



2011 - 2012  
Career and Technical Programs

Advanced Technology Division  
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lanecc.edu

# Construction Trades, General Apprenticeship

Associate of Applied Science Degree,  
Construction Trades, General Apprenticeship

Certificate of Completion,  
Construction Trades, General Apprenticeship

**Purpose** To provide a structured system of training in construction trades or occupations, 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 individual construction trade/occupation.
- apply theory as it relates to trade competencies.
- demonstrate and use industry safety standards.
- utilize recognized standard building codes guidelines as applicable.
- prepare and utilize isometric sketching and detailed drawings per individual trade.
- develop attitudes conducive to improved customer relations skills in the construction trades.
- demonstrate communication and critical thinking skills necessary for job development 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.
- complete 8000 hours State of Oregon-approved on-the-job-training.

## Carpenter Employment

- Lane County openings - 15 annually, projected through 2018
- Statewide openings - 194 annually, projected through 2018

## Carpenter Wages

- Average hourly rate in Lane County - \$22.75
- Average annual rate in Lane County - \$47,320
- Average hourly rate Statewide - \$21.08
- Average annual rate Statewide - \$43,851

## HVAC Employment

- Lane County openings - 5 annually, projected through 2018
- Statewide openings - 55 annually, projected through 2018

## HVAC Wages

- Average hourly rate in Lane County - \$20.84
- Average annual rate in Lane County - \$43,358
- Average hourly rate Statewide - \$21.44
- Average annual rate Statewide - \$44,612

## Plumber Employment

- Lane County openings - 6 annually, projected through 2018
- Statewide openings - 94 annually, projected through 2018

## Plumber Wages

- Average hourly rate in Lane County - \$30.11
- Average annual rate in Lane County - \$62,623
- Average hourly rate Statewide - \$27.99
- Average annual rate Statewide - \$58,221

## Sheet Metal Employment

- Lane County openings - 9 annually, projected through 2018
- Statewide openings - 75 annually, projected through 2018

## Sheet Metal Wages

- Average hourly rate in Lane County - \$22.92
- Average annual rate in Lane County - \$47,687
- Average hourly rate Statewide - \$24.62
- Average annual rate Statewide - \$51,215

**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](http://boli.state.or.us)

**Costs in Addition to Tuition (estimates)\*** Estimated costs of books and tools for the required general education courses total approximately \$850-1,000 over a four-year period. Cost of books and tools for the related training classes in the construction trades 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 Construction Trades, General Apprenticeship pathway provides statewide transfer

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opportunities, ladder certificates of completion, and an optional transfer path into Oregon Institute of Technology Bachelor of Science degree in Operations Management. The Construction Trades, General Apprenticeship pathway includes an advising guide with a set of recommended courses that satisfy both the AAS 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 Exams** HVAC technician/installer and plumber trades require successful completion of trade-specific licensure examinations through the Oregon Building Codes Division.

**Admission Information** Students must be registered apprentices with the State of Oregon Bureau of Labor and Industries. Information is available at [boli.state.or.us](http://boli.state.or.us)

**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.

## Construction Trades, General Apprenticeship

### Associate of Applied Science

#### To earn the degree, a student must

- complete 8000 hours State of Oregon-approved on-the-job training and provide a State of Oregon Apprenticeship Training Journeyman 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

Requirements	Credits
<b>1. General Education</b>	
WR 115W Intro to College Writing: Workplace Emphasis <sup>D</sup> or higher-level writing.....	3
MTH 060 Beginning Algebra <sup>D</sup> or higher-level math.....	4
PE/Health Requirement <sup>R</sup> .....	3
Arts and Letters requirement <sup>R</sup> .....	3
Human Relations requirement <sup>R</sup> .....	3
Science/Math/Computer Science requirement <sup>R</sup> .....	3
Choice of: .....	3
Arts and Letters requirement <sup>R</sup>	
Human Relations/Social Science requirement <sup>R</sup>	
Science/Math/Computer Science requirement <sup>R</sup>	
<b>2. Journeyman card from Oregon Bureau of Labor and Industries Apprenticeship and Training Division, prior certification credits.....</b>	<b>22</b>
<b>3. Construction Trades Core-Related Training .....</b>	<b>36-46</b>
(Choice of one of the following trades)	

