Los Angeles Trade-Technical College Stackable Certificates and Degrees: A Promising Approach for Preparing Students to Succeed in College and Careers

The Division of Workforce and Economic Development, at Los Angeles Trade-Technical College, has begun to develop stackable certificates/degrees* in an effort to increase students’ ability to successfully obtain both college and industry recognized credentials to advance within one or more career and/or educational pathways.

(*Pending California Community College Chancellor’s Office approval).

While each stackable certificate and degree is tailored to meet the desired program objectives, employment/labor market, and advanced degree pathways for a targeted industry, they all have several elements in common as follows:

1. The first certificate in the “stack” is considered a “fundamentals” certificate. Each fundamentals certificate includes, but is not limited to, the following:
   a. Industry-wide and industry-sector skills and competencies to successfully prepare individuals for entry-level occupation(s) within a specific industry sector. The college utilizes the Department of Labor Competency Model Framework, in collaboration with industry partners, to identify the skills and competencies in Tiers 4 - 6 that become instructional/learning objectives for courses comprising the fundamentals certificate.
   b. Applied mathematics course(s) (and/or in some cases algebra).
   c. Linkages to at least one industry-recognized credential (if available or applicable) by incorporating the knowledge, skills, and abilities necessary to obtain the credential as instructional/learning objectives for courses comprising the fundamentals certificate. The Occupational Safety and Health Administration (OSHA) 10 hour construction occupational safety and health card is an example of a credential that has been incorporated in the college’s Energy Systems Technology Fundamentals Certificate of Achievement.

2. The second certificate in the “stack” is considered a “core technical” certificate. Each core technical certificate includes, but is not limited to, the following:
   a. Occupation-specific skills and competencies to successfully prepare individuals for targeted occupation(s) within a specific industry sector. The college utilizes the Department of Labor Competency Model Framework, in collaboration with industry partners, to identify the skills and competencies in Tiers 6 - 8 that become instructional/learning objectives for courses comprising the core technical certificate.
   b. Linkages to at least one industry-recognized credential (if available or applicable) by incorporating the knowledge, skills, and abilities necessary to obtain the credential as instructional/learning objectives for courses comprising the core technical certificate. The North American Board of Certified Energy Practitioner’s (NABCEP) PV Installer certification is an example of a credential that has been incorporated in the college’s Solar PV Installation and Maintenance Technician Certificate of Achievement.

3. The AA/AS degree is the third point in the “stack”. Each AA/AS degree in the stack includes, but is not limited to, the following:
   a. Advanced technical skills to successfully prepare individuals for targeted occupation(s) that are typically more advanced on the career ladder (e.g., professional, management, etc.) within a specific industry sector. The college utilizes the Department of Labor Competency Model Framework, in collaboration with industry partners, to identify the skills and competencies in Tiers 8-9 that become instructional/learning objectives for advanced technical courses in the degree program.
b. Includes competencies to enable individuals to pursue other career paths within a specific industry sector. For example, in LATTC’s Solar PV AS degree program, advanced technical courses may be taken in solar thermal and/or energy efficiency technical areas.

c. Linkages to at least one industry-recognized credential (if available or applicable) by incorporating the knowledge, skills, and abilities necessary to obtain the credential as instructional/learning objectives for courses comprising the degree. The North American Board of Certified Energy Practitioner’s (BPI) Building Analyst certification is an example of a credential that has been incorporated in the college’s Renewable Energy AS Degree with Emphasis in Energy Efficiency.

d. General education courses necessary to satisfy the AA/AS degree and/or 4-year university transfer requirements, typically 18 units.

In addition, the college has developed short-term “prep” programs for students who may need additional instructional time to be successful in completing these stackable certificate and degree programs and, in addition, a college “bridge” program to ensure students are prepared for college-level instruction.

