEHAVIORAL SCIENCES (3) CSU
Lecture: 3 hours
Prerequisites: Psych 001 and Math 227
This course surveys various psychological research methods with an emphasis on research design, experimental procedures, descriptive methods, instrumentation, and the collection, analysis, interpretation, and reporting of research data. Research design and methodology will be examined through a review of research in a variety of the subdisciplines of psychology.

Student Learning Outcome(s):
1. Select and conduct statistical experiments, and analyze and evaluate the resulting data.
2. Analyze the properties of probability and probability distributions and their role as the foundation for statistical inference using appropriate statistical software for data analysis (SPSS Statistical Package for the Social Sciences-SPSS).

PUBLIC RELATIONS

PUB REL 001 PRINCIPLES OF PUBLIC RELATIONS (3) CSU
Lecture: 3 hours
This course provides students an understanding of the broad aspects of relationships with the public as they apply to business, education, public agencies, and other organizations. It includes methods of either promoting favorable relations with various segments of the public or coping with situations involving adverse public opinion.

Student Learning Outcome(s):
Apply public relations communication theory in order to create essential public relations tools including news releases and a strategic public relations plan for a client. Formulate a publicity campaign using effective communication strategies.

PUB REL 002 PUBLIC RELATIONS TECHNIQUES (3) CSU
Lecture: 3 hours
Advisory: PUB REL 001.
This course is a comprehensive study of various public relations techniques utilized in campaigns by businesses, educational institutions, public agencies, and other organizations. Case histories are used to stimulate student initiative in problem solving. The social impact of the various communications media and their role in public relations will also be stressed. The accompanying practicum gives students the opportunity to work with an on-campus or non-profit organization to create and implement a public relations plan.

Student Learning Outcome(s):
Students will be able to understand the broad aspects of relationships with the public as they apply to business, education, public agencies, and other organizations. Demonstrate a clear understanding of the basic four-step process of public relations, and its role in forming public opinion, as well as comprehend the history and ethics of public relations.

PUB REL 003 WRITING FOR PUBLIC RELATIONS (3)
Lecture: 3 hours
Advisory: PUB REL 001.
This course will provide students with the persuasive powers of the written and spoken words that are explored and utilized in creating viable communicative messages, such as, news releases, feature stories, interviews, public service announcements, speeches, and institutional advertising.

Student Learning Outcome(s):
Students will be able to demonstrate excellent oral and written communication skills using print, broadcast, digital and social media.

REAL ESTATE

REAL ES 001 REAL ESTATE PRINCIPLES (3) CSU
Lecture: 3 hours
This course covers the nature of real property, types of estates and tenancy, real estate and contract law, types of agency, title and title insurance, trust deeds/mortgages, liens/encumbrances, taxes, zoning, community property, financing and real estate math concepts. This course is one of three required courses as preparation for the examination given by the State of California for real estate brokers and salespersons.

Student Learning Outcome(s):
Student will describe and analyze the real estate industry with regards to residential sales in California. Students will understand the nature of encumbrances, liens, easements and encroachments.

REAL ES 003 REAL ESTATE PRACTICES (3) CSU
Lecture: 3 hours
This course covers office procedures and practices in listings, advertising, prospecting, financing, exchanges, property management, salesmanship, land
REAL ES 005  LEGAL ASPECTS OF REAL ESTATE I (3) CSU
Lecture: 3 hours

This course covers the principles of property ownership and management with special emphasis on the law as it applies to community property, conveyances, deeds, trust deeds, leases, brokerage activities, liens, homesteads, wills, estates and taxes. Attention is also given to logical reasoning and the application of rules of law to everyday affairs in business.

Student Learning Outcome(s):
Students will understand the options for vesting and holding title in a real estate transaction. Students will understand the elements of contract formation. Students will be able to differentiate between single and dual agency.

REAL ES 007  REAL ESTATE FINANCE I (3) CSU
Lecture: 3 hours

This course provides and explains the real estate lending process in detail from the initial loan application to the closing of the transaction. It provides a practical, step-by-step guide to the most popular real estate financing programs available in the country today. Subjects include: the loan application process, loan underwriting standards, conventional, FHA, and VA loans, seller financing, fair lending practices, and predatory lending.

Student Learning Outcome(s):
Students will identify the major players in the United States secondary mortgage market and explain how the market is functioning.

REAL ES 009  REAL ESTATE APPRAISAL I (3) CSU
Lecture: 3 hours

The principles and methods for the estimation of value and price of land and improvements, factors affecting income and values of real estate, and trends in real property values are covered in this course. The role of the appraiser in determining the highest and best use for a particular site is presented. The importance of appraisal to the lender, insurer, seller, and potential buyer are discussed as are appraisal of partial real estate interests.

Student Learning Outcome(s):
1. Students properly identify the 4 major components of a refrigeration system. 2. Students will use technical manuals to select appropriate compression system components. 3. Students will identify the operating parameters for the types of components. 4. Students will identify appropriate maintenance procedures for air and water cooled condensers.

REAL ES 014  PROPERTY MANAGEMENT (3) CSU
Lecture: 3 hours

This course will give students an in-depth view of practical issues facing practitioners, such as maintenance, accounting, administrative, and legal activities, and has up-to-date content on federal regulations, such as civil rights, fair housing, ADA issues, and environmental concerns.

Student Learning Outcome(s):
Students completing this course will understand the legal relationship between a landlord and a tenant. Students completing this course will know what a trust fund is and the importance of maintaining records on trust fund receipts.

REFRIGERATION & AIR CONDITIONING MECHANICS

REF A/C 100  AIR CONDITIONING PROJECT MANAGEMENT (3)
Lecture: 3 hours

This course provides HVAC Industry Project Manager instruction. Topics covered will include blueprint reading, Microsoft spreadsheets, Microsoft Word documents, Microsoft Project, design build criteria, estimating, change orders, request for information, GANTT Charts, scheduling, schedule of values, purchase orders, submittals, transmittals, reading of air balance reports, warranty letters and close out packages.

Student Learning Outcome(s):
The student will be able to correctly identify different mechanical symbols that would appear on a blue print. The student will be able to give a 5 minute oral presentation on a subject related to project management. The student will be able to identify the tools used by a project manager.

REF A/C 101  AIR CONDITIONING AND REFRIGERATION PRINCIPLES AND PRACTICES-FIRST SEMESTER (9)
Lecture: 3 hours / Lab: 18 hours

This course covers Refrigeration and Air Conditioning Theory, Fundamentals, and practices for entry level students. Topics discussed include refrigeration and air conditioning system components, maintenance procedures, service procedures, and Thermodynamics.

Student Learning Outcome(s):
1. Students properly identify the 4 major components of a refrigeration system. 2. Students will use technical manuals to select appropriate compression system components. 3. Students will identify the operating characteristics of the 5 major compressor types. 4. Students will identify appropriate maintenance procedures for air and water cooled condensers.

REF A/C 105  SOLAR WATER & POOL HEATING SYSTEM PRINCIPLES (3)
Lecture: 3 hours

This is an introductory lecture course on Solar Thermal. The need for renewable energies, along with planning and installing solar thermal systems will be covered. The solar heating of swimming pools, domestic hot water, and building air will be emphasized.

Student Learning Outcome(s):
The student will be able to: 1. Explain the reasons for Solar and Green Technologies. 2. List the Components of a Solar Thermal System. 3. Recite the sequence of operation of a solar thermal system.
REF A/C 110 SOLAR WATER & POOL HEATING SYSTEM
Practices (2)
Lab: 6 hours
This course is designed for students interested in a career in the solar thermal industry. The fundamental practices and functions of the solar thermal industry will be introduced. This course covers the skills and practices for planning, installation, and maintenance of all the necessary components for a solar thermal water system.

Student Learning Outcome(s):
1. Discuss the history of solar thermal as a renewable energy and its development.
2. List the regions of the globe where solar thermal as a renewable option is most or least viable.
3. List the components needed for various solar thermal renewable energy sources and systems.

REF A/C 123 PIPE AND TUBE JOINING PROCESSES (1)
Lab: 3 hours
This course assesses assembly of components into operating systems using techniques employed by the industry.

Student Learning Outcome(s):
After students construct a copper form, called a “monster”, using the various tube joining methods, the monster will be pressure tested and vacuum tested.

REF A/C 124 REFRIGERATION ELECTRICAL CIRCUITS AND CONTROLS (5)
Lab: 15 hours
This course covers the application of electrical principles and practices, including safety and PPE, utilized in the performance of the duties required of a HVACR Technician.

Student Learning Outcome(s):
The Student Learning Outcome consists of reading an electrical schematic that simulates the TV show „Jeopardy” and constructing a project board that functions properly.

REF A/C 125 REFRIGERATION SYSTEM COMPONENTS (3)
Lecture: 3 hours
Instruction is given in basic electricity and electrical components as they relate to the HVAC&R industry. The use of electrical schematic diagrams is stressed throughout the semester.

Student Learning Outcome(s):
1. List the types of copper tubing and appropriate applications, along with connection and leak detection techniques.
2. List refrigeration and A/C electrical systems, furnace ignition systems, and other related controls.
3. List the types of electric motors used in the HVAC&R industry and their applications.

REF A/C 133 REFRIGERATION SERVICE PROCEDURES I (3)
Lab: 9 hours
Prerequisite: Refrigeration and A/C Mechanics 123; and Refrigeration and A/C Mechanics 124; and Refrigeration and A/C Mechanics 125; and Refrigeration and Air Conditioning Mechanics 134; and Refrigeration and Air Conditioning Mechanics 135;

This course involves servicing procedures applied to commercial and domestic refrigeration systems including restaurants, supermarkets and industrial process cooling. Students are required to inspect and analyze coolers, freezers and ice makers.

Student Learning Outcome(s):
133 Student Learning Outcomes The student will be able to use test equipment in order to diagnose a refrigeration and air conditioning system. The student will use refrigerant gages and thermometers to calculate superheat subcooling, and air temperature readings, and interpret their meaning. The student will use volt, ohm, and amperage readings to check the function of individual refrigeration system components.

REF A/C 134 SERVICE FOR COMMERCIAL REFRIGERATION (3)
Lab: 9 hours
Prerequisite: Refrigeration and A/C Mechanics 123; Refrigeration and A/C Mechanics 124; Refrigeration and A/C Mechanics 125; Corequisite: Refrigeration and Air Conditioning Mechanics 133; and Refrigeration and Air Conditioning Mechanics 134;

This course focuses on troubleshooting procedures in diagnosing and repairing malfunctions in domestic and commercial refrigeration systems. The lab work emphasizes the analyzing and repairing of mechanical and electrical components, with the proper use of tools and test equipment.

Student Learning Outcome(s):
The student will gain mastery of Refrigeration and Air Conditioning Tools. The student will use a torch safely. The student will take amperage, voltage, and ohm readings. The student will evacuate a system with a vacuum pump. The student will utilize a gage manifold safely.

REF A/C 135 AIR CONDITIONING AND REFRIGERATION (3)
Lecture: 3 hours
Prerequisite: Refrigeration and A/C Mechanics 123; Refrigeration and A/C Mechanics 124; Refrigeration and A/C Mechanics 125; Corequisite: Refrigeration and Air Conditioning Mechanics 133; and Refrigeration and Air Conditioning Mechanics 134;

This course focuses on refrigeration principles including theory of heat, automatic controls, electric motors, and commercial refrigeration. This course gives an in-depth look at the refrigeration cycle and refrigeration components. This course discusses thermodynamics, including the pressure temperature chart, latent heat, and system efficiency.

Student Learning Outcome(s):
The student will evaluate various air conditioning and refrigeration symptoms. The student will evaluate how different heat load conditions affect a refrigeration system. The student will utilize superheat and subcooling readings to determine system performance.

REF A/C 141 APPLIED REFRIGERATION AND AIR CONDITIONING PRINCIPLES (3)
Lecture: 3 hours
Prerequisite: Refrigeration and A/C Mechanics 133; Refrigeration and A/C Mechanics 134; and Refrigeration and Air Conditioning Mechanics 143;

This course focuses on Chemistry as applied to the HVAC and R industry. Areas covered include Hydronics, heating and cooling load calculations, control wiring, introduction to the Uniform Mechanical Code, pneumatic controls, troubleshooting approaches, and employment.

Student Learning Outcome(s):
Students will calibrate a direct acting thermostat.
PRACTICE (4)

REF A/C 159 PRINCIPLES AND PRACTICES OF ELECTRICAL CIRCUITS AND CONTROLS (4)
Lecture: 2.5 hours / Lab: 4.5 hours

This course covers basic electricity, magnetic starters, contactors, and relays. Pressure and temperature controls, millivolt and low voltage systems, modulating controls, time clocks, and defrost systems are studied.

Student Learning Outcome(s):
- SLO #1 Gather information on the various components of a HVAC control system using, but not limited to, volt, ohm, and amperage reading to check the function of an individual refrigeration system. Relates to CDM Department PLO's: #1. Locating Information and Reading for information. #2. Working safely with tools. Relates To College Core SLOs: A: Critical Thinking D: Communications.

REF A/C 160 REFRIGERATION SYSTEM PRINCIPLES AND PRACTICES (4)
Lecture: 2.5 hours / Lab: 4.5 hours

Students learn the fundamental refrigeration system principles, including system components, refrigerants, basic electricity, motors, controls, and test equipment in both domestic and commercial systems. Students get an introduction to air conditioning with an emphasis on the refrigeration cycle, and appropriate temperatures.

Student Learning Outcome(s):
- The student will be able to identify and describe the function of the compressor, metering device, and evaporator. The student will be able to identify the compressor, condenser, metering device and evaporator. The student will be able to state the locations of the suction line, discharge line.

REF A/C 161 AIR CONDITIONING SYSTEM PRINCIPLES AND PRACTICES (4)
Lecture: 2.5 hours / Lab: 4.5 hours

This is a study of human comfort, psychometrics and heat loads, air distribution and duct sizing, air conditioning equipment, test instruments and measurements, and servicing are explored.

Student Learning Outcome(s):
- Students will troubleshoot and replace a defective contactor.

REF A/C 162 PIPING PRINCIPLES AND PRACTICES (4)
Lecture: 2.5 hours / Lab: 4.5 hours

Instruction is given on refrigerant tubing and fittings, water piping and fittings, pipe sizing, soft soldering, silver brazing and schematic drawings.

