

Manufacturing Machine Operation Certificates, Levels 1 and 2 (MMOC1, MMOC2)

Manufacturing Machine Operation Level 1 and Level 2 Certificates (MMOC1 and MMOC2)

The Manufacturing Machine Operator Level 1 Certificate provides knowledge and skills required for entry level employment as a computer numerical control (CNC) machine operator in a manufacturing facility. Students learn to operate manual milling machines, lathes, and grinders and produce parts that meet tolerances specified on plans.

The Manufacturing Machine Operator Level 2 Certificate provides advanced training in part design, machine layout, and programming.

Graduates of both certificate programs are prepared to take certification tests offered by the National Institute for Metalworking Skills (NIMS).

Manufacturing Machine Operation Level 1 Certificate (MMOC1)

Semester 1		Lec	Lab	Credits
MMC 105	Shop Math	1	0	1
MMO 110	OSHA General Industry Safety	1	0	1
MMO 111	Mechanical Plan Reading 1	3	0	3
MMO 120	Mechanical Machining	1	3	2
MMO 125	Introduction to CNC	1	2	2
MMO 130	Statistical Process Control Fundamentals	1	0	1
Total Credits:		8	5	10

Manufacturing Machine Operation Level 2 Certificate (MMOC2)

Semester 1		Lec	Lab	Credits
MMO 112	Mechanical Plan Reading 2	2	0	2
MMO 135	CNC Programming Fundamentals	2	2	3
MMO 140	CNC Tooling and Maintenance	1	2	2
Semester 2				
MMO 150	CNC Modeling and Programming	1	2	2
Total Credits:		6	6	9

Courses

MMO 110 OSHA General Industry Safety

1 Credit. 1 Lecture Hour. 0 Lab Hour.

A course for machine operators and first-line supervisors on key OSHA General Industry Safety Standards.

Prerequisites: None

MMO 111 Mechanical Plan Reading 1

3 Credits. 3 Lecture Hours. 0 Lab Hour.

An introductory course on use and interpretation of mechanical drawings and blueprints for geometric dimensioning, tolerances, and precision measurement required for manufacturing mechanical parts and assemblies.

Prerequisites: None

MMO 112 Mechanical Plan Reading 2

2 Credits. 2 Lecture Hours. 0 Lab Hour.

A continuation of MMO 111. Topics include: interpretation of software- depicted mechanical drawings, symbols, and renderings for CNC manufacturing of detailed mechanical parts and assemblies.

Prerequisites: MMO 111

MMO 120 Mechanical Machining

2 Credits. 1 Lecture Hour. 3 Lab Hours.

A course on manual machining operations such as drilling, tapping, boring, turning, and conventional milling and lathe work.

Prerequisites: None

MMO 125 Introduction to CNC

2 Credits. 1 Lecture Hour. 2 Lab Hours.

A course on setup, piece placement, data input, and operation of a computer numeric controlled (CNC) machine.

Prerequisites: None

MMO 130 Statistical Process Control Fundamentals

1 Credit. 1 Lecture Hour. 0 Lab Hour.

A course on statistical process control (SPC) and lean quality processes. Topics include: continuous improvement methods for reducing errors, eliminating defective parts/products, and lowering costs through reduced waste.

Prerequisites: None

MMO 135 CNC Programming Fundamentals

3 Credits. 2 Lecture Hours. 2 Lab Hours.

A course on using a computer to write CNC machine G and M code. Topics include: using multiple tools; cutter offsets; linear, circular and helical interpolation; and matching surfaces along lines and points of tangency to produce a part.

Prerequisites: MMO 125

MMO 140 CNC Tooling and Maintenance

2 Credits. 1 Lecture Hour. 2 Lab Hours.

A course on inspecting and diagnosing CNC machine and tooling parts, making routine adjustments, and taking steps to correct operations and put tooling back in service.

Prerequisites: MMO 125

MMO 150 CNC Modeling and Programming

2 Credits. 1 Lecture Hour. 2 Lab Hours.

A course on writing a computer program to produce a multi-plane part shown on a blueprint or plan by using a CNC mill and lathe.

Prerequisites: MMO 135