

# COMPUTER-AIDED MANUFACTURING, AAS

Program Code: AAS.COMPAIDEMFG

This program combines training in computer-aided drafting (CAD) and computer-aided manufacturing (CAM). Course work emphasizes machine tool fundamentals, computer numerical control (CNC) and computer-aided manufacturing.

## Manufacturing Engineering Technology (Oregon Tech Transfer Courses)

The Industrial Technology Department, in partnership with Oregon Tech, offers a significant number of transferable classes into Oregon Tech's Manufacturing Engineering Technology degree program.

Contact the Industrial Technology Department for more information, 503-594-3318.

## Outcomes

### Related Instruction Outcomes

#### Computation

- 1 course - MTH-050 Technical Mathematics I
- Use appropriate mathematics to solve problems

#### Communication

- 1 course - WR-101 Communication Skills: Occupational 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

#### Physical Education/Health/Safety/First Aid

- 3 credits - MFG-107 Industrial Safety & First Aid
- Use effective life skills to improve and maintain mental and physical wellbeing

## Program Outcomes

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

- set-up and operate manual machine tools to produce machined products to required specifications by applying appropriate skills, processes, and technologies;
- set-up and operate CNC machine tools to produce machined products to required specifications by applying appropriate skills, processes, and technologies.
- apply computer software applications to produce manufacturing related documents, create CAD models, and generate CAM programs for machining processes;
- apply knowledge of programming electronic systems to improve industrial efficiency;
- apply knowledge of materials, physics and mathematics to effectively machine industrial materials;

- 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

Course	Title	Credits
<b>First Year</b>		
<b>First Term</b>		
CDT-102	Sketching & Problem Solving	3
MFG-111	Machine Tool Fundamentals I	6
MTH-050	Technical Mathematics I <sup>1</sup>	4
WR-101	Communication Skills: Occupational Writing <sup>1</sup>	3
<b>Credits</b>		<b>16</b>
<b>Second Term</b>		
CDT-108A	Introduction to SolidWorks	3
MFG-105	Dimensional Inspection	2
MFG-109	Computer Literacy for Technicians	3
MFG-112	Machine Tool Fundamentals II	6
MTH-080	Technical Mathematics II <sup>1</sup>	3
<b>Credits</b>		<b>17</b>
<b>Third Term</b>		
CDT-225	Advanced SolidWorks	3
MFG-106	Advanced Applied Geometric Dimensioning and Tolerancing for Manufacturing	3
MFG-113	Machine Tool Fundamentals III	6
MFG-221	Materials Science	3
<b>Electives (p. 2)</b>		<b>3</b>
<b>Credits</b>		<b>18</b>
<b>Second Year</b>		
<b>Fourth Term</b>		
CDT-223	Inventor Fundamentals	3
MFG-130	Basic Electricity I	3
MFG-201	CNC I: Set-Up and Operation	4
MFG-204	Computer-Aided Manufacturing I	4
<b>Human Relations requirement <sup>1</sup></b>		<b>3</b>
<b>Credits</b>		<b>17</b>
<b>Fifth Term</b>		
MFG-107	Industrial Safety & First Aid	3
MFG-202	CNC II: Programming & Operation	4
MFG-205	Computer-Aided Manufacturing II	4
MFG-209	Programming & Automation for Manufacturing	3
<b>Credits</b>		<b>14</b>
<b>Sixth Term</b>		
MET-170	Introduction to Manufacturing Processes	3
MFG-203	CNC III: Applied Programming & Operation	3
MFG-206	Computer-Aided Manufacturing III	3
MFG-219	Robotics	3

Course	Title	Credits
MFG-280	Manufacturing Technology/CWE	4
<b>Credits</b>		<b>16</b>
<b>Total Credits</b>		<b>98</b>

<sup>1</sup> 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.

Students with specialized job training needs may be eligible to substitute some classes. Consult your instructor or the department chair for more information.

## Electives

Any course with a **CDT**, **EET**, **MFG**, **RET**, or **WLD** prefix not included in the program.

## Careers

Career opportunities include:

- CNC programmer and operator
- CAD technician
- manufacturing engineering technician
- CAD/CAM technician