Student Learning Outcome(s):
- After students construct a copper form, called a “monster”, using the various tube joining methods, the monster will be pressure tested and vacuum tested.

REF A/C 163 ICE STORAGE AIR CONDITIONING (4)
Lecture: 2.5 hours / Lab: 4.5 hours

This course will focus on the fundamentals of water towers and evaporative condensers used to obtain high efficiency performance of refrigeration and air conditioning systems. Students will learn how to select the proper size depending on local humidity and desired operating conditions, proper maintenance, additives, and procedures and techniques available to the technician.

Student Learning Outcome(s):
- Students will develop water treatment procedures for cooling towers and evaporative condensers.
REF A/C 176 HEATING AND AIR CONDITIONING I (3)
Lecture: 3 hours

Instruction is given in heating for workers in the heating and air conditioning field. Fundamentals of fuels, venting, and heat transfer are covered. An introduction to natural gas furnaces, hot water systems and heat pumps are emphasized.

Student Learning Outcome(s):

The student will be able to differentiate the main types of heating systems and explain their operation. The student will state the sequence of operation of a residential furnace. The student will define the major components of a heat pump.

REF A/C 177 HEATING AND AIR CONDITIONING II (3)
Lecture: 3 hours

The cooling portion of the air conditioning field for employed mechanics is explored in this course. Types of systems, the refrigeration cycle, heat gain and heat loss calculations, air distribution equipment, selection of controls, and sales procedures are reviewed.

Student Learning Outcome(s):

1. Perform heat gain and heat loss calculations. 2. Perform air duct sizing of air ducts in a residential A/C system.

REF A/C 185 DIRECTED STUDY - AIR CONDITIONING/REFRIGERATION (1)
Lecture: 1 hour

This course allows students to pursue a directed study in Air conditioning & Refrigeration on a contract basis under the direction of a supervising instructor.

Student Learning Outcome(s):

The outcome will vary depending on the contract with the instructor. The student will formulate a research paper based on a topic in HVACR.

REF A/C 187 SERVICING I (3)
Lecture: 3 hours

This course reviews servicing procedures, manufacturer’s recommendations, installation and servicing of commercial and industrial refrigeration and air conditioning systems.

Student Learning Outcome(s):

Students will describe the operation of a water-source heat pump.

REF A/C 188 SERVICING II (3)
Lecture: 3 hours

Topics covered in this course include: electrical diagrams for testing control circuits; the total electrical system and protection devices on package units; analysis of failure and compressor motor burnout cleanup procedures.

Student Learning Outcome(s):

1. Discuss soldering and brazing techniques as they relate to servicing. 2. Discuss refrigeration and A/C electrical schematics.

REF A/C 199 MECHANICAL CODE I -HVACR (3)
Lecture: 3 hours

Basic heating, air-conditioning and refrigeration (HVACR) mechanical codes and ordinances are the focus of this course. General codes, installation methods and equipment, electrical requirements and other specified areas in the various ordinances are reviewed.

Student Learning Outcome(s):

1. List mechanical codes by topic and article. 2. Identify topic specific HVACR code requirements such as: tubing size, circuit protection, branch circuits, and equipment sizing. 3. Interpret various mechanical codes applied to various installation examples.

REF A/C 202 REFRIGERATION FUNDAMENTALS (3) CSU
Lecture: 3 hours

This course covers applied thermodynamics, types of energy, gas laws, sensible and latent heat transfer.

Student Learning Outcome(s):

1. Students properly identify the 4 major components of a refrigeration system. 2. Students will use technical manuals to select appropriate compression system components.

REF A/C 203 COMPRESSION SYSTEMS OF REFRIGERATION (3) CSU
Lecture: 3 hours

Instruction is given in the vapor cycle of refrigeration systems, including the study of refrigerants and their behavior in the system.

Student Learning Outcome(s):

Students will develop a checklist for leak checking vapor refrigeration systems.

REF A/C 204 TECHNICAL ASPECTS OF REFRIGERATION SYSTEM COMPONENTS (3)
Lecture: 3 hours

This Course covers the technical aspects of all major refrigeration system components. Topics covered include the principles of operation of various types of compressors, refrigerant flow controls, and system design.

Student Learning Outcome(s):

1. Students will select the correct type of compressor for various applications. 2. Students will select the most appropriate metering device for various refrigeration systems.

REF A/C 208 REFRIGERANT MANAGEMENT - EPA SECTION 608 CERTIFICATION (4) CSU
Lecture: 4 hours

This course covers Refrigerant Management including the EPA Section 608 ruling, the Montreal Protocol, Ozone depletion and Global Warming. Preparatory course for the EPA section 608 technician certification. Type I, II, III, and Universal Certification. NOTE: Certification test will be available at the end of the semester for an additional fee.
**REF A/C 209**  
**NORTH AMERICAN TECHNICIAN EXCELLENCE (NATE)-AIR CONDITIONING SPECIALIST CERTIFICATION PREPARATION (4)**  
**Lecture: 4 hours**  
This course is a preparatory course for the industry standard NATE A/C Specialist certification examination. Topics covered in this course include safety, thermodynamics, electrical system diagnostics, airflow measurements, mechanical code, installation, service, tools, and more!  
**Student Learning Outcome(s):**  
1. Students will identify refrigerant types and appropriate application.  
2. Students will define recovery, recycle, reclaim.  
3. Students will define high, medium, and low temperature ranges.

**REF A/C 210**  
**REFRIGERATION SYSTEM EFFICIENCY FACTORS (3)**  
**Lecture: 3 hours**  
This course will cover refrigerant, pressure enthalpy diagram, refrigeration piping, system evacuation, charging, and maintenance. The beginning of the class will include a review of terminology and the refrigeration cycle.  
**Student Learning Outcome(s):**  
1. Students will develop a checklist for performing preventive maintenance on a packaged air conditioning unit.

**REF A/C 250**  
**INDOOR AIR QUALITY (3)**  
**Lecture: 3 hours**  
This course emphasizes on operation of systems to provide quality air to indoor environments. AQMD requirements and pending regulations are reviewed. Organizing and implementing maintenance programs that include indoor air quality assessment and air balancing HVAC systems are covered.  
**Student Learning Outcome(s):**  
1. Discuss the health aspects of IAQ.  
2. Discuss airflow as it relates to IAQ.  
3. Discuss chemicals that can have a negative impact on IAQ.

**REF A/C 255**  
**ENERGY MANAGEMENT (4)**  
**Lecture: 4 hours**  
The course covers the use of computers in the HVACR industry and the application of energy management technology in the improvement of energy efficiencies. The goal is to prepare the HVACR Technician in the use of modern technology, including computers in the continuing quest for improved energy management.  
**Student Learning Outcome(s):**  
1. The student will gather information on the various components of an energy management system.  
2. The student will critically analyze and then organize information on the application of energy management system.  
3. The student will properly apply the English language to write an explanatory paper about rational systems for using various energy management systems or practices.

**REF A/C 285**  
**DIRECTED STUDY - AIR CONDITIONING/REFRIGERATION (2)**  
**Lecture: 2 hours**  
This course allows students to pursue a directed study in the HVACR industry on a contract basis under the direction of a supervising instructor.  
**Student Learning Outcome(s):**  
The outcome will vary depending on the contract with the instructor. The student will formulate a research paper based on a topic in HVACR.

**REF A/C 385**  
**DIRECTED STUDY - AIR CONDITIONING/REFRIGERATION (3)**  
**Lecture: 3 hours**  
This course allows students to pursue a directed study in HVACR on a contract basis under the direction of a supervising instructor.  
**Student Learning Outcome(s):**  
The outcome will vary depending on the contract with the instructor. The student will formulate a research paper based on a topic in HVACR.

**REF A/C 941**  
**COOPERATIVE EDUCATION-REFRIGERATION & AIR CONDITIONING MECH (4) CSU**  
**Lecture: 4 hours**  
Cooperative Education is a work experience program involving the employer, the student-employee and the college to insure that the student receives on the job training and the unit credit for work experience or volunteer work/internship. Completion of at least seven units, including Cooperative Education, at the end of the semester is required. Students must be employed or volunteering/interning in order to participate in program.  
**Student Learning Outcome(s):**  
The student will develop at least three learning objectives to be accomplished on the job. The objectives will be related to the educational/occupational goals of the student.

**RESTAURANT MANAGEMENT**

**RESTAURANT MANAGEMENT (3) CSU**  
**Lecture: 3 hours**  
Introduction to managing in the restaurant industry. Effective communication, goal setting, management theory, problem solving and creating a team work environment will be discussed.  
**Student Learning Outcome(s):**  
Student will identify proper Hospitality Restaurant Management styles, techniques, goal setting, problem solving, motivating and protocol. Student will compare and contrast legal issues as they pertain to the hospitality industry. Student will evaluate proper management practices in the hospitality industry.
SIGN GRAPHICS

SGNGRPH 101  INDIVIDUAL LETTERING (10)
Lecture: 5 hours / Lab: 15 hours

Instruction covers identification of materials, tools, and brushes. Training is offered in drawing and brush lettering Gothic, Roman, Script, and casual letter styles. This course also includes training in techniques of layout, letter spacing, color mixing in reference to the production and sale of temporary signs. Students prepare showcards, paper signs, and other temporary display saleable items.

Student Learning Outcome(s):

Students will be able to design and execute a show card using basic layout and design techniques using industry standard tools to produce a finished product. Students will be able to design and execute a paper banner using basic layout and design techniques and employing the proper materials and tools to complete a finished product.

SGNGRPH 102  EXTERIOR DISPLAY SIGNS (10)
Lecture: 5 hours / Lab: 15 hours

Prerequisite: Sign Graphics 101;

This course covers the tools and materials used to produce outdoor signs. In addition, students design, paint, and letter signs inside and outside the classroom. Students will work on a variety of materials including: canvas, plywood, aluminum, and plastic substrates. Introduction to computer generated lettering and application techniques for vinyl letters. Instruction will emphasize sign layout and design. Students will produce a 4'X8' plywood sign and an exterior wall sign.

Student Learning Outcome(s):

Students will design, layout and create a 4' X 8' plywood sign. Students will produce a plaque and gild with 24 karat gold.

SGNGRPH 103  WINDOW SIGNS (10)
Lecture: 5 hours / Lab: 15 hours

Prerequisite: Sign Graphics 102;

Instruction covers the use of specialized tools and materials used to produce window signs. Training includes painting on exterior and reverse windows, stippling techniques, and applications of vinyl letters on glass, both exterior and reverse. In addition, students will paint a temporary splash window and apply 23K gold leaf (water gilding). Intermediate computer design including the use of plotters and application techniques.

Student Learning Outcome(s):

Students will produce an exterior window sign using computer generated vinyl letters. Students will hand paint a reverse window sign.

SGNGRPH 104  ADVANCE COMPUTER & DESIGN (10)
Lecture: 5 hours / Lab: 15 hours

Prerequisite: Sign Graphics 103;

Students will learn advanced design techniques, backgrounds, and color theory. Practical experience will be gained on advanced computer study, applications, and a variety of computer sign software. In addition, information will be given on small business practices - including management and pricing. Students will produce a sandblasted sign, a custom contour-cut sign, and an antique sign.

SGNGRPH 201  FUNDAMENTALS OF MURAL PAINTING (2)
Lab: 6 hours

This course will teach basic mural painting techniques including; design, layout, and execution. Students will be introduced to the proper tools and paints for exterior, long term murals.

Student Learning Outcome(s):

Students will research historical material and contemporary mural designs to facilitate layout and design of a large wall mural. Students will grid off and participate in the direct layout to the wall. Students will paint a finished wall mural as part of a team.

SGNGRPH 203  SCREEN PRINTING I (2)
Lab: 6 hours

This course will provide an introduction to the screen printing trade. Students will learn to prepare screens and will learn about copy preparation, mesh selection, frames, stencil systems, printing techniques, ink & substrate compatibility, reclamation of screens. Students will print on a variety of surfaces.

Student Learning Outcome(s):

Students will create a finished screen and printed project including two color using photo emulsion. Students will set up and print a multi color textile.

SGNGRPH 204  SCREEN PRINTING II (2)
Lab: 6 hours

Prerequisite: SGNGRPH 203; Advisory SGNGRPH 205.

Students will be introduced to the use of solvent based inks; including; color mixing, application, and clean-up. This course also offers practice on a variety of substrates and uses including four color process printing.

Student Learning Outcome(s):

Students will create artwork using Photoshop for photo reproduction and execute finished screen and print a minimum of 25 consistent copies. Students will develop a multi color design using a dark textile substrate.

SGNGRPH 205  SCREEN PRINTING COMPUTER TECHNIQUES (2)
Lecture: 1 hour / Lab: 2 hours

This is a computer course that will provide the basic skills necessary for students to prepare files for output to be used in the silkscreen process. Topics covered; spot color, trapping, 4 color process and simulated color separations.

Student Learning Outcome(s):

Students will create an electronic file for single and multi color screen printing output.
SGNGRPH 212  SIGN DESIGN AND LAYOUT (2)
Lecture: 1 hour / Lab: 2 hours

Student will learn layout and design of commercial signs. Use of basic rules, appropriate fonts, proper emphasis and the effective utilization of panels will be covered in the course. Hand drawing and sign specific software will be practiced.

Student Learning Outcome(s):

Students will design a finished layout sketch for a potential customer using sign specific software.

SOCIOLOGY

SOC 001  INTRODUCTION TO SOCIOLOGY (3) UC/CSU
Lecture: 3 hours

This course is designed to acquaint students with the major principles of sociology as they are applied to contemporary social issues. With the use of several theoretical perspectives it examines social structures within American society and other cultures from macro and micro perspectives. There are extensive references to contemporary research findings on social structure, group dynamics, social stratification, and social institutions.

Student Learning Outcome(s):

1. Students will utilize basic theoretical perspectives and identify their strengths and weaknesses.

SOC 002  AMERICAN SOCIAL PROBLEMS (3) UC/CSU
Lecture: 3 hours

This course provides identification and analysis of contemporary social problems in the United States with an attempt to establish criteria by which an individual can judge the probable effectiveness of various schemes for social betterment.

Student Learning Outcome(s):

Students will be able to answer the following questions: 1. What is a Social Problem and discuss the objectives and subjective elements of social problems. 2. Be able to define and give examples of the following elements of social structure and culture (institutions, social groups, status, roles, beliefs, values, norms, sanctions and symbols). 3. Be able to explain “social imagination” and discuss its relevance to the study of social problems.

