

Manufacturing Technology

Offered by the Advanced Technology Division

Two-Year Associate of Applied Science Degree

**Two-Year Associate of Applied Science Degree Option:
Computer Numerical Control Technician**

Two-Year Certificate of Completion

Purpose To provide training in basic principles and fundamentals in manufacturing (machine shop) and related work. A graduate qualifies for entrance occupations as a machinist in manufacturing shops or related machine tool industries. Employment opportunities include machine repair and maintenance shops, tool and die shops, manufacturing industries, metalworking plants, repair and maintenance shops for mill and construction contractors, and high tech and specialty machine shops.

Learning Outcomes The graduate will:

- demonstrate the use of setups and operation of all standard machine tools employed by the modern machine shop.
- demonstrate and use industrial safety standards for safe operation of all machine tools.
- access library, computing, and communications services and obtain information and data from regional and national networks.
- use basic math skills, formulas and right angle trigonometry.

The CNC Option graduate will also:

- set up, program, and operate 3 Axis CNC milling machines with a G-code controller and 2 Axis CNC lathes with a G-code controller.
- design parts with CAM software and apply to CNC machine tools.

Employment Trends Statewide, 120 annual openings for machinists are projected in Oregon and 15 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, \$21 hourly, \$42,000 annually (\$50,000+ with experience). Lane County average, \$18 hourly, \$38,000 annually.

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

Books	\$700
Tools	\$800
(import tools may reduce cost by 50%)	
Fees	\$432
Total	\$1,932

See online class schedule for program fees.
* Subject to change without notice.

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

Note: See a counselor or advisor to learn what entry-level skills are suggested for successful completion of this program.

Criteria Used for Admission For consent to enroll in major courses, students must attend a program orientation for fall terms (dates available in Counseling or Enrollment Services) or contact advisor/counselor in winter and spring terms.

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. Under the supervision of the Manufacturing Technology Co-op Coordinator and with instructor consent, a maximum of 18 Co-op credits may be earned in lieu of required Manufacturing Technology course credits. Contact Marv Clemons, Manufacturing Technology Co-op Coordinator, Bldg. 8, Rm. 111, (541) 463-3158.

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

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

Two-Year Associate of Applied Science Degree

First Year	Fall
MFG 197 Manufacturing Technology * _{D,G}	12
MTH 076 Applied Geometry for Technicians * _{D,G,M} or higher mathematics.....	4
Choice of:.....	4
CS 120 Concepts of Computing: Information Processing ^S	
CS 133 Beginning Programming * _S or higher	
Total Credits	20

	Winter
MFG 197 Manufacturing Technology * _{D,G}	12
MTH 086 Applied Algebra for Technicians * _S or higher mathematics.....	4
Choice of:.....	3
HE 125 Workplace Health and Safety ^{D,P}	
HE 252 First Aid ^{D,P}	
PE/Health requirement ^{D,R}	
Total Credits	19

	Spring
MFG 197 Manufacturing Technology * _{D,G}	12
WR 115W Introduction to College Writing: Workplace Emphasis ^W or higher writing	3
Total Credits	15

Second Year	Fall
MFG 197 Manufacturing Technology * _{D,G}	12
DRF 167 CAD 1 *	4
WLD 151 Fundamentals of Metallurgy *	3
Total Credits	19

	Winter
MFG 197 Manufacturing Technology * _{D,G}	6
Arts/Letters requirement ^R	3
Choice of:.....	6
MFG201 CNC MILL * _{D,G}	
MFG 202 CNC Lathe * _{D,G}	
Total Credits	15

	Spring
MFG 197 Manufacturing Technology * _{D,G}	12
WLD 121 Shielded Metal Arc Welding 1*	4
Human Relations requirement ^R	3
Total Credits	19

Elective ENRG 280M Co-op Ed: Manufacturing (optional)

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

H Meets Human Relations/Social Science requirement

M Meets Mathematics requirement

P Meets PE/Health requirement

R Required for AAS degree—see page 48

S Meets Science/Math/Computer Science requirement

W Meets Written Communications or English Composition requirement

Manufacturing Technology Computer Numerical Control Technician Option

Two-Year Associate of Applied Science Degree

First Year	Fall
MFG 197 Manufacturing Technology ^{*,D,G}	12
MTH 076 Applied Geometry for Technicians ^{*,D,G,M} or higher mathematics.....	4
Choice of:.....	4
CS 120 Concepts of Computing: Information Processing ^S	
CS 133 Beginning Programming ^{*,S} or higher	
Total Credits	20

