

# Precision Manufacturing

## Degree Type

Associate in Science

At the heart of our mechanized world is the Precision Manufacturing industry requiring skilled technicians to carry out new ideas and plans in the production of all types of manufactured parts. Many of these skilled technicians can earn more than \$50,000 a year.

Precision Manufacturing students receive applied training in basic concepts of machine tool processes during the first year.

In the second year, students will receive training in such specialized areas as production machining and Computer Aided Manufacturing (CAM), Computer Numerical Control (CNC) programming, setup and operation.

Employment opportunities include CNC specialists, mold makers, technical support technicians, field service representatives, and general machinists.

In addition to the general admission requirements, applicants should be aware of the following criteria:

1. A minimum of high school Algebra I is recommended.
2. Good skills in written English are required.
3. Other high school courses such as physics and computer programming are recommended.
4. It is recommended that senior students purchase a basic machinist tool kit.

Technical Standards: Please refer to Technical Standards section for details regarding this program.

Upon the completion of the degree in Precision Manufacturing, the graduate will be able to:

1. Analyze and interpret drawings using ANSI Y 14.5M (2009) standards of Geometric Dimensioning and Tolerancing (GDT) to plan, program and produce complex machined parts to specifications using CNC and manual machines.
2. Work collaboratively to produce a quantity of precision assemblies in an accurate and timely fashion, using CAD/CAM software, writing G and M code programs, planning the project sequence, producing parts within tolerances and inspecting parts for conformance as part of the capstone experience.
3. Use Statistical Process Control, lean manufacturing techniques, ANSI and ISO standards, material safety data sheets, and responsible environmental procedures to safely manage production of machined and fabricated products.
4. Communicate technical and procedural instructions clearly in verbal, written, graphic and electronic formats.
5. Diagnose and solve machining and production problems using appropriate technical resources in a logical, systematic fashion.
6. Demonstrate appropriate interpersonal interactions, conscientious work habits, personal effectiveness, professional conduct, organizational skills and creative problem-solving to enhance job acquisition, retention and advancement.

In addition, the graduate will be able to demonstrate competency in the general education outcomes.

## First Year - Fall Semester

Item #	Title	Class Hours	Lab Hours	Credits
MTTN101N	Manufacturing Processes	3	0	3
MTTN111N	Machine Tool Processes and Theory I	3	9	6
ENGL101N	College Composition	4	0	4
MATH105N	Technical Mathematics	4	0	4

## First Year - Spring Semester

Item #	Title	Class Hours	Lab Hours	Credits
MTTN122N	Machine Tool Processes and Theory II	3	9	6
CAD131N	Technical Drawing	2	3	3
MTTN123N	Principles of CNC	2	3	3
	English/Communications Elective			3

## Second Year - Fall Semester

Item #	Title	Class Hours	Lab Hours	Credits
MTTN231N	Advanced Machine Tool Processes and Theory I	3	9	6
MTTN223N	Computer Aided Manufacturing (CAM)	2	3	3
	Science Elective			4
	Behavioral Social Science or History/ Political Science			3

## Second Year - Spring Semester

Item #	Title	Class Hours	Lab Hours	Credits
MTTN232N	Advanced Machine Tool Processes and Theory II: A Capstone Experience	3	9	6
MTTN201N	Lean and Green Manufacturing Methods	3	0	3
	Humanities/Fine Arts/Philosophy or Global Awareness			3
Total Credits				60