On the following pages are examples of the “stackable” certificate and degree programs that were developed by the college in renewable energy industry/career pathways.
LATTC Energy Systems Technology Fundamentals Certificate of Achievement

LATTC Solar PV Technician Certificate of Achievement
LATTC Renewable Energy AS Degree – Solar PV Emphasis

General Education Requirements - Graduation Plan B (18 units)

- ECONMT 110: Renewable Energy Systems (3 units, Lec 3 hrs)
- COUNTRY 148: Computer Assisted Estimating I (3 units, Lec 3 hrs)
- REF AQ 100: Project Management (3 units, Lec 3 hrs)
- ECONMT 171: Electrical Codes & Ordinances 1 OR PLUMBING 21: Plumbing Code I (2 units, Lec 3 hrs)
- Code Requirement Option

Advanced Technical Requirements (14+ units)

- ECONMT 106: Construction I (3 units, Lec 3 hrs)
- ECONMT 118: Construction I (2 units, Lab 6 hrs)
- ECONMT 105: Fundamentals of Solar Electricity (3 units, Lec 3 hrs)
- ECONMT 106: Green Building: Energy & Design (2 units, Lec 2 hrs)
- DLXGT 010: Energy & Utility Industry Careers (3 units, Lec 3 hrs)
- ECONMT 116: Fundamentals of D.C. Electricity (2 units, Lab 6 hrs)
- ECONMT 116: Hand Tools and Wiring Practices (2 units, Lec 3 hrs)
- ECONMT 126: Fundamentals of Alternating Current (5 units, Lec 3 hrs)
- ECONMT 119 Applied Electrical Calculations & Measurement OR ECONMT 172 Electrical Mathematics I OR (3 units, Lec 3 hrs)
- MATH 116: Elementary Algebra or higher (5 units, Lec 5 hrs)

Solar PV Installation and Maintenance Technician Certificate of Achievement (0946.18) (26-28 units, 38-40 std hrs)

Core Solar PV Technical Courses (10 units, 15 std hrs)

- Renewable Energy Technician AS Degree with Emphasis in Solar PV Installation and Maintenance (0946.19)

Energy Systems Technology Fundamentals Certificate of Achievement Courses (16-18 units, 20-22 std hrs)

1 or more courses from the following list of courses to complete a minimum of 36 units
LATT Renewable Energy Technician Stackable Certificate and Degree Programs

General Education Requirements - Graduation Plan 8 (18 units)

Advanced Technical Requirements (144 units)

Electricity Fundamentals Certificate of Achievement (0546.10) (16-18 units, 26-22 std hrs)

Solar Thermal Installation and Maintenance Technician Certificate of Achievement (0946.10) (30-32 units, 44-46 std hrs)

Solar PV Installation and Maintenance Technician Certificate of Achievement (09546.10) (26-28 units, 38-40 std hrs)

Energy Efficiency Certificate of Achievement (0964.10) (12 units, 16 std hrs)

Energy Systems Technology Fundamentals Certificate of Achievement (0946.10) (16-18 units, 26-22 std hrs)

Note: This course also meets the requirements for the Energy Systems Technology Fundamentals Certificate of Achievement (see below)

BLDCTQ 108: Engine Theory (1 unit, Lab 1 std hrs)

BLDCTQ 107: Construction Estimating (1 unit, Lab 1 std hrs)

ECON 105: Fundamentals of Solar Energy (3 units, 3 std hrs)

ECON 105: Fundamentals of Solar Electricity (3 units, 3 std hrs)

ECON 105: Fundamentals of Solar Efficiency Practices (3 units, 3 std hrs)

ECON 105: Fundamentals of Solar Residential Practices (3 units, 3 std hrs)

ECON 105: Fundamentals of Solar Construction Techniques (3 units, 3 std hrs)

ECON 105: Fundamentals of Solar Utility Industry Careers (3 units, 3 std hrs)

ECON 105: Fundamentals of Solar D.C. Electricity (3 units, 3 std hrs)

ECON 105: Fundamentals of Solar Wiring Practices (3 units, 3 std hrs)

ECON 105: Fundamentals of Solar Alternating Current (3 units, 3 std hrs)

ECON 105: Applied Electrical Calculations & Measurements (3 units, 3 std hrs)

ECON 105: Electrical Mathematics 1 (3 units, 3 std hrs)

MATH 115: Elementary Algebra or higher (6 units, 6 std hrs)

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LATTC Renewable Energy Technician Stackable Certificate and Degree Programs


= General Education Requirements + Advanced Technical Courses

Solar PV Installation and Maintenance Technician Certificate of Achievement or Solar Thermal Installation and Maintenance Technician Certificate of Achievement or Energy Efficiency Certificate of Achievement

+ Energy Systems Technology Fundamentals Certificate of Achievement