#### Carpenter (36 credits)

APR 115 Carpenter Skill Fundamentals  
 APR 116 Carpentry Framing Fundamentals  
 APR 117 Carpentry Framing and Introduction to Concrete  
 APR 118 Carpentry Framing and Finishing  
 APR 119 Carpentry Commercial Plans and Exterior Finish  
 APR 120 Carpentry Interior Finish  
 APR 201 Carpentry Basic Rigging and Practices  
 APR 202 Carpentry Concrete Practices  
 APR 203 Carpentry Forms and Tilt-up Panels  
 APR 204 Carpentry Advanced Layout and Building Systems  
 APR 205 Carpentry Advanced Planning and Management  
 APR 206 Carpentry Equipment and Site Layout

#### HVAC Technician/Installer (41-44 credits)

APR 101A Trade Skills Fundamentals  
 APR 172 Sheet Metal/HVAC Blueprint Reading  
 APR 210 HVAC Systems 1  
 APR 211 HVAC Systems 2  
 APR 212 HVAC Systems 3  
 APR 220A Electrical Code and Exam Prep  
 APR 220B Electrical Code and Exam Prep  
 APR 220C Electrical Code and Exam Prep  
 ET 129 Electrical Theory 1  
 ET 130 Electrical Theory 2  
 ET 229 Motors  
 ET 241 Electro-Mechanical Troubleshooting

#### Plumber (36-39 credits)

APR 160 Plumbing Skill Fundamentals  
 APR 161 Plumbing Materials and Fixtures  
 APR 162 Plumbing Basic Waste Water Systems  
 APR 163 Plumbing Calculations and Print Reading  
 APR 164 Plumbing Basic Installation 1  
 APR 165 Plumbing Basic Installation 2  
 APR 260 Plumbing Water Supply Systems  
 APR 261 Pipe Sizing and Systems  
 APR 262 Plumbing Advanced Waste Systems  
 APR 263A Plumbing Code and Test Prep  
 APR 263B Plumbing Code and Test Prep  
 APR 263C Plumbing Code and Test Prep

#### Sheet Metal Worker (46 credits)

APR 101A Trade Skills Fundamentals  
 APR 170 Introduction to Sheet Metal Apprenticeship  
 APR 171 Sheet Metal Basic Layout  
 APR 172 Sheet Metal/HVAC Blueprint Reading  
 APR 270 Architectural Sheet Metal  
 APR 271 Sheet Metal Building Codes and Installation  
 APR 272 Sheet Metal Duct Design  
 APR 273 General Sheet Metal Fabrication  
 APR 274 Sheet Metal Shop Fabrication  
 APR 275 Sheet Metal Project Supervision  
 MTH 076 Applied Geometry for Technicians  
 WLD 121 Shielded Metal Arc Welding 1  
 WLD 143 Wire Drive Welding 1

# Construction Trades, General Apprenticeship

## 4. Program Electives to complete 90 credits for degree: 1-11

AAPR 101 Trade Skills Fundamentals  
 BA 101 Introduction to Business  
 CS 120 Concepts of Computing  
 CST 110 Blueprint Reading  
 CST 111 Construction Orientation and Environment  
 CST 116 Construction Estimating  
 CST 118 Building Construction  
 CST 119 Building Construction Surveying  
 DRF 167 CAD 1  
 HE 152 Drugs, Society and Behavior  
 HE 252 First Aid  
 MTH 076 Applied Geometry for Technicians  
 MTH 095 Intermediate Algebra or higher  
 NRG 103 Sustainability in the Built Environment  
 NRG 121 Air Conditioning System Analysis  
 NRG 124 Energy Efficient Methods  
 NRG 158 Thermal Design and Installation 1  
 NRG 159 Thermal Design and Installation 2  
 WATR 101 Introduction to Water Resources  
 WLD 121 Shielded Metal Arc Welding 1  
 WLD 122 Shielded Metal Arc Welding 2  
 WLD 139 Welding Lab  
 WLD 142 Pipe Welding Lab: Carbon Steel  
 WLD 143 Wire Drive Welding 1

## Construction Trades, General Apprenticeship

### Certificate of Completion

**Purpose** Students may earn a Certificate of Completion in Construction Trades, General Apprenticeship by successfully completing 36-46 core related training credits with a 'C' or better in all courses, and completing related instruction in communications, computation, and human relations.

