

MACHINE TOOL TECHNOLOGY, CERTIFICATE

Program Code: CC.MACHTECH

Course work in machine tool technology prepares students for careers in high-tech manufacturing by producing products to exacting industrial standards utilizing current manual and computer-aided machine tool technology. Many classes are taught in a flexible, open-lab format and students may enter the program any term.

Individualized daytime and evening instruction is provided in the operation of machine tools such as: lathes, mills, surface and cylindrical grinders and common machine shop equipment. Included in the degree program is the study of computer numerical control (CNC) programming and machining for milling, turning and electrical discharge machining (EDM), as well as courses in computer-aided manufacturing (CAM) utilizing current industrial CAD/CAM software. Quality control is stressed while students are taught a wide range of measuring and inspection techniques. Other topics include courses offered in welding, materials science and basic electricity. Many students enroll in these courses to upgrade existing job skills and several of our courses satisfy the continuing education unit (CEU) requirements of local apprenticeships and trade organizations.

Short Term Training

For students who need a quick-entry strategy into the workforce, an individualized education and employment plan can be created that concentrates the knowledge and skills necessary to start or change a career path. Please see a faculty advisor for more information. A short-term training certificate is available.

For information contact the Industrial Technology Department, 503-594-3318.

Outcomes

Related Instruction Outcomes

Computation

- 1 course - MTH-050 Technical Mathematics I or MTH-065 Algebra II
- Use appropriate mathematics to solve problems.

Communication

- 1 course - WR-101 Workplace Writing
- Read actively, think critically, and write purposefully and capably for professional audiences.

Human Relations

- 3 credits - See [Related Instruction](#) for course list
- Engage in ethical communication processes that accomplish goals.

Program Outcomes

Upon successful completion of this program, students should be able to:

- work independently on manual machine tools to produce machined products to required specifications by applying appropriate skills, processes, and technologies;

- work independently on CNC machine tools to produce machined products to required specifications by applying appropriate skills, processes, and technologies;
- apply critical thinking skills to solve common machining and manufacturing problems;
- work safely in an industrial environment around machinery, power tools, electricity and chemicals.

Requirements

Fall Term		Credits
MFG-104	Print Reading	3.00
MFG-107	Industrial Safety & First Aid	3.00
Select one of the following:		4.00
MTH-050	Technical Mathematics I	
MTH-065	Algebra II	
Higher Level Math or Statistics		
MTT-111	Manual Machining I	4.00
MTT-121	CNC I: Set-Up and Operation	4.00
Credits		18
Winter Term		Credits
MFG-109	Computer Literacy for Technicians	3.00
Select one of the following:		3.00-4.00
MTH-080	Technical Mathematics II	
MTH-095	Algebra III	
Higher Level Math or Statistics		
MTT-112	Manual Machining II	4.00
MTT-122	CNC II: Programming and Operation	4.00
Human Relations requirement		3.00
Credits		17-18
Spring Term		Credits
MFG-221	Materials Science	3.00
MTT-113	Manual Machining III	4.00
MTT-141	CAD/CAM I	4.00
WR-101	Workplace Writing ¹	4.00
Credits		15
Total Credits		50-51

¹ Substitute college transfer courses for these courses if you plan to continue your education at a higher education institution. It is recommended that you consult with a faculty advisor or a staff member in Student Services for the transfer requirements of the specific advanced program or school.

Careers

Career opportunities include:

- machinist
- tool maker
- CNC programmer/operator
- CAD/CAM technicians