

# TECHNOLOGY STUDIES: ADVANCED MANUFACTURING MACHINE TECHNOLOGY CERTIFICATE OPTION 1

**Program code:** AMC1-CC-COT

**Location:** Naugatuck Valley, Quinebaug Valley

## Program Description

The Advanced Manufacturing Machine Technology certificate provides students with the opportunity to train in a hands-on manufacturing environment. Throughout the duration of their training, students will develop an advanced level of skillsets that will lead directly into a career in the vast world of manufacturing, such as an entry level machinist or a quality inspector. The programs were developed in response to Connecticut manufacturers' needs for a highly skilled workforce to match the needs of the regional industry sector partnerships around the state of Connecticut that graduates of the program are placed with. The student who completes the Advanced Manufacturing Machine Technology certificate program has a choice to pursue employment or to matriculate in an associate degree program. To earn this certificate, you will choose nine directed electives based on regional industry needs for specific courses.

The Advanced Manufacturing Technology Centers at the Quinebaug Valley and Naugatuck Valley campuses are accredited by the National Institute for Metalworking Skills (NIMS (<https://www.nims-skills.org/>)). The Housatonic, Manchester, and Middlesex Centers are in the process of applying for NIMS accreditation.

## Learning Outcomes

1. Apply mathematical and technological principles to solve triangles and other geometrical problems
2. Understand and follow basic shop safety guidelines and protocol
3. Demonstrate the use of all hand tools used in basic layout procedures
4. Accurately read and interpret views and information on engineered drawings and blueprints
5. Demonstrate the use and understanding of all basic semi-precision and precision measuring tools to determine acceptability of manufactured parts to blueprint specifications
6. Demonstrate operations of manual lathe to turn, face, part, groove, drill, bore, tap and single point thread
7. Demonstrate operations in a knee mill to square parts, bore holes, drill, tap, countersink and counterbore
8. Demonstrate operation of machine tools such as drill press, bench grinders, surface grinders, sawing machines
9. Program and operate CNC mills and lathes with conversational, GM code to fabricate parts to blueprint specifications
10. Exhibit competency in two- and three-dimensional CAD as it is applied to parts and geometries to create solid models and assemblies
11. Understand basic principles in quality management and lean continuous improvement practices

## Certificate Requirements

Code	Title	Credits
<b>Required Courses</b>		
MFG 1405	Manufacturing Math	3
MFG 1415	Safety in the Workplace	1
MFG 1424	Blueprint Reading 1	3
or EGR 1120	Engineering Drawing Specs	
MFG 1453	Benchwork	2
MFG 1477	Machine Technology Fundamentals	4
MFG 1478	CNC Fundamentals	3
MFG 1479	Career Awareness for Manufacturing	1
MFG 2456	Advanced CNC	3
MFG 2477	Advanced Machine Technology	4
Choose three of the following Directed Electives:		9
MFG 1010	Parametric Design (SolidWorks)	
MFG 1414	Quality and Lean Principles	
or MFG 1413	Principles of Quality Control	
MFG 1420	Metrology	
MFG 1425	Blueprint Reading 2 with Geometric Dimensioning & Tolerancing	
MFG 2405	Principles of CNC w/Mastercam	
MFG 2439	Geometric Dimension and Tolerancing (G, D, and T)	
MFG 1400	Advanced Metrology with CMM (Coordinate Measuring Machines)	
MFG 1409	Introduction to MasterCAM	
<b>Total Credits</b>		<b>33</b>

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