SOC 011  RACE AND ETHNIC RELATIONS (3) CSU
Lecture: 3 hours

Explores the social, political, and economic forces that shape race relations in the United States. Focuses on the sociological analysis of race, ethnicity, and racism. Examines the social, cultural, political, and economic practices and institutions that support or challenge racism, racial and ethnic inequalities, as well as the factors that impact racial/ethnic group relations.

Student Learning Outcome(s):

1) Describe and analyze various sociological theories and how each is applied to the topic of racial inequality. 2) Describe the relationship between race/ethnicity and indicators of well-being (i.e., income, health, education, environment) in the United States. 3) Evaluate the connection between dominant ideologies (e.g., white privilege, capitalism), social institutions (e.g., education, the media, and political/judicial arenas), and race/ethnicity.

SOC 028  THE FAMILY: A SOCIOLOGICAL APPROACH (3) UC/CSU
Lecture: 3 hours

Advisory: ENG 028

This course provides a sociological analysis which contributes to an understanding of the origin, structure, and functions of marriage and family life. This course includes, but is not limited to, studies of gender roles, legal controls, religious attitudes, mixed marriages and financial and family planning.

Student Learning Outcome(s):

Students will be able to do understand family trends from the past sixty years and analyze the changes in family dynamics.

SOC 031  SOCIOLOGY OF GENDER (3) CSU
Lecture: 3 hours

Students examine the social significance of gender in contemporary US society and analyze the social construction of gender ideology and how people’s experiences are affected by social institutions such as work, education, the family, and the criminal justice system. People’s differential experiences are analyzed within the context of race, class, and sexual orientation. Students learn how the experiences of people are created through social institutions and can, therefore, be transformed through social and institutional change.

Student Learning Outcome(s):

Students will be able to analyze the interaction of societal and individual factors in relation to gender.

Students will embody the qualities of an open-minded but critical thinker in the examination of sociological topics and problems related to gender. This includes the ability to critically analyze their own positions of privilege and subjugation.

SOLID WASTE MANAGEMENT TECHNOLOGY

SWM TEK 101  INTRODUCTION TO SOLID WASTE MANAGEMENT (3)
Lecture: 3 hours

This course offers instruction in the fundamentals of solid waste management including characteristics of solid wastes, refuse storage, collection, transportation, disposal methods, financing methods, and solid waste planning.

Student Learning Outcome(s):

1. Be able to describe the characteristics of solid waste 2. Be able to describe different solid waste disposal methods 3. Be able to discuss the proper collection, transportation, and storage of refuse 4. Be able to discuss the accepted financing and planning methods in solid waste management.

SWM TEK 102  COLLECTION SYSTEMS, ROUTING, AND MANAGEMENT (3)
Lecture: 3 hours

This course offers in-depth instruction in the techniques and fundamentals involved in efficient solid waste routing, including topographical variables such as: alleys, one-way streets, hilly areas, downtown areas, and residential communities. The course studies routing for mechanized solid waste collection activities, routing to affect increased productivity, cost reduction, and improved public relations through proper route planning and safety.
Graduation Requirements, Pathways and Programs of Study

SWM TEK 107  WASTE REDUCTION AND RECYCLING (3)
Lecture: 3 hours

This course is an introduction to the science of solid resource recovery. It presents a broad overview of the methods and techniques, equipment and facilities required in recovery processes. Emphasis is placed on costs and management of the recovery process. Nuclear and non-nuclear types of resource recoveries are studied.

Student Learning Outcome(s):
1. Be able to demonstrate an understanding of solid waste characteristics as it pertains to resource recovery.
2. Be able to differentiate various methods of collection, handling and disposal of a multi-faceted municipal solid waste stream.
3. Be able to demonstrate the understanding of increasing prominence of recycling programs along with resultant regulatory developments in the solid waste field.

SWM TEK 108  SOLID WASTE FACILITIES (3)
Lecture: 3 hours

This course covers history and legislation of solid waste generation, and the need for effective transfer stations and landfills. It contains an overview of the handling of materials for both resource recovery and disposition of hazardous and non-hazardous waste. The future needs of the public and private sectors are studied.

Student Learning Outcome(s):
1. Be able to demonstrate an understanding of the history, concept, and development of landfills.
2. Be able to discuss the concepts, importance, and design of transfer stations.
3. Be able to describe the concept of materials recovery facilities.
4. Be able to demonstrate an understanding of compost and mulch processing facilities.
5. Be able to discuss the concept of waste-to-energy and conversion technology.

SWM TEK 911  COOPERATIVE EDUCATION - SOLID WASTE MANAGEMENT TECHNOLOGY (1)
Lecture: 1 hour

Cooperative Education is a work experience program involving the employer, the student-employee and the college to insure that the student receives on the job training and the unit credit for work experience or volunteer work/internship. Completion of at least seven units, including Cooperative Education, at the end of the semester is required. Students must be employed or volunteering/interning in order to participate in program.

Student Learning Outcome(s):
1. The student will develop at least three learning objectives to be accomplished on the job. The objectives will be related to the educational/occupational goals of the student.

SWM TEK 921  COOPERATIVE EDUCATION - SOLID WASTE MANAGEMENT TECHNOLOGY (2)
Lecture: 2 hours

Cooperative Education is a work experience program involving the employer, the student-employee and the college to insure that the student receives on the job training and the unit credit for work experience or volunteer work/internship. Completion of at least seven units, including Cooperative Education, at the end of the semester is required. Students must be employed or volunteering/interning in order to participate in program.

Student Learning Outcome(s):
1. The student will develop at least three learning objectives to be accomplished on the job. The objectives will be related to the educational/occupational goals of the student.

SPANISH

SPANISH 001  ELEMENTARY SPANISH I (5) UC/CSU
Lecture: 5 hours

This course stresses the fundamentals of pronunciation and grammar, practical vocabulary, useful phrases, and the ability to understand, read, write and speak simple Spanish. It includes basic facts on geography, customs, and culture of Spain and Latin America.

Student Learning Outcome(s):
1. Students will communicate in Spanish, orally and in writing, at a novice high level (see ACTFL), using the present tense, the progressive, the periphrastic future tense and the preterite tense: 1) Students will be able to hold a conversation at a novice high level, 2) Students will be able to read a graded paragraph containing elementary vocabulary, and 3) Students will be able to write sentences in Spanish dealing with daily life.

SPANISH 002  ELEMENTARY SPANISH II (5) UC/CSU
Lecture: 5 hours

Prerequisite: Spanish 001 or Spanish 035;

This course is a continuation of Spanish 1. It stresses further aspects of pronunciation and grammar, practical vocabulary, useful phrases, and the ability to understand, read, write and speak Spanish. It includes further facts on geography, customs, and culture of Spain and Latin America.
ST MAIN 201  STREET MAINTENANCE I (3)
Lecture: 3 hours

This course covers the history and current practices in street maintenance techniques and programs. This is a basic course in the general theory of street maintenance as applied to concrete and asphalt.

Student Learning Outcome(s):
1. Discuss the history and development of the “Bureau of Street Services.”
2. Identify the principles and practices of Urban Forestry.
3. Describe resurfacing operations.

ST MAIN 202  STREET MAINTENANCE II (3)
Lecture: 3 hours

This course provides an in depth study of asphalt, preventative maintenance of asphalt and of concrete pavements, and applicable codes for improvement and repair. Also included is the introduction of estimating and calculations for materials usage.

Student Learning Outcome(s):
1. Discuss the history and development of asphalt and concrete pavements.
2. Identify tool & techniques for preventive maintenance on asphalt and concrete pavements.
3. Identify appropriate codes related to asphalt and concrete maintenance work.

ST MAIN 203  STREET MAINTENANCE III (3)
Lecture: 3 hours

This course covers engineering plan reading and math concepts necessary for the calculation of amounts of material required for public works maintenance operations. Emphasis on solving practical math problems in estimating concrete, asphalt, and other materials necessary for the completion of street, sidewalk and other types of maintenance work.

Student Learning Outcome(s):
1. Discuss the principles and practices of estimating.
2. Demonstrate estimating for a classroom defined job requirement.

ST MAIN 204  REPORT WRITING FOR PUBLIC WORKS (3)
Lecture: 3 hours

This course covers report writing in the public works arena. The basic mechanics of the English language and analysis and preparation of reports for public works will be covered.

Student Learning Outcome(s):
1. Write clear and concise public work reports.
2. Improve basic grammar and apply the grammar rules to writing public work reports.

ST MAIN 205  ISSUES AND PRACTICES IN PUBLIC WORKS (3)
Lecture: 3 hours

This course covers street use, street lighting, street trees, lot cleaning, sanitation, engineering and personnel management. State and Municipal Codes,
property descriptions and public relations will also be covered.

Student Learning Outcome(s):
1. Using a map, locate several location for calls of service. 2. Drive to various predetermined map locations.

ST MAIN 206 STREET MAINTENANCE VI (3)
Lecture: 3 hours
This course provides an overview along with hands-on experiences with heavy equipment used in street maintenance. Safety and preventative maintenance included.

Student Learning Outcome(s):
1. Discuss the principles and practices of heavy equipment operations. 2. List safety concerns and discuss mitigation when operating heavy equipment.

ST MAIN 207 STREET MAINTENANCE VII - HAZARDOUS MATERIALS EMERGENCY MANAGEMENT (3)
Lecture: 3 hours
This course covers the prescribed responses in the first hour of a hazardous materials incident. This course satisfies OSHA & NRP Standards in Hazardous Waste Operations Code 29 CFR 1910.120 & 1910.120q. The course includes specific training requirements of hazardous waste workers and emergency responders.

Student Learning Outcome(s):
1. List hazardous materials, and describe how to identify and limits exposure. 2. Describe how to mitigate various hazardous material under normal and emergency situations.

ST MAIN 208 STREET MAINTENANCE TECHNOLOGY (3)
Lecture: 3 hours
The basic concepts of management and supervision in the area of public works are introduced. Topics include motivating employees, effective communication, problem solving, leadership skills and current practices.

Student Learning Outcome(s):
1. Discuss the principles and practices of organizational management. 2. List the pros and cons of various management approaches.

ST MAIN 209 DRIVERS LICENSE PREPARATION (CLASS "B") (2)
Lab: 4 hours
This class prepares the student to successfully obtain a California Class B Drivers License. Information is provided to prepare the student for the written portion of the exam and laboratory/field driving is provided to prepare the student for the driving portion of the exam.

Student Learning Outcome(s):
1. Obtain a Class "B Drivers License.

ST MAIN 210 MOTOR SWEEPER OPERATOR (3)
Lecture: 2 hours / Lab: 4 hours
Motor Sweeper Operator School is to serve as the focal point for the development and training of Street Services personnel to enhance the capability and effectiveness of street cleaning operations. This course spans the entire spectrum of safety, maintenance, and operations.

Student Learning Outcome(s):
1. Discuss the safety aspects of sweeper operation. 2. Discuss maintenance aspects of sweeper operation. 3. Demonstrate proper set up, operation, and shut down of a motor sweeper unit.

ST MAIN 240 INTRODUCTION TO MANAGEMENT IN PUBLIC WORKS (3)
Lecture: 3 hours
The course will address the scope and nature of the field of public administration with attention given to the Public Works field as well as to practical elements of the current conceptual framework within which American Public Administration is practiced. The general format for the class will be discussion/participation with student analysis of selected articles and case studies taken from American Public Administration literature.

Student Learning Outcome(s):
1. Discuss the theory of Management as applied to Public Works. 2. Identify the principles and practices Common to managing a Public Works project.

ST MAIN 241 PROJECT MANAGEMENT IN PUBLIC WORKS (3) CSU
Lecture: 3 hours
The course will provide students with a solid foundation and the necessary theoretical and practical application skills of a project manager. The focus will be on the application and skill as applied to the Public Works project management process.

Student Learning Outcome(s):
1. Discuss the theory of Project Management as applied to Public Works. 2. Identify the principles and practices Common to managing a Public Works project.

ST MAIN 242 MANAGEMENT IN PUBLIC WORKS (3)
Lecture: 3 hours
The course will develop skills that address the scope and nature of the field of public administration with attention given to the Public Works field as well as to practical elements of the current conceptual framework within which American Public Administration is practiced. The general format for the class will be discussion/participation with student analysis of selected articles and case studies taken from American Public Administration literature.

Student Learning Outcome(s):
1. Discuss the theory of Management as applied to Public Works. 2. Identify the principles and practices Common to managing a Public Works project.

ST MAIN 245 LEADERSHIP IN PUBLIC WORKS (3)
Lecture: 3 hours
This course is designed to provide students with a solid foundation about leaders, the leadership process, and motivation. Topics include the theories of leadership and motivation, leadership power, leader behavior, leadership characteristics, the role of gender, substitutes for leadership, and dysfunctional leadership. SM 245 serves as a self-assessment of the student’s own leadership and motivation skills, knowledge, and attitudes, and addresses the questions: Who am I as a leader? What are my most distinguishing leadership traits? What leadership style am I most comfortable being around? How do I influence others? How do I motivate others?
**ST MAIN 252 MANAGEMENT IN PUBLIC WORKS II (3)**
Lecture: 3 hours

The course will increase the depth, scope and nature of the principles and practices in the field of public administration that was gained from the introduction to management course ST MAIN 242. In this course there will be increased attention given to the Public Works field as well as to practical elements of the current conceptual framework within which American Public Administration is practiced.

**Student Learning Outcome(s):**
1. Compare & Contrast the theories of management as applied to Public Works.
2. Re-State the principles and practices common to Public Works Management.

**SUPERVISION**

**SUPV 001 ELEMENTS OF SUPERVISION (3) CSU**
Lecture: 3 hours

This course covers the theory and principles of supervision, as well as the supervisor's responsibilities for organization, human relations, training, rating, quality-control, and management-employee relations.

**Student Learning Outcome(s):**
1. Students will identify and address key issues in supervision.

**SUPV 003 HUMAN RELATIONS (DEVELOPING SUPERVISORY LEADERSHIP) (3)**
Lecture: 3 hours

Instruction will focus on those human relation skills the supervisory student needs to be well rounded and thoroughly prepared for a work environment characterized by economic volatility, constant change and a new level of competitiveness. This interpersonal skills approach places greater emphasis on the application of knowledge through practice, followed by feedback and reinforcement.

