

Second Year

NRG 122 Commercial Air Conditioning Systems Analysis ^{*,1,D,G}	3
NRG 132 Lighting Applications ^{*,1,D,G}	3
NRG 141 Energy Investment Analysis ^{*,1,3,D,G}	3
WR 227 Technical Writing ^{*,5,6,A}	4
Restricted electives ⁵	3
Total Credits	16

Fall

NRG 112 Commercial Energy Use Analysis ^{*,1,D,G}	4
NRG 123 Energy Control Strategies ^{*,1,D,G}	4
NRG 206 Co-op Ed: Energy Management Seminar ^D	1
Choice of: ^{4,5,6,R}	3
Physical Education Activity requirement	
Health requirement	
Restricted electives ⁵	3
Total Credits	15

Winter

NRG 113 Building Energy Simulations ^{*,1,D,G}	4
NRG 142 Energy Accounting ^{*,1,3,D,G}	3
NRG 280 Co-op Ed: Energy Management ^{D,G}	6
Total Credits	13

Spring**Renewable Energy Technician Option****First Year**

BT 114 Introduction to Spreadsheets and Databases ^{*,D,G} ..	5
DRF 162 Blueprint Reading: Residential and Commercial ^{*,1,D,G}	3
MTH 095 Intermediate Algebra ^{*,2,M}	5
NRG 101 Introduction to Energy Management ^{1,D,G}	3
NRG 161 Introduction to Sustainability ^{D,G}	3
Total Credits	19

Fall

NRG 111 Residential/Light Commercial Energy Analysis ^{1,3,D,G}	3
NRG 154 Alternative Energy Technologies ^{*,1,D,G}	3
NRG 160 Introduction to Water Resources.....	3
NRG 206 Co-op Ed: Energy Management Seminar ^D	1
PH 101 Fundamentals of Physics ^{*,S}	4
WR 121 English Composition: Exposition and Introduction to Argument ^{*,5,6,W}	4
Total Credits	18

Winter

NRG 121 Air Conditioning Systems Analysis ^{*,1,D,G}	3
NRG 124 Energy Efficient Methods ^{*,1,D,G}	3
NRG 131 Lighting Fundamentals ^{*,1,D,G}	3
PH 102 Fundamentals of Physics ^{*,S}	4
Human Relations requirement ^{5, R}	3
Choice of: ^{4,5,6,R}	3
Physical Education Activity requirement	
Health requirement	
Total Credits	19

Spring**Second Year**

EET 129 Electrical Theory 1 ^{*,D,G}	4
NRG 141 Energy Investment Analysis ^{*,1,3,D,G}	3
NRG 155 Photovoltaic Design and Installation 1 ^{*,1,D,G}	4
NRG 157 Renewable Energy Systems ^{*,1,D,G}	3
WR 227 Technical Writing ^{*,5,6,A}	4
Total Credits	18

Fall

EET 130 Electrical Theory 2 ^{*,D,G}	4
NRG 156 Photovoltaic Design and Installation 2 ^{*,1,D,G}	4
NRG 158 Solar Thermal Design and Installation 1 ^{*,1,D,G}	4
NRG 206 Co-op Ed: Energy Management Seminar ^D	1
Choice of: ^{4,5,6,R}	3
Physical Education Activity requirement	
Health requirement	
Total Credits	16

Winter

NRG 159 Solar Thermal Design and Installation 2 ^{*,1,D,G}	4
NRG 280 Co-op Ed: Energy Management ^{D,G}	6
Total Credits	10

Spring

- 1 Instructor permission required
- 2 Must be completed by the end of the first year
- 3 Contains computation instruction to meet industry requirements
- 4 PE Activity requirement credits must be taken in at least two terms to satisfy degree requirement.
- 5 Can be taken any term
- 6 See catalog for AAS requirements

Restricted Electives are arranged with the program advisor.