**Learning Outcomes** The graduate will:

- Apply theory as it relates to trade competencies.
- Perform the duties and responsibilities of the individual construction trade/occupation.

**To earn the certificate, students 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
  - 8000-Hour BOLI-ATD Trade: Carpenter
  - 8000-Hour BOLI-ATD Trade: HVAC Technician/Installer
  - 8000-Hour BOLI-ATD Trade: Plumber
  - 8000-Hour BOLI-ATD Trade: Sheet Metal Worker
- complete related instruction (communication, computation, human relations) ..... 9 cr
- complete core-related training ..... 36-46 cr

Total Credits 45-55

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

### Carpenter (36 Credits)

APR 115 Carpenter Skill Fundamentals  
 APR 116 Carpentry Framing Fundamentals  
 APR 117 Carpentry Framing and Introduction to Concrete  
 APR 118 Carpentry Framing and Finishing  
 APR 119 Carpentry Commercial Plans and Exterior Finish  
 APR 120 Carpentry Interior Finish  
 APR 201 Carpentry Basic Rigging and Practices  
 APR 202 Carpentry Concrete Practices  
 APR 203 Carpentry Forms and Tilt-up Panels  
 APR 204 Carpentry Advanced Layout and Building Systems  
 APR 205 Carpentry Advanced Planning and Management  
 APR 206 Carpentry Equipment and Site Layout

### HVAC Technician/Installer (41-44 credits)

APR 101A Trade Skills Fundamentals  
 APR 172 Sheet Metal/HVAC Blueprint Reading  
 APR 210 HVAC Systems 1  
 APR 211 HVAC Systems 2  
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 APR 220A Electrical Code and Exam Prep  
 APR 220B Electrical Code and Exam Prep  
 APR 220C Electrical Code and Exam Prep  
 ET 129 Electrical Theory 1  
 ET 130 Electrical Theory 2  
 ET 229 Motors  
 ET 241 Electro-Mechanical Troubleshooting

### Plumber (36-39 credits)

APR 160 Plumbing Skill Fundamentals  
 APR 161 Plumbing Materials and Fixtures  
 APR 162 Plumbing Basic Waste Water Systems  
 APR 163 Plumbing Calculations and Print Reading  
 APR 164 Plumbing Basic Installation 1  
 APR 165 Plumbing Basic Installation 2  
 APR 260 Plumbing Water Supply Systems  
 APR 261 Pipe Sizing and Systems  
 APR 262 Plumbing Advanced Waste Systems  
 APR 263A Plumbing Code and Test Prep  
 APR 263B Plumbing Code and Test Prep  
 APR 263C Plumbing Code and Test Prep

### Sheet Metal Worker (46 credits)

APR 101A Trade Skills Fundamentals  
 APR 170 Introduction to Sheet Metal Apprenticeship  
 APR 171 Sheet Metal Basic Layout  
 APR 172 Sheet Metal/HVAC Blueprint Reading  
 APR 270 Architectural Sheet Metal  
 APR 271 Sheet Metal Building Codes and Installation  
 APR 272 Sheet Metal Duct Design  
 APR 273 General Sheet Metal Fabrication  
 APR 274 Sheet Metal Shop Fabrication  
 APR 275 Sheet Metal Project Supervision  
 MTH 076 Applied Geometry for Technicians  
 WLD 121 Shielded Metal Arc Welding 1  
 WLD 143 Wire Drive Welding 1

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