**Student Learning Outcome(s):**
1. Students will demonstrate an understanding of the impact of human relations from a supervisory and personal perspective in the workplace. Students will be able to describe and apply the major themes in human relations.
2. Students will be able to assess and develop techniques for managing interpersonal relationships in the workplace. Students will understand and implement the elements of Emotional Intelligence and create a plan for continual improvement.

**SUPV 004 SUPERVISOR’S RESPONSIBILITY FOR MANAGEMENT OF PERSONNEL (3) CSU**
Lecture: 3 hours

This course teaches personnel techniques for the supervisor. Selection, placement, orientation, training, counseling, promotion, evaluation, discipline, grievance handling, and affirmative action are topics included in this course.

**SUPV 941 COOPERATIVE EDUCATION - SUPERVISION (4) CSU**
Lecture: 4 hours

Cooperative Education is a work experience program involving the employer, the student-employee and the college to insure that the student receives on the job training and the unit credit for work experience or volunteer work/internship. Completion of at least seven units, including Cooperative Education, at the end of the semester is required. Students must be employed or volunteering/interning in order to participate in program.

**Student Learning Outcome(s):**
1. The student will develop at least three learning objectives to be accomplished on the job. The objectives will be related to the educational/occupational goals of the student.

**TAILORING**

**TAILRNG 250 TAILORING TECHNIQUES I (2)**
Lab: 6 hours

Advisory: Fashion Design 222 or Fashion Design 111;

Training is offered in basic tailoring techniques. Students be instructed in welt pockets, hand tailored stitching, and finishing techniques. This course will consist of a basic and stylized tailored vest.

**Student Learning Outcome(s):**
1. Students will be able to construct a basic tailored vest. Students will be able to construct a stylized vest including; bound buttonholes, collar, lapel, and hand pick stitching.
TAILRNG 251  TAILORING TECHNIQUES II (2)
Lab: 6 hours
Prerequisite: Tailoring 226 or Tailoring 250.

Students will receive training on trousers and casual men’s style jackets. Instruction will include fly closures, welt pockets, and half linings, and jacket tailoring techniques.

Student Learning Outcome(s):
Student will be able to construct a pair of men’s style pants with fly front, slash pockets, tailored waistband. Students will be able to construct a basic man’s style jacket.

TAILRNG 252  TAILORING TECHNIQUES III (2)
Lab: 6 hours
Prerequisite: Tailoring 227 or Tailoring 251.

Students receive training in tailored coats, men’s style shirts. Instruction will include stylized seams, cold weather techniques.

Student Learning Outcome(s):
Students will be able to construct a basic man’s style shirt. Students will be able to construct a basic tailored coat.

TAILRNG 253  TAILORING TECHNIQUES IV (2)
Lab: 6 hours
Prerequisite: Tailoring 228 or Tailoring 252.

In this course students will learn the fundamentals of taking and using men’s measurements for pattern making. Students will draft patterns for basic trousers, men’s sport shirts, and a basic man’s vest. Each pattern will be tested for fit.

Student Learning Outcome(s):
Students will draft trousers including fly front and other required elements. Students will draft a shirt to personal or standard measurements incorporating required elements.

TAILRNG 255  MEN’S PATTERN DRAFTING I (2)
Lab: 6 hours
Prerequisite: Tailoring 226 or Tailoring 250.

This course in men’s pattern making will introduce students to advanced styling including, jackets, and stylized pants. Students will make complete patterns for each element of a three piece suit.

Student Learning Outcome(s):
Students will draft a classic or contemporary jacket with easy or close fit incorporation required elements, and will construct a muslin sample.

VISCOM 100  GRAPHIC DESIGN I (2) CSU
Lecture: 0.5 hours / Lab: 4.25 hours

An introduction to the profession of Graphic Design. Projects will stress design basics, typography, the computer as a design tool, the basics of visual problem solving, and art production and advertising.

Student Learning Outcome(s):
1. Students will apply color systems to their graphic design solutions that provide color harmony. 2. Students will be able to utilize typography for the purpose of effective visual communication. 3. Students will create a self mailer for a current MOCA exhibition. This mailer must incorporate the Principles and Elements of Design.

VISCOM 103  BASIC COMPUTER SYSTEMS (2) UC/CSU
Lecture: 0.5 hours / Lab: 4.5 hours

Introduction to using the Macintosh computer for graphic design. Students will learn basic computer functionality, with an emphasis on an understanding of the operations systems, configuration for use with graphic applications, file management and working in a network environment.

Student Learning Outcome(s):
Students will design and create a business card on Macintosh computer using Apple and Adobe applications.

VISCOM 105  DIGITAL PREPRESS I (2) UC/CSU
Lecture: 0.5 hours / Lab: 4.5 hours

Beginning level course in the preparation of art for the reproduction process, and its application to the industries of Advertising and Graphic Design. Students will study the history of graphic design, typesetting, paste-up to digital...
prepress (in black and white and two color reproduction) as an emphasized focus within the course.

**Student Learning Outcome(s):**

Students will design and print Personal Identity stationery with the use of Adobe Creative Suites.

**VISCOM 106 DRAWING I (2) CSU**

*Lecture: 0.5 hours / Lab: 4.5 hours*

Students will draw images of 3-D space correctly using Two Point Perspective. Students will draw from life and from photographs for the purpose of creating camera ready illustrations. Students will execute finished line art in various ink techniques.

**Student Learning Outcome(s):**

1. Students will draw images of 3D space correctly using Two Point Perspective. 2. Students will draw from life and from photographs for the purpose of creating camera ready illustrations. 3. Students will execute finished line art in various ink techniques.

**VISCOM 108 2-D DESIGN FUNDAMENTALS (2) CSU**

*Lecture: 2 hours*

A course in the principles and elements of 2D design. Principles of unity, variety, emphasis, balance and proportion guide every mark a designer creates. Elements of line, shape, form, value, color, and texture provide for a control that all visual artists seek as they manipulate their work.

**Student Learning Outcome(s):**

1. Apply organization and compose with visual relationships. 2. Create projects that consider the most appropriate use of design principles and elements. 3. Utilize typography and visual elements together in a single document and provide for clear readership and unified compositional layouts.

**VISCOM 112 DIGITAL PREPRESS II (2) UC/CSU**

*Lecture: 0.5 hours / Lab: 4.5 hours*

Intermediate level course where students design and produce projects that utilize the Macintosh computer and Apple applications. Printing processes, techniques and requirement for digital and offset lithography will be covered.

**Student Learning Outcome(s):**

Students will produce images and material preparing for a printed project. Pantone and process color printing and photography, proofing, separations and package.

**VISCOM 114 DIGITAL TYPESETTING (2) CSU**

*Lecture: 0.5 hours / Lab: 4.5 hours*

Introduction of the principles of computer typesetting as a career. The course will cover the standards and guidelines used to set type for ads, brochures, and stationary. Proofreading and setting copy in multiple computer programs will be stressed.

**Student Learning Outcome(s):**

Students will produce design principles, design techniques, and essential aesthetics that are utilized in a clear and powerful ad.

**VISCOM 115 GRAPHIC DESIGN II (2) CSU**

*Lecture: 0.5 hours / Lab: 4.5 hours*

Intermediate level course that will stress Graphic Design as a profession. Problems will emphasize the development of creativity, typography as communication, art production and the computer, and methods for developing brochures, ads and web pages.

**Student Learning Outcome(s):**

1. Student will organize and present textual information demonstrating gestalt and visual hierarchy of different typestyles for the viewer to navigate and easily access the information he seeks.

**VISCOM 116 ADVERTISING CONCEPTS (2) CSU**

*Lecture: 0.5 hours / Lab: 4.5 hours*

Introduction to the development of advertising concepts for magazines, television, and the internet. Use research, brainstorming and standard advertising methodology to plan, design and produce an advertising campaign.

**Student Learning Outcome(s):**

1. Students will compare and assess both the editorial and advertising content of a cross section of retail magazines and then prepare a written summary of their findings and write a general description of the magazines readership based on those findings. The student will then present this information orally to the class and answer spontaneous questions from the teacher and class members.

**VISCOM 118 DIGITAL DRAWING (2) CSU**

*Lecture: 0.5 hours / Lab: 3.75 hours*

Advisory: Visual Communications 103:

Basic training in computer illustration using the Adobe software application Illustrator. Toolbox familiarity and manipulation, menu items, and general skill application will constitute the criteria for the course.

**Student Learning Outcome(s):**

1. Students will utilize Toolbox Tools and Menus to create and manipulate images and typography. 2. Students will save files in multiple formats (AI to PDF) for the purpose of working cross platform Mac to PC) and in different application versions (CS5 to CS6). 3. Students will develop Vector concepts and translate bitmapped images to Vector formats.

**VISCOM 119 DIGITAL PAGE LAYOUT (2) CSU**

*Lecture: 2 hours*

A hands on course in the digital page layout application Adobe InDesign. Students will learn to construct page layouts for print, including the specification of typographic fonts, setting type in columns and wrap-arounds, working with spreads and long copy documents, using photographs and illustrations, and the preflight preparation of finished document files for print reproduction.

**Student Learning Outcome(s):**

Students will understand typesetting terms. Students will comprehend layout and design of magazine articles in relation to advertising and graphic design.
VISCOM 120  DRAWING II (2) CSU  
Lecture: 0.5 hours / Lab: 4.5 hours

An advanced drawing course in which indoor and outdoor observational drawing concepts are linked with magazine and book publishing for the creation of cover art and feature article page layouts.

Student Learning Outcome(s):

- Students will be able to draw from observation with correct proportions, value variations in their line applications, and with an overall understanding of composition including positive and negative space.

VISCOM 124  COMPUTER ILLUSTRATION I (2) CSU  
Lecture: 0.5 hours / Lab: 4.5 hours

An advanced level course in digital picture-making techniques. It combines the Adobe software applications "Illustrator" and "Photoshop" for the creation of digital illustrations that include drawing, photo manipulations, and typographic stylizations for advertising and editorial purposes.

Student Learning Outcome(s):

1. Students will apply organizational and design systems to a multi page portfolio book document. 2. Students will create original digital files in Photoshop, Illustrator, InDesign, and other visual digital software applications and format each as PDFs for the purpose of printing. 3. Students will build the first half of a marketable portfolio.

VISCOM 131  COMPUTER ILLUSTRATION II (2) CSU  
Lecture: 0.5 hours / Lab: 4.25 hours

An advanced level course in digital picture-making techniques. It combines the Adobe software applications "Illustrator" and "Photoshop" for the creation of digital illustrations that include drawing, photo manipulations, and typographic stylizations for advertising and editorial purposes.

Student Learning Outcome(s):

1. Students will redesign the packaging graphics for a consumer food product, or the #10 brochure for a SoCal theme park. 2. Students will create photographic and illustrative images for container packaging. 3. Students will create digital files for all packaging components.

VISCOM 129  DIGITAL PHOTO MANIPULATION (2) CSU  
Lecture: 0.5 hours / Lab: 4.5 hours

An introductory course that concentrates on the software application Adobe Photoshop. Students will be instructed on how to use this application to create original art and graphics by manipulating scanned photography and other imagery.

Student Learning Outcome(s):

1. Students will utilize Toolbox Tools to manipulate images and typography. 2. Students will utilize Menus to alter and manipulate color and transformations. 3. Students will utilize default Photoshop Brushes and create and use new brushes.

VISCOM 132  PORTFOLIO DEVELOPMENT II (2) CSU  
Lecture: 0.5 hours / Lab: 4.5 hours

This is a course in the production of a finished portfolio. All course projects will be reviewed for portfolio consideration. Some projects will require reworking. Preparation of 10 completed works with preliminary developmental books culminates in a simulated job interview with Advisory Board members.

Student Learning Outcome(s):

1. Students will apply organizational and design systems to a multi page portfolio book document. 2. Students will create original digital files in Photoshop, Illustrator, InDesign, and other visual digital software applications and format each as PDFs for the purpose of printing. 3. Students will build the first half of a marketable portfolio.

VISCOM 127  DIGITAL PREPRESS III (2) UC/CSU  
Lecture: 0.5 hours / Lab: 4.5 hours

An advanced course in digital prepress. Students will utilize photographic images, typography, and original artwork to create printing files for advertising and graphic design. Advanced Macintosh based theories will be covered to include Adobe Creative Suites.

Student Learning Outcome(s):

Students will design and produce a 6 color poster with type and images and prepare for offset printing.

VISCOM 128  DESIGNING LOGOS AND TRADEMARKS (2) CSU  
Lecture: 0.5 hours / Lab: 4.5 hours

Introduction to the principles of trademark design and computer stationary production. Research, marketing, color theory, and corporate identity principles will be stressed. Logos, letterheads, business cards and envelopes will be designed for a variety of clients.

Student Learning Outcome(s):

1. Manipulate typography for the purpose of creating original letterform constructions. 2. Create small, simple graphic images for incorporation into logos and trademarks. 3. Create original logo designs for a variety of clients and business organizations.

VISCOM 130  DRAWING III (2) CSU  
Lecture: 0.5 hours / Lab: 4.5 hours

Students will be able to compose and design a multiple image montage illustration. The incorporation of scale change, strong positive and negative shapes and line variations will provide depth to the illustration content and suggest a strong graphic composition.

Student Learning Outcome(s):

Students will be able to compose and design a multiple image montage illustration. The incorporation of scale change, strong positive and negative shapes and line variations will provide depth to the illustration content and suggest a strong graphic composition.

VISCOM 126  PORTFOLIO DEVELOPMENT I (2) CSU  
Lecture: 0.5 hours / Lab: 4.5 hours

This is a course in the production of a finished portfolio. All course projects will be reviewed for portfolio consideration. Some projects will require reworking. Preparation of 10 completed works with preliminary developmental books culminates in a simulated job interview with Advisory Board members.

Student Learning Outcome(s):

Students will apply organizational and design systems to a multi page portfolio book document. 2. Students will create original digital files in Photoshop, Illustrator, InDesign, and other visual digital software applications and format each as PDFs for the purpose of printing. 3. Students will build the first half of a marketable portfolio.
VISCOM 133 DIGITAL PORTFOLIO PREPARATION (2) UC/CSU
Lecture: 0.5 hours / Lab: 4.5 hours
Plan and produce a digital portfolio of course projects to upload to the Internet. Write a résumé based on graphic design and advertising standards.