Fabrication/Welding Technology**Offered by the Advanced Technology Division****Two-Year Associate of Applied Science Degree
Fabrication/Welding Technology****One-Year Certificate of Completion
Fabrication/Welding Technology****One-Year Certificate of Completion
Welding Processes**

Purpose To prepare the graduate for employment for entry-level and higher positions in metal fabrication industries. The graduate typically begins work in light or heavy metal fabrication as welders and/or fabricators. Training and experience can lead to careers in technical sales, supervision, estimating, quality control, inspection, specialty welding, and teaching. The fabrication/welding certificate program (the first year of the two-year degree) prepares graduates for employment as welders/fabricators. The welding processes certificate program prepares graduates for employment as welder-trainees or welders.

Learning Outcomes The graduate will:

- use blueprint reading skills, cost estimating, applied science of materials, and mathematics necessary to the profession.
- apply knowledge of forming, fitting, and welding processes.
- develop manufacturing plans for commercially viable metal products.
- demonstrate advanced fabrication techniques and welding processes and application including GTAW, programmable, plasma cutting, structural and pipe fitting, metallurgy, quality control procedures, and business operation.
- demonstrate and use industry safety standards.
- use appropriate library and information resources to research professional issues and support lifelong learning.
- use mathematical formulas to calculate area, volume, and weight of metal objects.

Employment Trends Statewide, 250 annual openings for welders/fabricators are projected in Oregon and 35 openings are projected annually in Lane County. Competitively trained workers should find reasonable employment opportunities. Those with an associate degree will have a competitive advantage in this labor market.

Wages Statewide average \$16 hourly, \$34,000 average annually (\$45,000 annually for fabricators). Lane County average, \$17 hourly, \$35,000 annually.

Costs in Addition to Tuition and Registration Fees (estimates)*

Books	\$ 750
Tools	\$ 405
Fees.....	\$ 650
Total	\$1,775

* Subject to change without notice.

Licensing or Other Certification Exams Exams for Welder Qualification Certification - wire drive and arc welding processes

Prerequisites Minimum placement scores - Reading 68, Writing 64. A high school diploma or equivalent is recommended for all applicants to this program.

Criteria Used for Admission Normal program entry is fall term. A program orientation is held for new students for fall term (dates available in Counseling or Enrollment Services). Contact advisor/counselor for assistance for winter and spring term entry.

Cooperative Education (Co-op) Co-op offers students college credit and a grade for on-the-job work experience related to their educational and career goals. Through Co-op, students connect theory and practice, develop skills, expand career knowledge, and make contacts for the future. Work schedules and work sites vary. In certain circumstances, Co-op experience may be substituted for major course work. Contact Marv Clemons, Fabrication/Welding Co-op Coordinator, Bldg. 8, Rm. 111, (541) 463-3158.

Program Advisor Betty Svarverud, Bldg. 12, Rm. 203, (541) 463-5378, svarverud@lanecc.edu

Program Counselor Carolyn Litty, Bldg. 12, Rm. 202, (541) 463-5236, litty@lanecc.edu

Fabrication/Welding

Two-Year Associate of Applied Science Degree

First Year	Fall
WLD 112 Fabrication/Welding 1 ^{*,D,G}	12
MTH 076 Applied Geometry for Technicians ^{*,D,G,M} or higher mathematics	4
Total Credits	16
	Winter
WLD 113 Fabrication/Welding 2 ^{*,D,G}	12
CG 203 Human Relations at Work ^H	3
Total Credits	15
	Spring
WLD 114 Fabrication/Welding 3 ^{*,D,G}	12
Choice of:	3
HE 125 Workplace Health and Safety ^{D,P}	
HE 252 First Aid ^{D,P}	
PE/Health requirement ^{D,R}	
Total Credits	15
Second Year	Fall
WLD 215 Fabrication/Welding 4 ^{*,D,G}	12
MFG 197 Manufacturing Technology ^{*,G}	3
Choice of:	3
Arts/Letters requirement ^R	
Social Science requirement ^R	
Total Credits	18
	Winter
WLD 216 Fabrication/Welding 5 ^{*,D,G}	12
WR 115W Introduction to College Writing: Workplace Emphasis ^{D,W} or higher writing.....	3
Science or Computer Science course ^R	3
Total Credits	18

