



2011 - 2012
Career and Technical Programs

Advanced Technology Division
541.463.5380

lanecc.edu

Electrician Apprenticeship Technologies

**Associate of Applied Science Degree,
Electrician Apprenticeship Technologies**

**Certificate of Completion, Limited Electrician
Apprenticeship Technologies**

**Certificate of Completion, Electrician
Apprenticeship Technologies**

Purpose To provide a structured system of training in the electrician trade or occupation leading to certification and journey-level status, only for apprentices who are sponsored by individual employers, accepted by a Joint Apprenticeship Training Committee, and registered with the State of Oregon Bureau of Labor and Industries.

Learning Outcomes The graduate will:

- perform the duties and responsibilities of the electrician trade/occupation.
- apply theory to electrical wiring.
- demonstrate and use industry safety standards.
- develop attitudes conducive to improve customer relations skills in the electrician trade.
- develop communication and critical thinking skills necessary for job advancement.
- use appropriate library and information resources to research professional issues and support lifelong learning.
- access library, computing, and communications services, and appropriately select information and data from regional, national, and international networks.
- represent, analyze and determine rules for finding patterns relating to linear functions, non-linear functions and arithmetic sequences with tables, graphs, and symbolic rules.
- adapt to new job requirements to qualify for advancement in becoming lead supervisors.
- repair and install electrical wire devices according to licensure regulations to meet National Electrical Code and Oregon Building Codes Division for Inside Wire Electrician, Limited Energy Technician-License A and License B, Limited Maintenance Electrician, and Manufacturing Plant Electrician.
- complete 4000-8000 hours State of Oregon-approved on-the-job-training.

Employment Trends

- Lane County openings - 16 annually, projected through 2018
- Statewide openings - 199 annually, projected through 2018

Wages

- Average hourly rate in Lane County - \$28.15
- Average annual rate in Lane County - \$58,557
- Average hourly rate Statewide - \$29.79
- Average annual rate Statewide - \$61,958

Apprentice Wages Although wages vary, the average starting wage of an apprentice is about 50 percent of a journey worker's rate of pay. Apprentices usually earn a five-percent raise every six months if training and school performance is satisfactory. Check the Bureau of Labor and Industries website: boli.state.or.us

Costs in Addition to Tuition (estimate) Estimated costs of books and tools for the required general education courses total approximately \$850-1,000 over a four-year period. Costs of books and tools for the related training classes in the electrician programs vary with each individual trade/ occupation.

Program Certification An apprenticeship "Award of Completion" issued by the Oregon Bureau of Labor and Industries Apprenticeship and Training Division certifies that an individual has been trained in all aspects of an occupation and has met the requirements for program completion. This certificate is recognized throughout Oregon and industry-wide as a valid indicator of high quality, standardized training, and it provides on-the-job training documentation for community college credit.

In addition, The Oregon community college Electrician Apprenticeship Technologies pathway provides statewide transfer opportunities, ladder certificates of completion, and an optional transfer path into Oregon Institute of Technology Bachelor of Science degree in Operations Management. The Electrician Apprenticeship Technologies pathway includes an advising guide with a set of recommended courses that satisfy both the AAS degree and the Oregon Transfer Module (OTM). Students who complete the recommended set of OTM courses may apply for 45 credits of guaranteed block transfer to any other community college or Oregon University System institution.

Licensing or Other Certification Electrician trades require successful completion of trade-specific licensure examinations through the Oregon Building Codes Division.

Pre-requisites Minimum placement scores - Reading 68, Writing 64, and Math parts A, B, C with 7/10 score. Note: See the counselor or advisor to obtain the suggested entry-level skills for successful completion of these programs.

Admission Information Students must be registered apprentices with the State of Oregon Bureau of Labor and Industries and accepted by a Joint Apprenticeship Training Committee. Selection to the program is by a point system from a pool of qualified applicants. Information on the point system is available at the Oregon Bureau of Labor and Industries website: boli.state.or.us. In most cases minimum qualifications to begin an apprenticeship include a minimum age of 18 years, a high school diploma with a GPA of 2.0 or higher or GED, and a minimum of a 'C' grade for one year of high school algebra (or equivalent).