	Winter
MFG 197 Manufacturing Technology ^{*,D,G}	12
MTH 086 Applied Algebra for Technicians ^{*,S} or higher mathematics.....	4
Choice of:.....	3
HE 125 Workplace Health and Safety ^{D,P}	
HE 252 First Aid ^{D,P}	
PE/Health requirement ^{D,R}	
Total Credits	19

	Spring
MFG 197 Manufacturing Technology ^{*,D,G}	6
MFG 210 CAM 1 ^{*,D,G}	3
MFG 211 CAM 2 ^{*,D,G}	3
WR 115W Introduction to College Writing: Workplace Emphasis ^{D,W} or higher writing.....	3
Total Credits	15

Second Year	Fall
DRF 167 CAD 1 *	4
MFG 197 Manufacturing Technology ^{*,D,G}	6
MFG 201 CNC Mill ^{*,D,G}	6
WLD 151 Fundamentals of Metallurgy *	3
Total Credits	19

	Winter
MFG 197 Manufacturing Technology ^{*,D,G}	6
MFG 202 CNC Lathe ^{*,D,G}	6
Choice of:.....	4
DRF 121 Mechanical Drafting *	
DRF 168 CAD 2 *	
Total Credits	16

	Spring
MFG 197 Manufacturing Technology ^{*,D,G}	3
MFG 208 CNC: Special Project ^{*,D,G}	9
Arts/Letters requirement ^R	3
Human Relations requirement ^R	3
Total Credits	18

Elective ENRG 280M Co-op Ed: Manufacturing (optional)

Manufacturing Technology

Two-Year Certificate of Completion

First Year	Fall
MFG 197 Manufacturing Technology ^{*,D,G}	12
MTH 076 Applied Geometry for Technicians ^{*,D,G,M} or higher mathematics.....	4
Total Credits	16

	Winter
MFG 197 Manufacturing Technology ^{*,D,G}	12
Choice of:.....	3
HE 125 Workplace Health and Safety ^D	
HE 252 First Aid ^D	
PE/Health requirement ^D	
Total Credits	15

	Spring
MFG 197 Manufacturing Technology ^{*,D,G}	12
Total Credits	12

Second Year	Fall
MFG 197 Manufacturing Technology ^{*,D,G}	12
Total Credits	12

	Winter
MFG 197 Manufacturing Technology ^{*,D,G}	6
WR 115W Introduction to College Writing: Workplace Emphasis ^W or higher writing	3
Choice of:.....	6
MFG 201 CNC Mill ^{*,G}	
MFG 202 CNC Lathe ^{*,G}	
Total Credits	15

	Spring
MFG 197 Manufacturing Technology ^{*,D,G}	12
Human Relations requirement ^H	3
Total Credits	15

Note: See a counselor or advisor to learn what entry-level skills are suggested for successful completion of this program.

Medical Office Assistant

Offered by the Family and Health Careers Department

One-Year Certificate of Completion

Purpose To train the graduate for a successful career in the profession of medical assisting, including certification (Certified Medical Assistant®). The Certified Medical Assistant® is a vital member of the ambulatory health care team.

Learning Outcomes The graduate will:

- prepare patients for examination or treatment, take temperatures, measure height and weight, and accurately record information in the patient chart.
- sterilize instruments and stand by to assist as the physician examines or treats patients, or performs in-office surgeries.
- give medical care to patients, under the physician's supervision, such as giving injections and drawing blood.
- perform certain diagnostic testing in the laboratory.
- perform administrative duties, which include managing an appointment schedule, organizing patients' medical records, performing medical transcription, bookkeeping procedures, and processing insurance claims.
- be able to use library resources for research and written assignments for a variety of classes.
- be able to perform mathematic equations associated with medication dosages as well as basic mathematics to process medical insurance claims

Employment Trends Job prospects statewide are excellent. Approximately 90 percent of the graduates of Lane's MOA program are initially employed in Lane County.

Wages \$11-14 hourly, \$23,000-40,000 annually

Costs in Addition to Tuition (estimate)*

Books, fees, uniform, exam fee, etc. \$1,400
* Subject to change without notice.

Program Accreditation The Lane Medical Office Assistant Program is accredited by the Commission on Accreditation of Allied Health Education Programs (CAAHEP), on recommendation of the Curriculum Review Board of the American Association of Medical Assistants Endowment. CAAHEP is a specialized accrediting board recognized by the Council on Higher Education Accreditation. Commission on Accreditation of Allied Health Education Programs, 1361 Park Street, Clearwater, Florida, 33756 (727) 210-2350.

Licensing or Other Certification Exams Required The eligible graduate is qualified to take the national certification examination administered by the American Association of