Standard footnotes:

- * Prerequisite required
- A Meets Arts/Letters requirement
- 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

WLD 217 Fabrication/Welding 6 ^{*,D,G}	Spring
Arts and Letters requirement ^R	12
Welding elective ^{D,G}	3
Total Credits	18

Fabrication Welding

One-Year Certificate of Completion

	Fall
WLD 112 Fabrication/Welding 1 ^{*,D,G}	12
MTH 076 Applied Geometry for Technicians ^{*,D,G,M} or higher mathematics.....	4
Total Credits	16
	Winter
WLD 113 Fabrication/Welding 2 ^{*,D,G}	12
WR 115W Introduction to College Writing: Workplace Emphasis ^W or higher writing	3
Total Credits	15
	Spring
WLD 114 Fabrication/Welding 3 ^{*,D,G}	12
CG 203 Human Relations at Work ^H	3
Total Credits	15

Welding Processes

One-Year Certificate of Completion

	Fall
WLD 121 Shielded Metal Arc Welding 1 ^{*,D,G}	4
WLD 143 Wire Drive Welding 1 ^{*,D,G}	4
WR 115W Introduction to College Writing: Workplace Emphasis ^W or higher writing	3
Total Credits	11
	Winter
CG 203 Human Relations at Work ^H	3
WLD 122 Shielded Metal Arc Welding 2 ^{*,D,G}	4
WLD 154 Wire Drive Welding 2 ^{*,D,G}	4
Total Credits	11
	Spring
MTH 076 Applied Geometry for Technicians ^{*,D,G,M} or higher mathematics.....	4
WLD 148 Shielded Metal Arc Welding 3 ^{*,D,G}	4
WLD 159 Wire Drive Welding 3 ^{*,D,G}	4
Total Credits	12
	Fall
WLD 111 Blueprint Reading for Welders ^{*,D,G}	3
WLD 242 Gas Tungsten Arc Welding 1 ^{*,D,G}	3
Total Credits	6
	Winter
WLD 256 Gas Tungsten Arc Welding 2 ^{*,D,G}	3
WLD 165 Industrial Welding Practices ^{*,D,G}	3
Total Credits	6

Welding Elective Courses:

ENGR 280W Co-op Ed: Welding	3 credits
WLD 123 Fabrication/Welding of Metal Art and Crafts [*]	3 credits
WLD 139 Welding Lab [*] [Available only as pass/no pass]	1-3 credits
WLD 140 Welder Qualification (Certification): Wire Drive [*]	3 credits
WLD 141 Welder Qualification (Certification): SMAW [*]	3 credits
WLD 142 Pipe Welding Lab: Carbon Steel [*]	3 credits

Welding Skill Courses:

WLD 121 Shielded Metal Arc Welding 1 [*]	1-4 credits
WLD 122 Shielded Metal Arc Welding 2 [*]	1-4 credits
WLD 139 Welding Lab [*] [Available only as pass/no pass]	1-3 credits
WLD 143 Wire Drive Welding 1 [*]	1-4 credits

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WLD 148 Shielded Metal Arc Welding 3 *	1-4 credits
WLD 151 Fundamentals of Metallurgy*	4 credits
WLD 154 Wire Drive Welding 2 *	1-4 credits
WLD 159 Wire Drive Welding 3 *	1-4 credits
WLD 165 Industrial Welding Practices *	3 credits
WLD 242 Gas Tungsten Arc Welding 1 *	3 credits
WLD 256 Gas Tungsten Arc Welding 2 *	3 credits
ENGR 280W Co-op Ed: Welding	3 credits

Fitness Training

Offered by the Health, Physical Education and Athletics Division

Two-Year Certificate of Completion (Fitness Specialist)

Two-Year Associate of Applied Science Degree (Fitness Specialist)

One-Year Certificate of Completion (Fitness Technician)

Purpose To prepare students as fitness professionals for various careers in the fitness industry.

