



2011 - 2012
Career and Technical Programs

Advanced Technology Division
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lanecc.edu

Industrial Mechanics and Maintenance Technology Apprenticeship

Associate of Applied Science Degree
Certificate of Completion

Purpose To provide a structured system of training in millwright 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 millwright trade
- develop machine shop skills in troubleshooting
- demonstrate and use industry safety standards
- identify mechanical and/or electrical industrial systems
- develop attitudes conducive to improved customer relations skills in the millwright 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
- apply appropriate formulas to mathematical situations
- adapt to new job requirements to qualify for advancement in becoming lead supervisors.
- complete 8000 hours State of Oregon-approved on-the-job-training.

Employment

- Lane County openings - 1 annually, projected through 2018
- Statewide openings - 23 annually, projected through 2018

Wages

- Average hourly rate in Lane County - \$19.84
- Average annual rate in Lane County - \$41,263
- Average hourly rate Statewide - \$24.99
- Average annual rate Statewide - \$51,978

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 millwright program vary.

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 Industrial Mechanics and Maintenance Technology Apprenticeship pathway provides statewide transfer opportunities, ladder certificates of completion, and an optional transfer path into Oregon Institute of Technology Bachelor of Science in Operations Management degree. The Industrial Mechanics and Maintenance Technology 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.

Admission Information Admission to the millwright trade is usually conducted as an internal process with the employer. Information is available at the Oregon Bureau of Labor and Industries website: 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.

Criteria Used for Admission 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).

Industrial Mechanics and Maintenance Technology 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 Journey-man 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	22
WR 115W Intro to College Writing:	
Workplace Emphasis ^D or higher-level writing	3
MTH 060 Beginning Algebra (or higher) ^D	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	

Journeyman card from Oregon Bureau of Labor and Industries Apprenticeship and Training Division, prior certification credits	22
Millwright Core-Related Training	43
Program Electives to complete 90 credits for degree:	3
APR 101 Trade Skills Fundamentals	
ET 129 Electrical Theory 1	
CS 120 Concepts of Computing	
DRF 167 CAD 1	
HE 252 First Aid	
MFG 105 Fundamentals of Manufacturing	
MFG 201 CNC Mill	
MFG 202 CNC Lathe	
MTH 076 Applied Geometry for Technicians	
MTH 112 Trigonometry	
WLD 122 Shielded Metal Arc Welding 2	
WLD 139 Welding Lab	
WLD 140 Welder Qualification (Certification) Wire	
WLD 141 Welder Qualification (Certification) SMAW	
WLD 142 Pipe Welding Lab: Carbon Steel	
WLD 151 Fundamentals of Metallurgy	
WLD 154 Wire Drive Welding 2	

Certificate of Completion

Students may earn a Certificate of Completion in Industrial Mechanics and Maintenance Technology Apprenticeship by successfully completing 44 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:

- perform the duties and responsibilities of the millwright trade
- identify mechanical and/or electrical industrial systems

To earn the certificate, student must:

• complete 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, 8000-Hour BOLI-ATD Trade: Industrial Millwright	
• complete related instruction credits	10
(communication, computation, human relations)	
• complete core-related training credits	43
Total Credits	53

Core Related Training requirements

APR 150 The Millwright and Shop Safety
 APR 151 Millwright Theory and Trade Calculations
 APR 152 Millwright Power Trains/Boilers and Steam
 APR 250 Industrial Print Reading, Schematics, and Estimating
 APR 251 Pneumatics and Lubrication
 APR 252 Hydraulics for Millwrights
 APR 253 Millwright Piping Systems
 WLD 121 Shielded Metal Arc Welding 1
 WLD 143 Wire Drive Welding 1

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