Student Learning Outcome(s):
Students will produce a Digital portfolio including a resume and reevaluation of past designs. Portfolio will include projects that display acquired design skills from courses.

VISCOM 134 GRAPHIC DESIGN BUSINESS PRACTICES (2) CSU
Lecture: 0.5 hours / Lab: 4.5 hours
Introduction to the financial aspects of running a Graphic Design business. Lecture and projects will include billing procedures, business overhead costs, taxes and retirement planning. Taxes, small business legal issues and understanding business ethics are stressed.

Student Learning Outcome(s):
Students will study, learn, identify and examine the legal and changing world of Graphic art. Studio and alternative careers and strategies are explored and examined. Students will develop, design and create contracts, business models and a campaign that analyzes project costs, supply and art negotiations and bargaining agreements that make a structured and practical business.

VISCOM 135 WEB GRAPHICS - PREPRODUCTION FOR WEBSITES (2) CSU
Lecture: 0.5 hours / Lab: 4 hours
This course will review Adobe Illustrator and Adobe Photoshop procedures, and introduce Adobe Fireworks beginning with the exploration of tools and panels. The semester long project will encompass the designing of a personal website for the artist/student. Emphasis will be placed on page design, site unity, and the use of graphics and images. Students will generate Animated GIFs and engage Fireworks drag and drop environment.

Student Learning Outcome(s):
Students will design and create a website for portfolio presentation using Adobe Illustrator, Photoshop, and Fireworks.

VISCOM 185 DIRECTED STUDY - VISUAL COMMUNICATIONS (1)
Lecture: 1 hour
This course allows students to pursue directed study in Visual Communications on a contract basis under the direction of a supervising instructor.

Student Learning Outcome(s):
The outcome will vary depending on the contract with the instructor. The student will formulate a project based on a topic in Visual Communications and related topics.

VISCOM 204 FLASH MOTION GRAPHICS (BEGINNING LEVEL) (2) CSU
Lecture: 1 hour / Lab: 3 hours
This course concentrates on the basic fundamentals of Adobe Flash software it's tools and techniques. Ad banners and animations will be covered through project development throughout the class.

Student Learning Outcome(s):
Students will create animated movie for web advertisement using Flash Motion Graphics.

VISCOM 285 DIRECTED STUDY - VISUAL COMMUNICATIONS (2)
Lecture: 2 hours
This course allows students to pursue directed study in Visual Communications on a contract basis under the direction of a supervising instructor.

Student Learning Outcome(s):
The outcome will vary depending on the contract with the instructor. The student will formulate a project based on a topic in Visual Communications and related topics.

VISCOM 385 DIRECTED STUDY - VISUAL COMMUNICATIONS (3)
Lecture: 3 hours
This course allows students to pursue directed study in Visual Communications on a contract basis under the direction of a supervising instructor.

Student Learning Outcome(s):
The outcome will vary depending on the contract with the instructor. The student will formulate a project based on a topic in Visual Communications and related topics.

WASTEWATER TECHNOLOGY

WASTE 012 WASTEWATER OPERATIONS I (3)
Lecture: 3 hours
This course is a survey and introductory course into wastewater systems for operations and maintenance personnel. Administrative, engineering and laboratory personnel may benefit from this course.

Student Learning Outcome(s):
1. Students will discuss the origin, chemical and biological compositions, and treatment methods of wastewater.

WASTE 013 WASTEWATER OPERATIONS II (3)
Lecture: 3 hours
A comprehensive study is made of preliminary, primary, and secondary treatment systems and operations including selected field studies.
WASTE 014  WASTEWATER OPERATIONS III (3)  
Lecture: 3 hours  
This is a comprehensive study of disinfection methods, tertiary treatment, water reclamation, solids treatment, solids and effluent disposal practices.

Student Learning Outcome(s):  
1. The student will be able to convert measurements from US units to metric.

WASTE 016  WASTEWATER OPERATIONS V (3)  
Lecture: 3 hours  
This course is a comprehensive study of the practical application of engineering fundamentals, such as hydraulics, mechanics, electricity and instruments as practiced in wastewater treatment.

Student Learning Outcome(s):  
1. Be able to discuss direct and alternating current, terms, definitions, power, and motors in elementary electricity.

WASTE 017  WASTEWATER OPERATIONS VI (3)  
Lecture: 3 hours  
Public health, the environment, regulations, management/supervision and report writing as practiced in wastewater and water reclamation plants safety are covered.

Student Learning Outcome(s):  
1. Be able to describe pre-treatment, collection system, public treatment system, and disposal system in a wastewater system. 2. Be able to discuss energy levels for various treatment methods, the costs involved, and social impacts of the effects on energy and natural resources. 3. Be able to describe the different levels of operator certification including the educational and experience requirements. 4. Be able to discuss public relations and professional organizations. 5. Be able to describe oral and written forms of communications, and the importance of record keeping. 6. Be able to discuss the administrative methods, human relations, Cal-OSHA, and labor relations in plant management. 7. Be able to describe how to fill out job applications, what to do in job interviews and discuss personnel practices.

WASTE 018  WATER AND WASTEWATER MATHEMATICS (3)  
Lecture: 3 hours  
This is a review and practice of basic mathematical concepts required to solve wastewater treatment problems. (Note: this is not a remedial math class).

Student Learning Outcome(s):  
1. Be able to discuss basic mathematics concepts such as fractions, decimals, exponents, percentages, averages, ratios, proportions, and unit conversions.

WASTE 021  COOPERATIVE EDUCATION - WASTEWATER TECHNOLOGY (2)  
Lecture: 2 hours  
Cooperative Education is a work experience program involving the employer, the student-employee and the college to insure that the student receives on the job training and the unit credit for work experience or volunteer work/internship. Completion of at least seven units, including Cooperative Education, at the end of the semester is required. Students must be employed or volunteering/interning in order to participate in program.

Student Learning Outcome(s):  
The student will develop at least three learning objectives to be accomplished on the job. The objectives will be related to the educational/occupational goals of the student.

WASTE 031  COOPERATIVE EDUCATION - WASTEWATER TECHNOLOGY (3)  
Lecture: 3 hours  
Cooperative Education is a work experience program involving the employer, the student-employee and the college to insure that the student receives on the job training and the unit credit for work experience or volunteer work/internship. Completion of at least seven units, including Cooperative Education, at the end of the semester is required. Students must be employed or volunteering/interning in order to participate in program.

Student Learning Outcome(s):  
The student will develop at least three learning objectives to be accomplished on the job. The objectives will be related to the educational/occupational goals of the student.

WATER SUPPLY TECHNOLOGY

WATER 001  WATER DISTRIBUTION I (3) CSU  
Lecture: 3 hours  
This course provides instructions to water works design and operation for operators and others involved in the operation and design of water distribution systems. All major components of the distribution system including wells, storage reservoirs, pumps, water mains, valves, meters and fire hydrants are fully discussed.

Student Learning Outcome(s):  
1. The student will describe the components of the drinking water distribution system and their functions.

WATER 002  WATER DISTRIBUTION II (3) CSU  
Lecture: 3 hours  
This is an advanced course in water distribution systems. Included are special considerations of pipe types and uses, reservoirs, maps, records applied hydraulics as applied to Distribution Systems. Emphasis will be placed on the practical layout, operation and maintenance of a water distribution system. Students are prepared for a Grade 2 Distribution Operation Certification of the AWWA.

Student Learning Outcome(s):  
1. The student will compare and contrast treatment processes such as blending, iron and manganese removal, and organic chemical treatment.
WATER 004  WATER PURIFICATION I (POTABLE WATER) (3)  CSU
   Lecture: 3 hours

This beginning course in water treatment covers regulations related to water treatment and water quality control, basics of water treatment processes and inter-relationship of processes, and introduction to operation and maintenance of water treatment plant. One of the objectives of the course is to prepare students for Grade 1 and Grade 2 Water Treatment Operator Certification by the Department Of Public Health (CDPH).  

Student Learning Outcome(s):

1. The student will be able to identify drinking water regulations related to Surface Water Treatment Rule (SWTR) and Total Coliform Rule (TCR). 2. The student will be able to discuss the basic design and operation of the Water Treatment Plant (WTP) including coagulation, flocculation, and sedimentation.

WATER 005  WATER TREATMENT II (POTABLE WATER) (3)
   Lecture: 3 hours

This is a more detailed and more in-depth course (compared to the beginning course) in water treatment. This course covers public health, water quality control, elements and functions of the water treatment plant processes. It covers in detail the water treatment plant performance in relation to Surface Water Treatment Rule. Also, covers the operation and maintenance of water treatment plant. One of the objectives of the course is to prepare students for Grades 3 and 4 Water Treatment Operator Certification by the State Department Of Public Health (CDPH).

Student Learning Outcome(s):

1. Students will differentiate storage reservoirs and drinking water wells, and their purposes and function. 2. Students will apply distribution system calculations and measurements.

WATER 101  INTRODUCTION TO SUPPLY WATER TECHNOLOGY (3)  CSU
   Lecture: 3 hours

The purpose of this course is to introduce the basics of water supply, sources of water supply, water chemistry, drinking water regulations, water microbiology, water quality control, and some basic mathematics related to water distribution and water treatment problems.

Student Learning Outcome(s):

1. Students will discuss measurements and calculations used in the water industries. 2. Students will list components of water supply systems.

WATER 102  CALCULATIONS AND MEASUREMENT FOR WATER TECHNOLOGY PROGRAMS (3)
   Lecture: 3 hours

This course covers the basic math skills needed to perform in the supply & waster water fields. Emphasis is placed on the basic operations and how they are applied to the industry. Measurement calculations will be performed in both standard and metric measurements.

Student Learning Outcome(s):

Students will complete national certification test for Introduction to Construction Math.

WATER 921  COOPERATIVE EDUCATION - SUPPLY WATER TECHNOLOGY (2)
   Lecture: 2 hours

Cooperative Education is a work experience program involving the employer, the student-employee and the college to insure that the student receives on the job training and the unit credit for work experience or volunteer work/internship. Completion of at least seven units, including Cooperative Education, at the end of the semester is required. Students must be employed or volunteering/interning in order to participate in program.

Student Learning Outcome(s):

The student will develop at least three learning objectives to be accomplished on the job. The objectives will be related to the educational/occupational goals of the student.

WATER 931  COOPERATIVE EDUCATION - SUPPLY WATER TECHNOLOGY (3)
   Lecture: 3 hours

Cooperative Education is a work experience program involving the employer, the student-employee and the college to insure that the student receives on the job training and the unit credit for work experience or volunteer work/internship. Completion of at least seven units, including Cooperative Education, at the end of the semester is required. Students must be employed or volunteering/interning in order to participate in program.

Student Learning Outcome(s):

The student will develop at least three learning objectives to be accomplished on the job. The objectives will be related to the educational/occupational goals of the student.

WATER 941  COOPERATIVE EDUCATION - SUPPLY WATER TECHNOLOGY (4) CSU
   Lecture: 4 hours

Cooperative Education is a work experience program involving the employer, the student-employee and the college to insure that the student receives on the job training and the unit credit for work experience or volunteer work/internship. Completion of at least seven units, including Cooperative Education, at the end of the semester is required. Students must be employed or volunteering/interning in order to participate in program.

Student Learning Outcome(s):

The student will develop at least three learning objectives to be accomplished on the job. The objectives will be related to the educational/occupational goals of the student.

WELDING GAS AND ELECTRIC

WELDG/E 020  WELDING LABORATORY - GAS & ELECTRIC (1)
   Lab: 3 hours

In Welding Gas and Electric 020, students refine their hands-on skills with gas cutting, welding, and basic electric arc welding processes. Additionally this course is often used in preparation for outside welding certification exams.

Student Learning Outcome(s):

SLO #1 Students will complete twelve basic weld to AWS standard D 1.3
WELDG/E 030  WELDING LABORATORY - ELECTRIC I (1)
Lab: 3 hours

In Welding Gas and Electric 030, students pursue additional hands-on time with the electric stick welding process. Additionally, it is often used in preparation for outside welding certification exams.

Student Learning Outcome(s):
SLO #1 Student will complete four basic welds to AWS standard D 1.3

WELDG/E 040  WELDING LABORATORY - ELECTRIC II (1)
Lab: 3 hours

In Welding Gas and Electric 040, students pursue additional hands-on time with the electric stick welding process. Additionally, it is often used in preparation for outside welding certification exams.

Student Learning Outcome(s):
SLO #1 Student will complete four basic welds to AWS standard D 1.3

WELDG/E 050  WELDING LABORATORY - ELECTRIC III (1)
Lab: 3 hours

In Welding Gas and Electric 050, students pursue additional hands-on time with electric Mig, Tig, and shielded metal Arc welding processes. Additionally, it is often used in preparation for outside welding certification exams.

Student Learning Outcome(s):
Students will weld a lap joint in flat position on aluminum using GTAW process.

WELDG/E 100  METAL SCULPTURE I (3)
Lecture: 2 hours / Lab: 4 hours

Expand beginning welding skills and metal working techniques into an exploration of metal sculpture. This course covers hot and cold working of steel. Shielded metal arc welding, oxy-fuel and plasma arc cutting, weld design and finishing techniques. Technical skills will be emphasized through hands on instruction and practice. There will be opportunity for creative expression and practical application.

Student Learning Outcome(s):
Students will complete metal sculpture using welding processes such as oxy-fuel and SMAW.

WELDG/E 101  FLUX CORED ARC WELDING (3) CSU
Lab: 7 hours

This course provides instructions on the principles, equipment, welding techniques, mode of operations, and safety for flux cored arc welding used for structural steel. The course content follows the FCAW competencies published in American Welding Society Guide for the Training of Welding Personnel: Level I-Entry. This course prepares student for the performance portion of the 6G welding positions. Students will be able to produce a high quality weld on carbon steel 6 inch, schedule 80 pipe using the FCAW process for the root pass, and SMAW process for the fill and cover passes in the 6G welding position. Student will be able to produce a high quality weld on carbon steel 6 inch schedule 80 pipe using the GTAW process in the 5G welding process.

Student Learning Outcome(s):
SLO #1 Complete twelve basic weld to AWS standard D1.3

WELDG/E 103  SEMI-AUTOMATIC WELDING II (FCAW) IN ADVANCED MANUFACTURING (1)
Lecture: 1 hour

This course provides detailed knowledge including welder’s performance qualifying skills using the Flux-Cored Arc Welding process used in the modern manufacturing industry. This course follows the American Welding Society Curriculum Guide for the Training of Welding Personnel: Level I-Entry Welder leading to qualifications outlined in American Welding Society (AWS) D1.1-Structural Steel Welding Code and the American Society of Manufacturing Engineers (ASME) Section IX Code.

