

Machine Tool Technology

Degree Type

Associate in Applied Science

ASSOCIATE DEGREE IN APPLIED SCIENCE MACHINE TOOL TECHNOLOGY 75 SEMESTER HOURS

Precision measurement is a very important part of any machining operation. And because tools and dies must meet strict specifications — precision to one ten-thousandth of an inch is common — the work of individuals in the machine tool field requires a high degree of patience and attention to detail. It is also essential that these professionals be mechanically inclined, able to work independently, and are capable of doing work that requires concentration and physical effort.

Machine Tool Technicians produce precision parts using machine tools such as lathes, drill presses, and milling machines. They are able to set up and operate a wide variety of machine tools and have a thorough understanding of the working properties of metals such as steel, cast iron, aluminum, and brass. Using their skill with machine tools and their knowledge of metals, Machine Tool Technicians plan and carry out the operations needed to make machined products that meet precise specifications.

Modern technology has changed the nature of the MTT's work, with an increasing reliance on computer-aided design (CAD) to develop products and parts. Specifications from the CAD program are used to electronically develop drawings for the job. A computer-aided manufacturing program that calculates cutting tool paths and the sequence of operations then processes these drawings. Once these instructions are developed, computer-numerically-controlled machines (CNC) — machines that contain computer controllers that direct the machine's operations and "read" the programs — perform the operations and run the machine tool mechanisms through the steps.

The introduction of CAD and CNC machines has enabled MTTs to be more productive and to produce parts with a level of precision that is not possible with traditional machining techniques. Because precise movements are recorded in the program, they allow this high level of precision to be consistently repeated. The CNC operation also allows several functions to be performed with one setup, reducing the need for additional, labor-intensive setups.

For those entering this field, a basic knowledge of computers and electronics is very important. OCtech's Machine Tool Technology curriculum provides training in these areas as well as in computer numerical control operations. Courses in mathematics, communications (written and oral), blueprint reading and sketching, and economics are also included in this comprehensive two-year program.

Fall I

Course Number	Title	Credits
MTT-120	Machine Tool Print Reading	3
MTT-111	Mach Tool Theo & Prac I	5
MTT-112	Mach Tool Theo & Prac II	5
MTT-105	Machine Tool Math Applic	3

Spring I

Course Number	Title	Credits
HSS-105	Technology and Culture	3
MAT-155	Contemporary Mathematics	3
MTT-123	Machine Tool Theory II	3
MTT-125	Machine Tool Theory III	3
MTT-126	Machine Tool Prac III	4

[MAT-175](#) may be taken in place of [MAT-155](#).

Summer

Course Number	Title	Credits
HSS-101	Introduction to Humanities	3
MTT-258	Machine Tool Cam	3
MTT-250	Principles of CNC	3
PSY-103	Human Relations	3

[PHI-101](#) or [HIS-101](#) may be taken in place of [HSS-101](#).

[CIM-131](#) may be taken in place of [MTT-250](#).

Fall II

Course Number	Title	Credits
ENG-160	Technical Communications	3
MTT-221	Tool & Diemaking Theo I	3
MTT-222	Tool & Diemaking Prac I	4
MTT-251	Cnc Operations	3
MTT-171	Industrial Quality Control	2

[MTT-171](#): Students can earn the Lean Six Sigma Yellow Belt.

Spring II

Course Number	Title	Credits
EGT-152	Fundamentals of CAD	3
IDS-112	Employability Skills for Career	1
MTT-232	Tool and Diemaking II	5
MTT-241	Jigs and Fixtures I	2
MTT-252	Cnc Setup & Operations	4

[EGT-152](#): Project Lead the Way course.

Total Credits	74
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