Learning Outcomes The graduate will:

- demonstrate interpersonal skills in the areas of leadership, motivation, and communication.
- understand and apply basic exercise principles related to applied kinesiology, physiology, injury prevention, conditioning, resistance training, and functional training.
- administer various fitness assessments including the measurement of cardiovascular endurance, body composition, flexibility, muscular strength and endurance.
- design and demonstrate safe and effective exercise programs for individuals, groups, and special populations within current fitness industry standards and best practices.
- utilize appropriate library and information resources to apply current fitness industry research and support lifelong professional education.
- apply and interpret basic algebraic formulas to fitness assessment data and exercise programming.

Employment Trends Statewide, 95 openings are projected, with ten of those in Lane County. According to the U.S. Department of Labor,

“Employment of fitness workers is expected to increase much faster than the average for all occupations through 2014. An increasing number of people spend more time and money on fitness, and more businesses are recognizing the benefits of health and fitness programs and other services such as wellness programs for their employees. Aging baby boomers are concerned with staying healthy, physically fit, and independent. They have become the largest demographic group of health club members. The reduction of physical education programs in schools, combined with parents’ growing concern about childhood obesity, has resulted in rapid increases in children’s health club membership. Health club membership among young adults also has grown steadily, driven by concern with physical fitness and by rising incomes. As health clubs strive to provide more personalized service to keep their members motivated, they will continue to offer personal training and a wide variety of group exercise classes.”

Individuals with formal training or experience will have the best chances to get these jobs.

Wages The statewide average in 2006 was \$16.29 hourly, for an average annual salary of \$33,881. Lane County average hourly wages were \$13.34, or \$27,733 annually.

Costs in Addition to Tuition (estimate) Textbooks and minimal lab fees are required for most program core courses.

Program Certification The American College of Sports Medicine (ACSM) endorses Lane Community College’s Professional Fitness Training Program as providing training for the knowledge, skills and abilities as specified for ACSM certification. ACSM states: “*The American College of Sports Medicine has endorsed the curriculum for Lane Community College’s Associate of Applied Science program. This curriculum covers the knowledge, skills, and abilities expected of an ACSM Health/Fitness Instructor®. This curriculum has been reviewed for the educational content and has been endorsed by ACSM. This does not reflect ACSM endorsement of the college or its other academic programs.*”

Admission Deadline There are two application opportunities: an early application deadline in the spring and a final deadline during the summer. Please check with the Health and PE department for specific dates.

Number of New Students Admitted Annually 30 students maximum are admitted each fall term.

Criteria Used for Admission Applicants must meet the following minimum qualifications:

- Complete application for admission to the college (new students only).
- Have a high school or college GPA of 2.5, or a 470 average standard score on the GED certificate. If a student has earned 12 or more college graded credits, the college GPA will be used to determine eligibility.
- Complete a Professional Fitness Training Program application packet with supporting documents (only complete applications will be considered).
- Complete admission placement tests in Reading, Writing, and Mathematics meeting the minimum scores, or successfully complete qualifying classes as outlined in the program application packet.

Selection to the program is by a point allocation system from a pool of qualified applicants. Information about the point allocation system is available within the application packet (see below). All applicants will be notified of program selection status.

Admission Information Program information sheets and application packets are available in the Division of Health, Physical Education and Athletics, Bldg. 5, Rm. 205 and the Counseling and Advising Center, Bldg. 1, Rm. 103.

Program requirements In addition to completing all required coursework, accepted students must meet the following criteria for program completion:

- attendance at a mandatory program orientation before fall term and advisee meetings with program advisor each term
- earned letter grade of C- or higher AND earned accumulative G.P.A. of 3.0 or higher in all program core courses
- minimum of four total Cooperative Education credit hours as a student intern in the Fitness Education Center and the Therapeutic Exercise and Rehabilitation Program, with at least two credits in both areas
- Knowledge, Skills, and Abilities Competency List
- acceptable evaluations from the instructors of professional core courses
- acceptable Cooperative Education work experience supervisor evaluations
- student portfolio
- exit interview with program advisor