Student Learning Outcome(s):
1. All students will perform a safety inspection while identifying GMAW and FCAW equipment components. 2. Upon completion of this course all students will make metric system measurements, geometric measurements, angular measurements, and bends, stretchouts, economical layout, and takeoffs. 3. All students will pass the FCAW welder performance qualification test (AWS EDU-1) on carbon steel using both FCAW-S and FCAW-G processes.

WELDG/E 104  GAS TUNGSTEN ARC/SHELDED METAL ARC WELDING (3)
Lecture: 1.5 hours / Lab: 4.5 hours

This course provides instructions on welding carbon steel pipe to requirements of the American Society of Manufacturing Engineers Boiler and Pressure Vessel Code- Section 9 Welding and Brazing Qualification using the Gas Tungsten Arc and the Shielded Metal Arc welding processes. The course objective requires proficiency in producing high quality welds on 6 inch diameter schedule 80 pipe in the 6G welding positions.

Student Learning Outcome(s):
Students will be able to produce a high quality weld on carbon steel 6 inch, schedule 80 pipe using the GTAW process for the root pass, and SMAW process for the fill and cover passes in the 6G welding position. Student will be able to produce a high quality weld on carbon steel 6 inch schedule 80 pipe using the GTAW process in the 5G welding process.

WELDG/E 111  ACETYLENE WELDING, CUTTING AND BRAZING (5) CSU
Lab: 15 hours

Basic applications in Oxy-Acetylene Gas Welding, brazing and cutting in flat and vertical positions. Students will weld with SMAW process on light gauge material in all positions. Safety procedures and characteristics of Mild Carbon Steel.

Student Learning Outcome(s):

WELDG/E 112  WELDING RELATED TECHNICAL INSTRUCTIONS I (3)
Lecture: 3 hours

This course will cover the principles of oxy-acetylene welding, brazing and cutting; safety, material selection, equipment assembly, fuels torch adjustments, and movements.

Student Learning Outcome(s):
Students will describe how to safely light and adjust an oxyacetylene flame.
WELDG/E 113 A PPLIED MATH EMATICS I (3)
Lecture: 3 hours
This is an entry level course in welding calculations and measurements with special emphasis on the application problems encountered in the welding industry.

Student Learning Outcome(s):
SLO: Students will interpret and solve; Common Fraction, Decimal Fractions, Percent, Algebraic, and Ration & Proportion problems.

WELDG/E 121 E LECTR I C WELDING I (5) CSU
Lecture: 3 hours
Students perform basic manipulative exercises in Shielded Arc Welding (SMAW) process using Mild Carbon Steel materials in all positions, safety precautions, and fire prevention.

Student Learning Outcome(s):
Students will set up and safely light and adjust oxyacetylene flame.

WELDG/E 124 B LUEPRINT READING I (3) CSU
Lecture: 3 hours
This course covers the principles of reading and interpreting basic industrial blueprints as applied to the welding trade.

Student Learning Outcome(s):
Outcome: Students will sketch oblique, isometric and pictorial views.

WELDG/E 125 A PPLIED MATH EMATICS II (3)
Lecture: 3 hours
Related mathematical problems in welding in project design and construction using the fundamental principles of algebra, right angle trigonometry, and basic geometry.

Student Learning Outcome(s):
SLOs: 1. Interpret and solve complex common fraction, decimal fraction problems, percent, algebraic, basic trigonometry, and geometry problems.

WELDG/E 131 E LECTR I C WELDING II (5) CSU
Lab: 15 hours
This course will offer students an opportunity to prepare for LA. City Structural Steel Code AWS D1.1 Certification. There will be supervised practice and individual coaching in the Shielded Metal Arc Welding (SMAW) process.

Student Learning Outcome(s):
SLOs: Students will use shielded metal arc welding (SMAW) techniques to weld in vertical position using a 7018 electrode.

WELDG/E 132 B LUEPRINT READING II (3) CSU
Lecture: 3 hours
Prerequisites: Welding 113;
The course covers the principles of lines, view, size, description, print formats, fasteners, and different types of fabrication drawings; review of industrial welding prints.

Student Learning Outcome(s):
Students will sketch oblique, isometric and pictorial views.

WELDG/E 133 WELDING RELATED TECHNICAL INSTRUCTION III (3)
Lecture: 3 hours
The course places an emphasis on materials, design, assembly procedures, electrodes selection, equipment, welding joints, terminology, welding metallurgy, and certification preparation for AWS D1.1 Structural Steel welding examination.

Student Learning Outcome(s):
SLO: Identify five types of welding joints and seven common structural steel shapes used in industry.

WELDG/E 141 E LECTR I C WELDING III (5) CSU
Lab: 15 hours
Students complete activities using the Gas Tungsten Arc Welding (TIG) & Gas Metal Arc Welding (MIG) Process. Students will weld on Mild Carbon Steel, Aluminum and Stainless Steel.

Student Learning Outcome(s):
SLO #1 Students will weld a lap joint in flat position on aluminum using GTAW process.

WELDG/E 142 INERT GAS WELDING (TIG & MIG) (3) CSU
Lecture: 3 hours
The course covers the principles of welding Aluminum, Stainless Steel, Carbon Steel, the maintenance and operation of (TIG) & (MIG) welding equipment.

Student Learning Outcome(s):
Identify three types of shielding gases used in GMAW and explain the functions of the shielding gasses.

WELDG/E 143 WELDING RELATED TECHNICAL INSTRUCTION IV (3)
Lecture: 3 hours
The course covers the principles and theory of operating manual and semi-automatic welding equipment, Sheet Steel D1.3 certification preparation and the metallurgy of metals.

Student Learning Outcome(s):
Identify three types of shielding gases used in GMAW and explain the functions of the shielding gasses.
WELDG/E 151  INTRODUCTION TO ROBOTIC WELDING AND AUTOMATION (3) CSU
Lecture: 3 hours
This course provides fundamental theory and hands-on application of robotic welding and automation. Emphasis is placed on safety awareness, programming techniques, and basic gas metal arc welding applications using a six-axis robotic welding systems.

Student Learning Outcome(s):
1. At the completion of this course all students will select an electric arc welding process covered in the course and demonstrate a common knowledge of basic operating principles, component identification, equipment setup and performance.

WELDG/E 185  DIRECTED STUDY - WELDING GAS AND ELECTRIC (1)
Lecture: 1 hour
This course allows students to pursue a directed study in welding technology on a contract basis under the direction of a supervising instructor.

Student Learning Outcome(s):
The outcome will vary depending on the contract with the instructor. The student will formulate a research paper based on a topic in plumbing technology.

WELDG/E 200  METAL SCULPTURE II (2) CSU
Lecture: 2 hours / Lab: 4 hours
Expand beginning welding skills and metal working techniques into an exploration of metal sculpture. This course covers hot and cold working of steel. Shielded metal arc welding, oxy-fuel and plasma arc cutting, weld design and finishing techniques. Technical skills will be emphasized through hands on instruction and practice. There will be opportunity for creative expression and practical application.

Student Learning Outcome(s):
Students will complete metal sculpture using welding processes such as oxy-fuel and SMAW, and GTAW.

WELDG/E 201  TUNGSTEN ARC WELDING I (2)
Lab: 7 hours
This course is designed to provide students with basic performance qualification skills in Gas Tungsten Arc Welding (TIG) needed for employment in the modern manufacturing industry. This course follows AWS standardized curriculum leading to students performance qualifications to the AWS Specifications for Fusion Welding for Aerospace Applications.

Student Learning Outcome(s):
1. All students will perform a safety inspection while identifying GTAW equipment components. 2. All students will interpret basic elements of a drawing or sketch. 3. All students will pass the welder performance qualification test (Module 3) on carbon steel.

WELDG/E 201A  WELDING-GAS AND ELECTRIC IA (1)
Lab: 3 hours
Basic manipulative exercises in electric welding using low alloy and mild steel materials in all positions, safety precautions, and fire prevention.

Student Learning Outcome(s):
Student will set up and weld an overhead but joint using 6010 rod.

WELDG/E 201B  WELDING-GAS AND ELECTRIC IB (1)
Lab: 3 hours
This course will offer students an opportunity to prepare for AWS D1.1 Certification testing in SMAW. There will be opportunities for improvement through supervised practice and individual coaching in SMAW process.

Student Learning Outcome(s):
Students use shielded metal arc welding (SMAW) techniques to weld in vertical position using a 7018 electrode.

WELDG/E 210  METAL SCULPTING LABORATORY (2) CSU
Lab: 6 hours
Prerequisite: Welding 100.

Expand beginning welding skills and metal working techniques into an exploration of metal sculpture.

Student Learning Outcome(s):
Student will weld a Vee Groove in the vertical position using 3/8 steel plate with 100% joint penetration, using a baking strip.

WELDG/E 251  INTERMEDIATE ROBOTIC WELDING AND AUTOMATION (2)
Lab: 7 hours
This course provides the advance knowledge needed to weld pressure vessels using the Gas Tungsten Arc Welding (TIG) process. This course follows the American Welding Society Curriculum Guide for the Training of Welding Personnel. Level II-Advance Welder, leading to welder’s qualifications outlined in the American Society of Manufacturing Engineers (ASME) Section IX Code.

Student Learning Outcome(s):
1. All students will interpret advanced elements of a drawing or sketch. 2. All students will pass the GTAW Welder’s Performance Qualification Test on Pipe in the Fixed 45° Position to AWS Standard- Level II-Advance Welder- Workmanship Test, (AWS-5) and (AWS-6).

WELDG/E 285  DIRECTED STUDY - WELDING GAS AND ELECTRIC (2)
Lecture: 2 hours
This course allows students to pursue a directed study in welding technology on a contract basis under the direction of a supervising instructor.

Student Learning Outcome(s):
The outcome will vary depending on the contract with the instructor. The student will formulate a research paper based on a topic in plumbing technology.
WELDG/E 941  COOPERATIVE EDUCATION - WELDING GAS AND ELECTRIC (4) CSU

Lecture: 4 hours

Cooperative Education is a work experience program involving the employer, the student-employee and the college to insure that the student receives on the job training and the unit credit for work experience or volunteer work/internship. Completion of at least seven units, including Cooperative Education, at the end of the semester is required. Students must be employed or volunteering/interning in order to participate in program.

Student Learning Outcome(s):

The student will develop at least three learning objectives to be accomplished on the job. The objectives will be related to the educational/occupational goals of the student.
Non Credit Courses

ACADEMIC PREPARATION

Note: There are no specific limitations on noncredit course repetition (PCAH, 6th Edition).

ACAD PR 001CE LANGUAGE ARTS: WRITING MECHANICS (0)
Lecture: 1.5 hour(s)
Students review the essential elements of the structure of Standard American English necessary for college success. Students are introduced to grammar basics (parts of speech, clauses, and phrases) in context of assigned readings and writing projects. This class can be taken as a stand-alone introduction or refresher and may be taken in conjunction with credit classes.

Student Learning Outcome(s):
Students will write a 100 - 200 word essays using sentence variety, parallelism, noun and adverb clauses, restrictive and non-restrictive phrases and clauses, and academic vocabulary.

ACAD PR 002CE LANGUAGE ARTS: WRITING SENTENCES (0)
Lecture: 1.5 hour(s)
Students develop writing and grammar skills necessary for college success. This course is designed to improve the writing of sentences, paragraphs, and short essays. The course emphasizes the ability to read analytically and think logically. This class can be taken as a stand-alone-introduction or refresher and may be taken in conjunction with credit English classes.

Student Learning Outcome(s):
Students will write a 250 - 350 word essays using sentence variety, parallelism, noun and adverb clauses, restrictive and non-restrictive phrases and clauses, and academic vocabulary.

ACAD PR 003CE LANGUAGE ARTS: WRITING ESSAYS (0)
Lecture: 1.5 hour(s)
Students review the process of writing, from coming up with ideas, organizing these ideas into a well-structured essay, to editing and revising their ideas into final form. Students are introduced to grammar basics (parts of speech, clauses, and phrases) in context of assigned readings and writing projects. This class can be taken as a stand-alone introduction or refresher and may be taken in conjunction with credit English classes.

Student Learning Outcome(s):

ACAD PR 004CE LANGUAGE ARTS: READING FICTION (0)
Lecture: 5 hour(s)
Students will review reading strategies necessary for college success. Students will explore fiction designed to sharpen skills as critical readers (structure, narrative voice, character development, historical and political contexts and reader response). Students are introduced to literature in its various genres such as short story and poetry. This class can be taken as a stand-alone-introduction or refresher on literature. It may also be taken in conjunction with credit classes in other disciplines.

Student Learning Outcome(s):
Upon successfully completing the course, students should critically analyze literary works and discuss the works and the literary techniques.

ACAD PR 005CE LANGUAGE ARTS: READING NON-FICTION (0)
Lecture: 1.5 hour(s)
Students review reading strategies necessary for college success. Students are introduced to advanced critical reading skills (determining author’s purpose, tone, point of view, and intended audience) and literary concepts (interpreting figures of speech and theme). Readings may include newspapers, magazines, and longer genres such as biography. This class can be taken as a stand-alone-introduction or refresher and may be taken in conjunction with credit English classes.

Student Learning Outcome(s):
Unpack selected readings for topics, main ideas, logical conclusions, and organization of supporting details. Distinguish fact from opinion and author’s point of view.

BASIC SKILLS

Note: There are no specific limitations on noncredit course repetition (PCAH, 6th Edition).

BSICSKL 002CE BASIC ENGLISH SKILLS (0) NDA
Lecture: 3 hour(s)
This course focuses on basic listening, reading, speaking, and writing skills for students with minimum English language skills.

Student Learning Outcome:
Students will be able to:
1. Demonstrate knowledge of introductory grammatical conventions in their writing.

BSICSKL 008CE FOUNDATIONS: CRITICAL THINKING (0) NDA
Lecture: 5 hour(s)
This course will help foster students' habits of mind and character that are required to develop a generous receptivity to new ideas, from whatever source and a disposition for applying the most rigorous criticism to all ideas and institutions. Critical thinking is central to student success in college, career and in life-long communication and leadership.
BSICSKL 019CE  TECHNICAL ENGLISH WRITING (0) NDA
Lecture: 3 hour(s)
In this noncredit Technical English Writing course, students will learn the fundamentals of Technical Writing required for occupations. Students will learn and review a variety of topics ranging from reading job descriptions, writing resumes and cover letters, to writing technical reports. This course counts towards the Pathway Readiness Certificate.

