

# MACHINING TECHNOLOGY, MANUFACTURING TECHNOLOGY (AAS)

Degree: Associate of Applied Science  
Major: Manufacturing Technology  
Emphasis: Machining Technology  
Program Code: 1331

## About This Major . . .

The Associate of Applied Science with the Manufacturing Technology major offers classroom instruction and related lab work with hands-on activities in the use of tools and the operation of equipment found in manufacturing. In the Machining Technology emphasis students learn to apply industrial knowledge and skills to plan and implement designs, operate manual mills and lathes, operate computer-aided machinery with CAD/CAM software, and computer-numerical controlled (CNC) machines. Students also develop the skills that enable them to read blueprints, apply appropriate mathematical concepts, and understand the properties of metal and polymers. This course of study is designed to meet competency-based standards set by the manufacturing industry. With this degree, students will be qualified for the following employment opportunities: entry-level machinist, computer-numerical control operator, numerical tool and process technician, manufacturing engineering technician, and manufacturing inspection technician.

For more information on what you can do with this major, visit CMU Tech's [Programs of Study](#) page.

All CMU/CMU Tech associate graduates are expected to demonstrate proficiency in specialized knowledge/applied learning, quantitative fluency, communication fluency, critical thinking, personal and social responsibility, and information literacy. In addition to these campus-wide student learning outcomes, graduates of this major will be able to:

- Use written and oral communication skills needed for entry level employment in the manufacturing industry (Communication Fluency).
- Apply mathematical concepts to perform machining tasks (Quantitative Fluency).
- Summarize business practices, principles and application of associated technical skill in the machining industry (Specialized Knowledge).
- Apply the necessary machining skill sets to perform specified manufacturing processes (Applied Learning).
- Determine ethical and civil responsibility necessary for employees in the machining industry (Specialized Knowledge).

## Requirements

Each section below contains details about the requirements for this program. Select a header to expand the information/requirements for that particular section of the program's requirements.

**To print or save an overview of this program's information, including the program description, learning outcomes, requirements, suggested course sequencing (if applicable), and advising and graduation information, scroll to the bottom of the left-hand navigation menu and select "Print Options."** This will give you the options to either "Send Page to Printer" or "Download PDF of This Page." The "Download PDF of This Page" option

prepares a much more concise presentation of all program information. The PDF is also printable and may be preferable due to its brevity.

## Institutional Degree Requirements

The following institutional degree requirements apply to all CMU and CMU Tech Associate of Applied Science (AAS) degrees. Specific programs may have different requirements that must be met in addition to institutional requirements.

- 60 semester hours minimum.
- Students must complete a minimum of 15 of the final 30 semester hours of credit at CMU/CMU Tech.
- 2.00 cumulative GPA or higher in all CMU/CMU Tech coursework.
- A course may only be used to fulfill one requirement for each degree/certificate.
- No more than six semester hours of independent study courses can be used toward the degree.
- Non-traditional credit, such as advanced placement, credit by examination, credit for prior learning, cooperative education and internships, cannot exceed 20 semester credit hours for an AAS degree.
- Pre-collegiate courses (usually numbered below 100) cannot be used for graduation.
- Capstone exit assessment/projects (e.g., Major Field Achievement Test) requirements are identified under Program-Specific Degree Requirements.
- The Catalog Year determines which program sheet and degree requirements a student must fulfill in order to graduate. Visit with your advisor or academic department to determine which catalog year and program requirements you should follow.
- See "Requirements for Undergraduate Degrees and Certificates" in the catalog for a complete list of graduation requirements.

## Specific to this program:

- 61 semester hours total for the AAS, Manufacturing Technology - Machining Technology.

## Essential Learning Requirements

(15 semester hours)

See the current catalog for a list of courses that fulfill the requirements below. If a course is an Essential Learning option and a requirement for your major, you must use it to fulfill the major requirement and make a different selection for the Essential Learning requirement.

Code	Title	Semester Credit Hours
<b>Communication</b>		
ENGL 111	English Composition I-GTC01	3
Select one of the following courses:		3
ENGL 112	English Composition II-GTC02	
SPCH 101	Interpersonal Communication	
SPCH 102	Speechmaking	
<b>Mathematics</b>		
MATH 107	Career Math (or higher)	3

## Other Essential Learning Core Courses

Select one Social and Behavioral Sciences, History, Natural Sciences, Fine Arts or Humanities course	3
Select one Social and Behavioral Sciences, History, Natural Sciences, Fine Arts or Humanities course	3
<b>Total Semester Credit Hours</b>	<b>15</b>

## Other Lower Division Requirements

Code	Title	Semester Credit Hours
<b>Wellness Requirement</b>		
KINE 100	Health and Wellness	1
KINA 1XX	Activity Course	1
<b>Total Semester Credit Hours</b>		<b>2</b>

## Program Specific Degree Requirements

(44 semester hours, must earn a grade of "C" or better in each course.)

