

# INTEGRATED METALS: MACHINE TOOL TECHNOLOGY - DEGREE

Limited Entry Associate of Applied Science Degree Program | mhcc.edu/  
IntegratedMetals (<http://mhcc.edu/IntegratedMetals/>)

## Faculty Advisers

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The Machine Tool program prepares students to enter the machine tool workforce. Students will learn to set up and run CNC lathes, milling machines, and other trade equipment. The program also explores CNC (computer numerical control) and CAD/CAM (computer assisted design / computer assisted machining).

**Note:** Students are required to maintain a minimum grade of "C" in all IMTL and MFG courses. All core courses must be completed within 5 years in order for the degree to be awarded.

## Employment Opportunities

Students completing the Machine Tool Technology program are prepared for entry into the manufacturing workforce leading to careers that provide support for industries such as:

- Forest products/paper/lumber
- Medical technologies
- Transportation and aerospace technologies
- Computer hardware technologies
- Heavy industrial manufacturing
- Hydraulic/pneumatic equipment manufacturing
- And many other manufacturing settings

## Program Outcomes

At the completion of this program, students should be able to:

- Demonstrate and/or describe safe work habits and environmental issues associated with modern manufacturing settings
- Read, interpret and apply blueprints for the production and inspection of manufactured work pieces
- Demonstrate the correct application and use of precision measuring equipment commonly found in a manufacturing setting
- Plan and produce work pieces on a manual drill press, manual engine lathe, and manual milling machine to required blueprint specifications using common industry methods
- Demonstrate, explain and/or apply CNC/CAD/CAM machine tools and software to produce work pieces to required blueprint specifications

Students interested in transferring to OIT should consult with program advisers early in the first quarter.

*General education courses (such as math, writing, health, etc.) can be taken during any term, or before starting the program.*

First Quarter		Credits
<b>Fall</b>		
IMTL110	Machine Shop I Theory	3
IMTL111	Machine Shop I Lab	3
IMTL114	Blueprint Reading for the Metals Industry	3
IMTL116	Introduction to Precision Measuring	3
IMTL118	Machine Shop Math Applications	2
WR101 or WR121Z	Workplace Communications I ★ or Composition I ★	3-4
<b>Credits</b>		<b>17-18</b>

Second Quarter		Credits
<b>Winter</b>		
IMTL130	Machine Shop II Theory	3
IMTL131	Machine Shop II Lab	3
IMTL134	Metallurgy Theory	3
IMTL135	Metallurgy Lab	1
IMTL136	Introduction to CNC (Computer Numerical Control) Machining	3
Human Relations requirement ( <a href="https://catalog.mhcc.edu/degree-certificate-requirements/aas/#human">https://catalog.mhcc.edu/degree-certificate-requirements/aas/#human</a> )		3-4
<b>Credits</b>		<b>16-17</b>

Third Quarter		Credits
<b>Spring</b>		
IMTL150	Machine Shop III Theory	3
IMTL151	Machine Shop III Lab	3
IMTL153	CNC (Computer Numerical Control) Machining	4
IMTL155	Industrial Safety	3
MTH095	Intermediate Algebra with Right Triangle Trigonometry ★ (or MTH111Z or higher)	5
<b>Credits</b>		<b>18</b>

Fourth Quarter		Credits
<b>Fall</b>		
MFG213	Integrated Machine Shop I Theory	2
MFG214	Integrated Machine Shop I Lab	3
MFG216	CNC/CAM (Computer Numerical Control/Computer Assisted Machining)	4
MFG217	Modern Manufacturing Concepts	3
<b>Credits</b>		<b>12</b>

Fifth Quarter		Credits
<b>Winter</b>		
IMTL157	Introduction to Computer-Aided Design for Machinists	2
IMTL215	Inspection and Measurement	1
IMTL236	Quality Control: Statistical Methods	3
MFG232	Integrated Machine Shop II Lab	3
MFG234	Advanced Manufacturing Processes	3
Select one of the following:		3-4
WLD116	General Welding I	
WE280MF_	Cooperative Education Internship	
<b>Credits</b>		<b>15-16</b>

**Sixth Quarter****Spring**

IMTL257	Geometric Dimensioning and Tolerancing	3
MFG212	CAM (Computer-Assisted Machining) Concepts I	4
MFG251	Applied Machine Shop Lab	3
MFG254	Manufacturing Economics and Job Prep	3
Health and Physical Education requirement ( <a href="https://catalog.mhcc.edu/degree-certificate-requirements/aas/#health">https://catalog.mhcc.edu/degree-certificate-requirements/aas/#health</a> )		3
<b>Credits</b>		<b>16</b>
<b>Total Credits</b>		<b>94-97</b>

## How to Apply

The machine tool technologies program is a limited-entry program. This means you must meet certain criteria before you can apply (<https://mhcc.edu/education-options/degrees-certificates/integrated-metals/machine-tool-technology/get-started/>). The program admits 36 students every fall term. Students of all races, ethnicities, ages, genders, religions, sexual orientations, socio-economic statuses, nationalities, physical abilities, and cognitive differences are welcome!