Student Learning Outcome:
Demonstrate ability to seek employment through writing coherent and relevant emails, letters, and resumes.

Produce technical report including identifying the problem, explaining the problem and resolving the problem-and confirming completion of the repair/ persistence of the problem.

BSICSKL 023CE  COLLEGE AND SCHOLASTIC ASSESSMENT PREPARATION (0) NDA
Lecture: 4 hour(s)
This course provides students with study, computational, writing, and critical thinking skills to prepare for the college assessment test.

Student Learning Outcome:
Students will be able to:
1. Writing – Students will compose a grammatically correct and coherent written summary and response to assigned material
2. Reading—Students will identify authorial intent, main ideas, and supporting details in various texts read silently and aloud.
3. Students will develop effective study, note-taking, organization, communication, critical thinking, and learning skills that support their success in college and vocation.
4. Calculate whole numbers, fractions, mixed numbers, and decimals through addition, subtraction, multiplication and division functions.
5. Determine and employ the necessary sequence of steps to solve and graph algebraic linear equations.
6. Select and use appropriate units to estimate and calculate measurements of an area and volume of geometric figures.
7. Recognize and interpret math vocabulary and cues to set up and correctly solve math word problems related to whole numbers, fractions, decimals, signed numbers, algebra and geometry.

BSICSKL 035CE  BASIC MATH SKILLS (0) NDA
Lecture: 1 hour(s) / Lab: 2 hours
This course is designed to strengthen basic math skills. Topics include properties, rounding, estimating, comparing, converting, and computing whole numbers, fractions, and decimals. Upon completion, students should be able to perform basic computations and solve relevant mathematical problems.

Student Learning Outcome:
Students will be able to:
1. Perform basic computations and solve relevant mathematical problems.

BSICSKL 036CE  PATHWAY MATH (0)
Lecture: 1 hour(s) / Lab: 2 hours
This course is designed for students working in Pathways with existing math content to reinforce math competencies required for their AA degree. Students work primarily in a lab setting on a customized curriculum. Students are taught self-assessment skills and independent learning skills utilizing mathematics technology tools. Mathematical topics in this course include objectives including but not limited to: calculations in whole numbers, integers, rational, irrational and complex numbers; solving linear, quadratic, rational, radical, exponential and logarithmic equations and inequalities; graphing functions in two variables; and their applications.

BSICSKL 041CE  SOFTSKILL BASICS 1A-JOB SEARCH PLANNING (0) NDA
Lecture: 0.5 hour(s)
This course covers the basic knowledge and skills necessary for finding and gaining employment. Topics include job search planning, identifying work/professional goals, identifying work opportunities using many resources, and developing a Work Opportunity Plan.

BSICSKL 042CE  SOFTSKILL BASICS 1B - THE SUCCESSFUL JOB SEARCH (0) NDA
Lecture: 0.5 hour(s)
This course covers the basic knowledge and skills necessary for gaining employment. Topics include telephone contact of prospective employers, resume writing, employer expectations, and job interviewing skills. This course will cover topics related to 21st Century Skills including: communication, entrepreneurial mindset, social & diversity awareness, adaptability, collaboration, and self-awareness.

Student Learning Outcome:
Students will be able to create a portfolio that includes resume, cover letter, and reference sheet.

BSICSKL 043CE  SOFTSKILL BASICS 1C - PRE-EMPLOYMENT READINESS (0) NDA
Lecture: 0.5 hour(s)
This course provides an introduction for starting successful employment or a new job. Topics include making good first impressions, basic workplace expectations, developing good work habits, time management, communication skills, dealing with job-related stress, and techniques for good interpersonal relationships.

Student Learning Outcome:
1. What they need to prepare for a new job. 2. Professional verbal, nonverbal and written communication skills for the workplace. 3. Basic listening and conflict resolution skills.
BSICSKL 045CE MICROSOFT OFFICE APPLICATION BASICS (0) NDA
Lecture: 2 hour(s)

Students are introduced to and practice using the basic functions of Microsoft Office applications namely Word, Excel, and PowerPoint for college assignments and career preparation.

Student Learning Outcome:

Students will be able to:
1. Students can identify and utilize the main parts of the computer: monitor, keyboard, mouse, tower, port, disk, drive, printer, etc.; install software, and identify and use computer icons. 2. Students will strengthen their skills in text entry, formatting, spell check and grammar checking; bulleted, numbered and making tables and saving their documents onto a memory stick. 3. Students will learn how to enter data, formatting, cell alignment, fonts, mathematical calculations and functions and transform data tables into charts and graphs. 4. Students will create a PowerPoint presentation that demonstrates their ability to create slides, apply templates, print handouts, and imbed videos, music and links.

BSICSKL 046CE MICROSOFT WINDOWS BASICS (0) NDA
Lecture: 0.5 hour(s)

An introduction to basic functions of Microsoft Windows®. Topics include: Windows® terminology; screen elements such as toolbars, title bars, and task bars; navigating in Windows®; start button functions; file management; control panel; and basic Windows® applications such as Wordpad®, Microsoft Word, Excel, and PowerPoint.

Student Learning Outcome:

1. Students will be able to identify the purpose of various navigation menus. 2. Students can create a file management system using folders and subfolders.

BSICSKL 047CE MICROSOFT OFFICE APPLICATION BASICS (0) NDA
Lecture: 0.5 hour(s)

Students are introduced to and practice using the basic functions of Microsoft Office applications namely Word, Excel, and PowerPoint for college assignments and career preparation.

Student Learning Outcome:

Students will be able to:
1. Students can identify and utilize the main parts of the computer: monitor, keyboard, mouse, tower, port, disk, drive, printer, etc.; install software, and identify and use computer icons. 2. Students will strengthen their skills in text entry, formatting, spell check and grammar checking; bulleted, numbered and making tables and saving their documents onto a memory stick. 3. Students will learn how to enter data, formatting, cell alignment, fonts, mathematical calculations and functions and transform data tables into charts and graphs. 4. Students will create a PowerPoint presentation that demonstrates their ability to create slides, apply templates, print handouts, and imbed videos, music and links.

BSICSKL 048CE MICROSOFT OFFICE APPLICATION BASICS (0) NDA
Lecture: 0.5 hour(s)

Students are introduced to and practice using the basic functions of Microsoft Office applications namely Word, Excel, and PowerPoint for college assignments and career preparation.

Student Learning Outcome:

Students will be able to:
1. Students can identify and utilize the main parts of the computer: monitor, keyboard, mouse, tower, port, disk, drive, printer, etc.; install software, and identify and use computer icons. 2. Students will strengthen their skills in text entry, formatting, spell check and grammar checking; bulleted, numbered and making tables and saving their documents onto a memory stick. 3. Students will learn how to enter data, formatting, cell alignment, fonts, mathematical calculations and functions and transform data tables into charts and graphs. 4. Students will create a PowerPoint presentation that demonstrates their ability to create slides, apply templates, print handouts, and imbed videos, music and links.

BSICSKL 055CE SOFTSKILLS BASICS 3B - INTERPERSONAL COMMUNICATIONS (0) NDA
Lecture: 0.5 hour(s)

This course offers an introduction to building interpersonal and professional image skills necessary for succeeding in the workplace. Topics include basic business manners and etiquette, interacting with people or ‘people skills’, how to develop a professional image, problem-solving, and handling workplace conflict.

Student Learning Outcome:

Students will learn:
1. Basic business manners and etiquette. 2. The concepts, attributes and importance of professional self-image. 3. Effective communication, interpersonal and listening skills. 4. Effective steps and techniques to resolving conflict in the workplace.

BSICSKL 056CE SOFTSKILLS BASICS 3B - INTERPERSONAL COMMUNICATIONS (0) NDA
Lecture: 0.5 hour(s)

This course covers the interpersonal and professional image skills necessary for succeeding in the workplace. Topics include basic business manners and etiquette, interacting with people or ‘people skills’, how to develop a professional image, problem-solving, and handling workplace conflict.

Student Learning Outcome:

Students will learn:
1. Basic business manners and etiquette. 2. The concepts, attributes and importance of professional self-image. 3. Effective communication, interpersonal and listening skills. 4. Effective steps and techniques to resolving conflict in the workplace.

BSICSKL 060CE BASIC COMPUTER LITERACY (0) NDA
Lecture: 1 hour(s) / Lab: 2 hours

Fundamentals of computer hardware, software, and the internet for computer novices, introducing computer components and functions including hardware, operating systems, applications, (e.g. word processing, spreadsheets, email and communications) and web browsers to access information on the world wide web.

BSICSKL 061CE BASIC COMPUTER LITERACY (0) NDA
Lecture: 1 hour(s) / Lab: 2 hours

Fundamentals of computer hardware, software, and the internet for computer novices, introducing computer components and functions including hardware, operating systems, software applications, (e.g. word processing, spreadsheets, email and communications) and web browsers to access information on the world wide web.

BSICSKL 065CE FINANCIAL LITERACY - CREDIT BASICS (0) NDA
Lecture: 0.5 hour(s)

This course develops a foundation of credit management concepts to enable students to understand credit management, credit risk management, lending objectives, and how to measure credit risk. The course also describes the credit rating systems and discusses the impact of deferred and defaulted education loans on credit scores.

Student Learning Outcome:

Students will be able to develop a plan for improving credit scores and managing education loans within a one-year timeline.

BSICSKL 066CE FINANCIAL LITERACY - PERSONAL MONEY MANAGEMENT (0) NDA
Lecture: .5 hour(s)

This course develops a foundation of money management concepts to enable students to understand how to develop a financial plan to meet their educational and career goals. This course provides students with the basic research and networking skills to become well-informed job seekers and to effectively prepare them for career opportunities.

Student Learning Outcome:

Students will be able to identify the various strategies to fund higher education while balancing personal financial responsibilities.

BSICSKL 067CE FINANCIAL LITERACY - PERSONAL MONEY MANAGEMENT (0) NDA
Lecture: .5 hour(s)

This course develops a foundation of money management concepts to enable students to understand how to develop a financial plan to meet their educational and career goals. This course provides students with the basic research and networking skills to become well-informed job seekers and to effectively prepare them for career opportunities.

Student Learning Outcome:

Students will be able to identify the various strategies to fund higher education while balancing personal financial responsibilities.

BSICSKL 068CE INDUSTRY OVERVIEW AND CAREER OPPORTUNITIES (0) NDA
Lecture: 1 hour(s)

This course provides students with information on the targeted industry and sectors including essential facts, key institutions, history, career pathways and trends. This course provides students with the basic research and networking skills to become well-informed job seekers and to effectively prepare them for career opportunities.

Student Learning Outcome:

After successful completion of this course, students will be able to identify and describe industry career options.

BSICSKL 069CE EMPLOYMENT TEST PREPARATION (0) NDA
Lecture: 4 hour(s)

This course is designed to review construction and utility sector employment entry requirements and expectations. The course will include the review of test-taking, math, reading, writing skills, and industry expectations to prepare students for employment in various construction and utility sector job classifications. This course includes a module specific to civil service exam preparation.

Student Learning Outcome:

Students will be able to:
1. Compose a grammatically correct and coherent multi-paragraph response to a prompt. 2. Develop and utilize effective study, note-taking organization, and writing skills. 3. Correctly solve numerical and word problems related to whole numbers, fractions, decimals, signed numbers, algebra and geometry.
ENGLISH AS A SECOND LANGUAGE - NONCREDIT

Note: There are no specific limitations on noncredit course repetition (PCA, 6th Edition).

ESL NC 006CE  ENGLISH AS A SECOND LANGUAGE - 0 (0) NDA
Lecture: 3 hour(s)

This open entry open exit course emphasizes listening/speaking skills, and reading/writing skills at a literacy level. The focus of the course is on basic survival English skills, English sound/symbol correspondence, and reading and writing of simple English sentences.

Student Learning Outcome:

Students will be able to:

1. Demonstrate the rules of reading and comprehension of the basic written and spoken English language related to daily life in America.

2. Demonstrate the proper punctuation, mechanics and grammar for the English language related to daily life in America.

ESL NC 007CE  ENGLISH AS A SECOND LANGUAGE - (0) NDA
Lecture: 3 hour(s)

This is an open entry, open exit course that emphasizes listening/speaking and reading/writing skills at a beginning-low level. The focus of the course is on understanding and participating in basic communication and conversation skills in routine social situation. Students read simple passages and generate and write sentences related to housing, food, health, transportation, employment, and other resources.

Student Learning Outcome:

Students will be able to:

1. Demonstrate the rules of reading and comprehension of the basic written and spoken English language related to daily life in America.

2. Demonstrate the proper punctuation, mechanics and grammar for the English language related to daily life in America.

ESL NC 008CE  ENGLISH AS A SECOND LANGUAGE - 2 (0) NDA
Lecture: 3 hour(s)

This is an open-entry open-exit course, which emphasizes listening/speaking skills and reading/writing skills at a high-beginning level. This class focuses on comprehending and engaging in extended conversations related to familiar contexts. Students read simple authentic or adapted narrative and descriptive passages and use basic grammatical structures to write short, clearly organized paragraphs and messages.

Student Learning Outcome:

1. The rules of reading and comprehension of the basic written and spoken English language related to daily life in America. 2. The proper punctuation, mechanics and grammar for the English language related to daily life in America.

ESL CIVICS

Note: There are no specific limitations on noncredit course repetition (PCA, 6th Edition).

ESLVCVS 010CE  ESL AND CIVICS 1 (0) NDA
Lecture: 1 hour(s)

Ability to articulate or prepare for credit coursework. This is an open-entry/open exit course. This course is intended for beginning high and intermediate-low English speakers. Speaking, listening, reading, and writing skills are emphasized. Learners engage in discussions on living in the United States, housing issues, and U.S. history in preparation for greater civic engagement and responsibilities.

Student Learning Outcome:

1. Students will be able to identify and correctly pronounce the 50 states and capitals. 2. Students will be able to identify the different types and options for housing evaluate their related documents and assess the benefits and challenges with regard to their own situation. 3. Students will be able to correctly recite the Pledge of Allegiance and accurately connect U.S. major holidays and historical events related to the founding of the United States.