Electrician Apprenticeship Technologies

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Associate of Applied Science

To earn the degree, a student must:

- complete 4000-8000 hours State of Oregon-approved on-the-job training and provide a State of Oregon Apprenticeship Training Journey-level card or BOLI-ATD Certificate of Completion
- demonstrate an equivalency of 90 credit hours, with a minimum of 24 credits at Lane, including the last term at Lane
- complete all requirements for an AAS degree as listed below
- earn a cumulative grade point average above 2.0 at Lane or transfer credits earned at other regionally accredited colleges or universities

| AAS requirements | Credits |
|--|-----------|
| General Education | 21 |
| WR 115W Intro to College Writing: Workplace Emphasis ^D or higher-level writing..... | 3 |
| MTH 060 Beginning Algebra ^D or higher-level math | 4 |
| PE/Health Requirement ^R | 3 |
| Arts and Letters requirement ^R | 3 |
| Human Relations requirement ^R | 3 |
| Science/Math/Computer Science requirement ^R | 3 |
| Choice of: | 3 |
| Arts and Letters requirement ^R Human Relations/Social Science requirement ^R Science/Math/Computer Science requirement ^R | |

| | |
|---|-----------|
| Journey-level card from Oregon Bureau of Labor and Industries Apprenticeship and Training Division | 22 |
| Electrician Core-Related Training ^D (Choice of one of the following trades)..... | 21-48 |

Limited Maintenance Electrician (21 credits)

ET 129 Electrical Theory 1
ET 130 Electrical Theory 2
ET 229 Motors
ET 241 Electro-Mechanical Troubleshooting
APR 220 Electrical Code and Exam Prep or
APR 228 Apprenticeship Blueprint Reading

Limited Energy Technician License B (27 credits)

APR 101A Trade Skills Fundamentals
APR 140 Electrical System Installation Methods
APR 141 Limited Voltage Electrical Circuits
APR 142 Testing Equipment and Specialized Applications
APR 143 Limited Voltage Cabling
APR 144 System Planning and Maintenance
APR 220 Electrical Code and Exam Prep

Limited Energy Technician License A (39 credits)

APR 101A Trade Skills Fundamentals
APR 140 Electrical System Installation Methods
APR 141 Limited Voltage Electrical Circuits
APR 142 Testing Equipment and Specialized Applications
APR 143 Limited Voltage Cabling
APR 144 System Planning and Maintenance
APR 220 Electrical Code and Exam Prep
APR 240 Alarm Systems
APR 241 Audio and Signaling Systems
APR 242 Limited Voltage System Integration

Manufacturing Plant Electrician (37 credits)

APR 220 Electrical Code and Exam Prep
APR 228 Apprenticeship Blueprint Reading
ET 129 Electrical Theory 1
ET 130 Electrical Theory 2
ET 229 Motors
ET 232 Process Control Systems
ET 234 Programmable Controllers
ET 241 Electro-Mechanical Troubleshooting
WLD 121 Shielded Metal Arc Welding

Inside Wire Electrician (48 credits)

APR 130 Electrical Principles
APR 131 Electrical Principles/Residential Wiring
APR 132 Electrical Residential Wiring Lab
APR 133 Electrical Generators, Transformers, and Motors 1
APR 134 Electrical Generators, Transformers, and Motors 2
APR 135 Electrical Generators, Transformers, and Motors Lab
APR 220 Electrical Code and Exam Prep
APR 225 Electrical Motor Controls
APR 226 Electrical Grounding/Bonding and Blueprint Reading
APR 227 Electrical System Troubleshooting

Program Electives to complete 90 credits for degree: 0-25

APR 101 Trade Skills Fundamentals
APR 105 Residential Wiring
ET 129 Electrical Theory 1
ET 130 Electrical Theory 2
ET 234 Programmable Controllers
CS 120 Concepts of Computing
CST 110 Blueprint Reading
CST 111 Construction Orientation and Environment
CST 118 Building Construction
DRF 167 CAD 1
HE 152 Drugs, Society and Behavior
HE 252 First Aid
MTH 076 Applied Geometry for Technicians
MTH 111 College Algebra
MTH 112 Trigonometry
WLD 121 Shielded Metal Arc Welding 1

Electrician Apprenticeship Technologies

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Certificate of Completion

Students may earn a Certificate of Completion in Electrician Apprenticeship Technologies by successfully completing 36-45 core related training credits with a 'C' or better in all courses, and completing related instruction in communications, computation, and human relations.