Code	Title	Semester Credit Hours
ENGR 125 or CADT 109	Computer-Aided Design and Fabrication CAD-Mechanical Engineering	3
MAMT 101	Introduction to Manufacturing	2
MAMT 105	Print Reading and Sketching	2
MAMT 106	Geometric Tolerancing	2
MAMT 115	Introduction to Machine Shop	3
MAMT 120	Machine Technology I	4
MAMT 125	Machine Technology II	4
MAMT 230	Machine Technology III	4
MAMT 240 or MAMT 170	Job Shop Machining II Practical Applications	3
MAMT 148	CNC Applications	3
MAMT 251	CNC Machining I	3
MAMT 255	CNC Machining II	3
MAMT 260	Properties of Materials	3
MAMT 207	Introduction to Statistical Process Control	2
<b>Total Semester Credit Hours</b>		<b>41</b>

Code	Title	Semester Credit Hours
<b>Restricted Electives</b>		
Select one of the following:		3
WELD 151	Introduction to Welding	
TSTG 220	Workplace Skills	
CADT 108	CAD - Mechanical	
<b>Total Semester Credit Hours</b>		<b>3</b>

## Suggested Course Plan

First Year		Semester Credit Hours
<b>Fall Semester</b>		
MAMT 101	Introduction to Manufacturing	2
MAMT 105	Print Reading and Sketching	2
MAMT 115	Introduction to Machine Shop	3
MAMT 120	Machine Technology I	4
MAMT 148	CNC Applications	3
MATH 107	Career Math	3
<b>Semester Credit Hours</b>		<b>17</b>
<b>Spring Semester</b>		
MAMT 106	Geometric Tolerancing	2
MAMT 125	Machine Technology II	4
MAMT 230	Machine Technology III	4
MAMT 251	CNC Machining I	3
MAMT 255	CNC Machining II	3
MAMT 240 or MAMT 170	Job Shop Machining II or Practical Applications	3
<b>Semester Credit Hours</b>		<b>19</b>
<b>Second Year</b>		
<b>Fall Semester</b>		
ENGL 111	English Composition I-GTC01	3
Essential Learning Social Science, Natural Science, Fine Arts, or Humanities		3
Essential Learning Social Science, Natural Science, Fine Arts, or Humanities		3
KINE 100	Health and Wellness	1
MAMT 207	Introduction to Statistical Process Control	2
<b>Semester Credit Hours</b>		<b>12</b>
<b>Spring Semester</b>		
ENGR 125 or CADT 109	Computer-Aided Design and Fabrication or CAD-Mechanical Engineering	3
Select one of the following:		3
ENGL 112	English Composition II-GTC02	
SPCH 101	Interpersonal Communication	
SPCH 102	Speechmaking	
KINA 1XX	Activity Course	1
MAMT 260	Properties of Materials	3
Restricted Elective		3
<b>Semester Credit Hours</b>		<b>13</b>
<b>Total Semester Credit Hours</b>		<b>61</b>

## Advising and Graduation

### Advising Process and DegreeWorks

Documentation on the pages related to this program is intended for informational purposes to help determine what courses and associated requirements are needed to earn a degree. The suggested course sequencing outlines how students could finish degree requirements. Some courses are critical to complete in specific semesters, while others may be moved around. Meeting with an academic advisor is essential in planning courses and altering the suggested course sequencing. It is ultimately the student's responsibility to understand and fulfill the requirements for their intended degree(s).

DegreeWorks is an online degree audit tool available in MAVzone. It is the official record used by the Registrar's Office to evaluate progress towards a degree and determine eligibility for graduation. Students are responsible for reviewing their DegreeWorks audit on a regular basis and should discuss questions or concerns with their advisor or academic

department head. Discrepancies in requirements should be reported to the Registrar's Office.

## Graduation Process

Students must complete the following in the first two months of the semester prior to completing their degree requirements:

- Review their DegreeWorks audit and create a plan that outlines how unmet requirements will be met in the final semester.
- Meet with their advisor and modify their plan as needed. The advisor must approve the final plan.
- Submit the "Intent to Graduate" form to the Registrar's Office to officially declare the intended graduation date and commencement ceremony plans.
- Register for all needed courses and complete all requirements for each degree sought.

Submission deadlines and commencement details can be found on the [Graduation](#) web page.

If a student's petition for graduation is denied, it will be their responsibility to apply for graduation in a subsequent semester. A student's "Intent to Graduate" does not automatically move to a later graduation date.