ESLVCVS 013CE  ESL AND CIVICS IV (0) NDA
Lecture: 3 hour(s)

This is an open-entry/open-exit course. This course is intended for English speakers at an intermediate level. Intermediate low listening, speaking, reading, and writing skills are emphasized. Learners engage in discussions on education and early United States history.
Student Learning Outcome:
1. Students will identify and differentiate the public education system from preschool through the community college system.
2. Students will be able to evaluate and correctly respond to questions related to U.S. history.
3. Students will be able to express thoughts and ideas in well-developed paragraphs and short essays using proper grammar.

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**VOCATIONAL EDUCATION**

Note: There are no specific limitations on noncredit course repetition (PCAH, 6th Edition).

**VOC ED 008CE  PRE-EMPLOYMENT SKILLS/CONSUMER TRAINING (0) NDA**

*Lecture: 3 hour(s)*

Students will acquire conceptual, intra-, and inter-personal skills to prepare them for the world of work. Topics include communication skills, group effectiveness, problem-solving skills, and teamwork while working in “simulated” vocational settings.

**Student Learning Outcome:**
1. Define and apply the six career readiness competencies. 2. Demonstrate necessary communication and organizational skills for presentations by sharing clear, accurate and concise information. 3. Reflect on personal career journey as it relates to mentoring relationships with fellow students.

**VOC ED 060CE  CUSTODIAL TECHNICIAN TRAINING (0) NDA**

*Lecture: 1 hour/Lab: 2.5 hour(s)*

This course validates training in tool, equipment, chemical and personal safety, use of proper and appropriate cleaning and maintenance equipment and supplies, and proper handling of diverse chemicals. Students successfully completing this course will be qualified for entry level custodial and building maintenance employment.

**Student Learning Outcome:**
1. Apply custodial terminology, directions, units of measurement and instructions to complete custodial tasks. 2. Recognize and apply appropriate tool, equipment, chemical, and toxic waste safety and handling. 3. Identify and demonstrate recommended practices for the use of custodial tools, machines, chemicals, and specialized equipment.

**VOC ED 080CE  BANK TELLER TRAINING (0) NDA**

*Lecture: 4 hour(s)*

This course provides basic training in the activities and required skills for someone seeking an entry-level position as a bank teller. It includes topics in both general workplace personal behavior and interpersonal relationships, specific common financial transaction procedures, and fundamental record processing principles.

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**VOC ED 190CE  PATHWAY TO SOCIALLY RESPONSIBLE ENTREPRENEURSHIP (0) NDA**

*Lecture: 2 hour(s)*

Have you ever wanted to start your own small business? This course is an introduction to the entrepreneurial leadership traits and socially responsible behaviors that are the foundation for developing the skills and resources involved in transforming an innovative idea into a sustainable entrepreneurial product or service. This course fulfills a requirement for a certificate of completion in Sustainable Small Business Development.

**Student Learning Outcome:**
1. Students will identify their leadership strengths. 2. Students will be able to explain a pathway for an entrepreneurial idea that is sustainable and socially responsible. 3. Students will defend the benefits and realistic activities of their startup idea against the criticism.

**VOC ED 191CE  STARTING YOUR OWN SMALL BUSINESS (0) NDA**

*Lecture: 2 hour(s)*

An introduction to starting a small business. Topics include: Concept kick start, key decisions and considerations when creating a business, protecting the value of your idea, types of ownership, legal obligations, networking resources, writing a business plan outline, small business information resources, and business readiness assessment. This course fulfills a requirement for a certificate of completion in Sustainable Small Business Development.

**Student Learning Outcome:**
Students will determine the readiness of their small business idea for launching it in the marketplace.

**VOC ED 192CE  MANAGING SMALL BUSINESS OPERATIONS (0) NDA**

*Lecture: 2 hour(s)*

This course reviews the operational logistics that small business start-ups should consider prior to launching. The course identifies management concerns unique to small businesses and presents information on establishing administrative controls and managing business operations, risk, growth and change to increase sustainability. This course fulfills a requirement for a certificate of completion in Sustainable Small Business Development.

**Student Learning Outcome:**
Students will be able to identify, understand, and seek sustainable solutions to the operational problems of small businesses, such as insufficient capital.

**VOC ED 193CE  MARKETING AND SALES FOR SMALL BUSINESS (0) NDA**

*Lecture: 2 hour(s)*

This course relates both marketing and sales strategies to today’s fast-paced, competitive and segmented business environment, with the emphasis on relating marketing concepts to practical and effective real-world solutions that are sustainable. Both corporate and consumer situations will be considered with a strong focus on new product/service introduction, and product/service life cycle extension. This course fulfills a requirement for a certificate of completion in Sustainable Small Business Development.

**Student Learning Outcome:**
Students will be able to apply green marketing strategies in an elevator pitch of a new entrepreneurial product or service.
**VOC ED 194CE  TECHNOLOGY FOR SMALL BUSINESS (0) NDA**

**Lecture: 1 hour(s) / Lab: 1 hour(s)**

Topics covered in this course build the essential technology skills for entrepreneurs to run a small business more efficiently and save time. This course introduces website development and management, search engine optimization, blogging, social media platforms, databases and data security, and point of sale and crowdfunding tools. This course fulfills a requirement for a certificate of completion in Sustainable Small Business Development.

**Student Learning Outcome:**

- Students will be able to explain and apply technology tools for small business efficiency.

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**VOC ED 195CE  ENTREPRENEURIAL FINANCE (0) NDA**

**Lecture: 2 hour(s)**

This course examines the elements of entrepreneurial finance, focusing on startup ventures and the early stages of company development. The course addresses key questions, which challenge all entrepreneurs: how much money can and should be raised; when the money should be raised, and from whom; what is a reasonable valuation of the company. It aims to prepare aspiring entrepreneurs to make these decisions and develop a basic, effective pitch of an entrepreneurial idea to a potential investor for startup capital. This course fulfills a requirement for a certificate of completion in Sustainable Small Business Development.

**Student Learning Outcome:**

- Students will be able to: 1. Analyze and record financial transactions and post to ledgers. 2. Analyze and prepare basic financial statements. 3. Demonstrate an effective pitch for startup capital.

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**VOC ED 196CE  ADVANCED LIFELONG FITNESS CENTER (0) NDA**

**Lab: 3 hours**

Orientation to fitness and lifelong health for students to achieve and help others to achieve goals of lifelong fitness. This course includes discussion on importance of pre-test fitness tests which includes cardio respiratory endurance, muscle endurance, flexibility, body composition (% fat), and muscle strength. Students will learn to implement and develop personal exercise programs and will learn about diet and exercise, cholesterol screening, breast health and cancer, weight management, and stress management.

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**VOC ED 197CE  COSTUME CERTIFICATION (0) NDA**

**Lab: 0.5 hours**

This course is designed to review elements of the Costume Industry and the related Guilds. Elements include costume industry classifications, safety, and the general information about the industry.

**Student Learning Outcome:**

1. Students will gain certification for entry level employment in the costume industry.

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**VOC ED 214CE  ADVANCED LIFELONG FITNESS CENTER (0) NDA**

**Lecture: 2 hour(s)**

This course covers the changes to the various National Codes made during each 3-year code revision cycle. Each change to the code will be highlighted and how the change will impact the industry practices will be covered.

**Student Learning Outcome:**

1. List electrical codes by topic and article.
2. Identify topic specific electrical code changes, such as; grounding, OCP, motors, transformers, hazardous locations, healthcare facilities.
3. Interpret and discuss the trade impact of various electrical codes changes.

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**VOC ED 252CE  EXPLORATION OF CONSTRUCTION AND MAINTENANCE CAREERS (0)**

**Lecture: 3 hour(s) / Lab: 3 hour(s)**

This course introduces students to careers, basic skills and common practices in the construction and maintenance industries; helping them discover their aptitudes and interests in the construction field and make more informed decisions about their future careers, education and training. Students will learn and perform basic carpentry, masonry and mechanical skills and tasks.

**Student Learning Outcome:**

1. Students will demonstrate driving nails with hammers.
2. Measure various construction trade materials and using multiple types of measuring tools.

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**VOC ED 254CE  SIGNIFICANT CHANGES TO INDUSTRY CODES(0)**

**Lecture: 3 hour(s)**

This course introduces students to careers, basic skills and common practices in the construction and maintenance industries; helping them discover their aptitudes and interests in the construction field and make more informed decisions about their future careers, education and training. Students will learn and perform basic carpentry, masonry and mechanical skills and tasks.

**Student Learning Outcome:**

1. Students will demonstrate driving nails with hammers.
2. Measure various construction trade materials and using multiple types of measuring tools.

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**VOC ED 257CE  CRAFT HELPER (0)**

**Lecture: 4 hour(s)**

This course is designed as entry level preparation for a student interested in careers in the electrical power industry. This introductory course covers the basic fundamentals of planning, installation and maintenance of high and low voltage electrical systems. Basic functions of generation, both hydro and steam are covered. The transmission and distribution of electrical power will be reviewed. Fundamentals of electricity, identification, function, and operation of components will be surveyed. Ohms law, safety, ropes, knots, rigging, and tools required in the trade will be reviewed. Civil service exam assistance will also be covered.

**Student Learning Outcome:**

- Selection of proper PPE for use in various work related applications.
- Identification of proper tools and materials to facilitate the proper installation and operations of a distribution system.

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**VOC ED 259CE  (O.S.H.A.) SAFETY STANDARDS: CONSTRUCTION & INDUSTRY (0)**

**Lecture: 2 hour(s)**

This course provides instruction on industry safety and health rules as it applies to workers and employers within the construction industry. Topics such as fall protection, lock out tag out procedures, PPE, excavations, etc. are covered. Participants that meet the required hours attendance and successfully pass the final exam will be eligible to receive their OSHA (30 hr) safety-training certificate.
Graduation Requirements, Pathways and Programs of Study

VOC ED 311CE  WORKPLACE SAFETY: FIRST AID/CPR BASICS (0)
- Lecture: 0.5 hour(s) / Lab: 0.5 hours

This course combines lecture, demonstrations, video and hands-on practice to provide students with the knowledge and skills necessary to obtain their OSHA 10 hour safety certification and to recognize and provide basic care for injuries and sudden illnesses at their workplace until advanced medical personnel arrive and take over. The course materials and hours are consistent with and meet American Heart Association, American Red Cross and National Safety Council certification requirements.

Student Learning Outcome:
1. Recognize appropriate training requirements and training methods for CPR/First Aid/AED
2. Define OSHA specific construction terms such as; competent person, construction work, confined space, working space, general duty clause.

VOC ED 313CE  WORKPLACE SAFETY: WATER SAFETY (0)
- Lab: 2 hours

This course teaches safety and rescue skills to students working in and around water. This course focuses on developing students' swimming techniques and fitness for their personal safety as well as their capacity to prevent and properly respond to water-related accidents and hazards.

VOC ED 312CE  WORKPLACE SAFETY: FIRST AID/CPR BASICS (0)
- Lab: 1.5 hours

Introduction to basic concepts and techniques associated with body conditioning. Including Pilates, Core Strengthening, Cardiovascular Exercise and Muscular Strength and Endurance exercises.

Student Learning Outcome:
Students will learn basic fitness principles and techniques and will be able to show fitness progress.

VOC ED 314CE  WATER SAFETY INSTRUCTION (0) NDA
- Lecture: 3 hours / Lab: 3 hours

This course analyzes all swimming strokes and skills found in recreational swimming and includes some common competitive swimming skills. Emphasis is placed on personal water safety, fitness, and includes stroke modifications for disabled swimmers. Motor learning theory, instructional drills, teaching/learning progressions and program development are included for those learning to become swimming instructors.

Student Learning Outcome:
1. Create, discuss and analyze lesson plans for various skills, ages and special populations. 2. Analyze swimming performance and provide constructive feedback. 3. Demonstrate common swimming skills at proficient level of performance.

VOC ED 325CE  INTRODUCTION TO AUTOMOTIVE MAINTENANCE AND SERVICE (0)
- Lecture: 3 hour(s) / Lab: 3 hour(s)

This is a preparation course combining lecture and hands-on shop work for most major automotive systems. Introduction to theory, maintenance, troubleshooting, repair, automotive and maintenance terminology.

Student Learning Outcome:

Describe and perform basic automotive vehicle service and maintenance.

VOC ED 326CE  AUTOMOTIVE DIAGNOSTICS AND REPAIR (0)
- Lecture: 3 hour(s) / Lab: 3 hour(s)

This is a preparation course combining lecture and hands-on shop work for most major automotive systems. Emphasis on automotive diagnostics and remedial maintenance and repair.

Student Learning Outcome:
Describe and perform basic automotive diagnostics and repair.

VOC ED 450CE  OVERVIEW OF UNIONS (0)
- Lecture: 0.5 hour(s)

Introduction to unions in the United States: how they function, methods of representation, i.e. legislation and workers' rights, grievance procedure, bargaining. Unions effect on its members, community and the U.S. economy and politics. How unions work in specific industries.

Student Learning Outcome:
1. Describe the role of unions in our economy. 2. List advantages & impact of unions for their members. 3. Explain how unions operate in a specific industry.

VOC ED 504CE  SEWING MACHINE BASICS (0)
- Lab: 6 hour(s)

Students learn the basics of safely operating an industrial single needle sewing machines including adjusting all machine settings, selecting correct needles and thread, and practicing with commonly used feet and attachments. Factors to consider when purchasing and maintaining a machine are discussed.

Student Learning Outcome(s):
Student will construct basic shapes and patterns using an industrial machine.

VOC ED 506CE  SEWING SPECIAL FABRICS (0)
- Lab: 6 hour(s)

Students develop clothing alteration skills in recognizing and achieving a perfect fit through an exploration of the following topics: evaluating figures, evaluating fit, applying pattern and garment alteration procedures, and fitting methods.

Student Learning Outcome(s):
Student will be able to alter a finished garment for proper fit.
VOC ED 507CE  CLOTHING ALTERATIONS (0)

Lab: 6 hour(s)

Students explore the history and characteristics of a wide range of fabrics including silk, faux fur, leather, lace and many more, to understand how to use these special fabrics effectively in clothing design and construction. Students learn how to select styles, choose tools, and apply specialized sewing and finishing methods for each fabric.

Student Learning Outcome(s):

Student apply proper construction techniques to specialized fabrics.