Learning outcomes Graduates will:

- Apply theory to electrical wiring
- Repair and install electrical wire devices according to licensure regulations to meet NEC and OSC for Inside Electrician, Limited Energy Technician-License A, and/or Manufacturing Plant Electrician

To earn the certificate, student must:

- complete State of Oregon-approved on-the-job training and provide a State of Oregon Apprenticeship Training Journeyman card or BOLI-ATD Certificate of Completion:
6000-Hour BOLI-ATD Trade: Limited Energy Technician—License A
8000-Hour BOLI-ATD Trade: Inside Wire Electrician
8000-Hour BOLI-ATD Trade: Manufacturing Plant Electrician
- complete related instruction credits 9
(communication, computation, human relations)
- complete core-related training credits 39-48

Total Credits 48-57

Core Related Training requirements (Choice of one of the following trades)

Limited Energy Technician License A (39 credits)

APR 101A Trade Skills Fundamentals
APR 140 Electrical System Installation Methods
APR 141 Limited Voltage Electrical Circuits
APR 142 Testing Equipment and Specialized Applications
APR 143 Limited Voltage Cabling
APR 144 System Planning and Maintenance
APR 220 Electrical Code and Exam Prep
APR 240 Alarm Systems
APR 241 Audio and Signaling Systems
APR 242 Limited Voltage System Integration

Manufacturing Plant Electrician (37 credits)

APR 220 Electrical Code and Exam Prep
APR 228 Apprenticeship Blueprint Reading
ET 129 Electrical Theory 1
ET 130 Electrical Theory 2
ET 229 Motors
ET 232 Process Control Systems
ET 234 Programmable Controllers
ET 241 Electro-Mechanical Troubleshooting
WLD 121 Shielded Metal Arc Welding

Inside Wire Electrician (48 credits)

APR 130 Electrical Principles
APR 131 Electrical Principles/Residential Wiring
APR 132 Electrical Residential Wiring Lab
APR 133 Electrical Generators, Transformers, and Motors 1
APR 134 Electrical Generators, Transformers, and Motors 2
APR 135 Electrical Generators, Transformers, and Motors Lab
APR 220 Electrical Code and Exam Prep
APR 225 Electrical Motor Controls
APR 226 Electrical Grounding/Bonding and Blueprint Reading
APR 227 Electrical System Troubleshooting

Limited Electrician Apprenticeship Technologies

Certificate of Completion

Learning outcomes Graduates will be able to:

- Repair or install electrical wire devices according to limited licensure regulations to meet National Electrical Code and Oregon Building Codes Division for Limited Energy Technician—License B, and/or Limited Maintenance Electrician

To earn the certificate, student must:

- complete 4000 hours State of Oregon-approved on-the-job training and provide a State of Oregon Apprenticeship Training Journey-level card or BOLI-ATD Certificate of Completion
- complete core related training of 22'-27 credits

Core Related Training requirements (Choice of one of the following trades)

Complete with a 'C' or better in all courses
(Choice of one of the following trades)

Limited Maintenance Electrician (21 credits)

ET 129 Electrical Theory 1
ET 130 Electrical Theory 2
ET 229 Motors
ET 241 Electro-Mechanical Troubleshooting
APR 220 Electrical Code and Exam Prep or
APR 228 Apprenticeship Blueprint Reading

Limited Energy Technician License B (27 credits)

APR 101A Trade Skills Fundamentals
APR 140 Electrical System Installation Methods
APR 141 Limited Voltage Electrical Circuits
APR 142 Testing Equipment and Specialized Applications
APR 143 Limited Voltage Cabling
APR 144 System Planning and Maintenance
APR 220 Electrical Code and Exam Prep

an equal opportunity/affirmative action institution committed to cultural diversity and compliance with the Americans with Disabilities Act

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Standard footnotes:

* Prerequisite required

B Must be passed with grade of "B" or better to use as a prerequisite

D Degree or certificate requirement; must be passed with grade of "C-" or better

G Must be taken for a grade, not P/NP; major requirement

R Required for AAS degree