

Machine Shop

Associate in Occupational Technology Degree (AOT)

At a Glance

The Machine Shop program provides students with opportunities to explore and learn a highly skilled and valuable trade. Acquiring the knowledge and skills for precision machining opens a wealth of opportunities throughout the world in such areas as production machinists, tool and die makers, computer numeric control (CNC) operators and programmers, as well as quality inspectors.

General Education & Elective Courses		CREDITS
CIS 146	Microcomputer Applications	3
ENG 131	Applied Writing I.....	3
MTH 116	Mathematical Applications	3
SPH 106	Fundamentals of Oral Communication.....	3
	History, Social and Behavioral Science Elective*.....	3
	Humanities and Fine Arts Elective*	3
	Natural Science or Mathematics Elective*	3
WKO 110	NCCER Workplace Skills.....	3
	Total General Education & Elective Credit Hours	24

**Refer to general education section of catalog for electives. NOTE: Introductory foreign language courses cannot be utilized as the only Humanities and Fine Arts elective.*

Machine Shop Technology Major		CREDITS
MSP 102	Intermediate Machining Technology	5
MSP 103	Advanced Machining Technology	5
MSP 104	Basic Machining Calculations	2
MSP 105	Lathes	3
MSP 107	Milling Machines	3
MSP 111	Introduction to Computer Numerical Control (CNC 111).....	2
MSP 112	Basic Computer Numerical Control Turning (CNC 112).....	3
MSP 121	Basic Blueprint Reading for Machinists	2
MSP 125	Introduction to Machining Technology	3
MSP 132	Grinding Machines.....	3
MSP 142	Advanced Machining Calculations	2
MSP 171	Intermediate Blueprint Reading	2
	Total Machine Shop Technology Major Credit Hours.....	35

Consult with instructor for approval of CNC courses.

(Computer Numerical Control is required and 10 additional credit hours are required from the list below.)

Machine Shop Technology Minor		CREDITS
CNC 113	Computer Numeric Control Milling	3
CNC 143	Applied Trigonometry for CNC Machining	3
CNC 181	Special Topics in Computerized Numerical Control (Form Grinding)	3
CNC 213	Advanced Computer Numerical Control Milling	3

CNC 215	Quality Control and Assurance	3
CNC 218	Programming and Set-up for Electrical Discharge Machining	6
CNC 221	Advanced Blueprint Reading for Machinists.....	3
CNC 223	Computer Numerical Control Graphics Programming: Milling.....	3
CNC 230	Computer Numerical Control Special Projects.....	3
CNC 232	Basic Tool and Die.....	4
CNC 235	Basic Die Construction	5
CNC 281	Special Topics in Computerized Numerical Control (Heat Treatment)	3
	Total Machine Shop Technology Minor Credit Hours	13
Total Credit Hours.....		72

Machine Shop
Certificate (CER)

While pursuing the Machine Shop AOT degree and upon successful completion of the courses identified below, the stackable Machine Shop Certificate will be awarded to students.

	CREDITS	
CIS 146	Microcomputer Applications	3
ENG 131	Applied Writing I OR Higher level	3
MTH 116	Mathematical Applications OR Higher level.....	3
SPH 106	Fundamentals of Oral Communication.....	3
WKO 110	NCCER Workplace Skills.....	3
MSP 102	Intermediate Machining Technology	5
MSP 103	Advanced Machining Technology	5
MSP 104	Basic Machining Calculations	2
MSP 105	Lathes	3
MSP 107	Milling Machines	3
MSP 111	Introduction to Computer Numerical Control (CNC 111).....	2
MSP 112	Basic Computer Numerical Control Turning (CNC 112).....	3
MSP 121	Basic Blueprint Reading for Machinists (CNC 121)	2
MSP 125	Introduction to Machining Technology	3
MSP 132	Grinding Machines.....	3
MSP 142	Advanced Machining Calculation	2
MSP 171	Intermediate Blueprint Reading.....	2
Minor Elective Courses (see list on previous page).....		2
Total Credit Hours.....		52

Basic Machine Operation
Short-Term Certificate (STC)

While pursuing the Machine Shop AOT degree and upon successful completion of the courses identified below, the stackable Basic Machine Operation Short-Term Certificate will be awarded to students.

MSP 102	Intermediate Machining Technology	5
MSP 104	Basic Machining Calculations	2
MSP 111	Introduction to Computer Numerical Control (CNC 111).....	2
MSP 121	Basic Blueprint Reading for Machinists	2
MSP 125	Introduction to Machining Technology	3
Total Credit Hours.....		14

Basic Machinist

Short-Term Certificate (STC)

While pursuing the Machine Shop AOT degree and upon successful completion of the courses identified below, the stackable Basic Machinist Short-Term Certificate will be awarded to students.

MSP 102	Intermediate Machining Technology	5
MSP 104	Basic Machining Calculations	2
MSP 111	Introduction to Computer Numerical Control (CNC 111).....	2
MSP 121	Basic Blueprint Reading for Machinists	2
MSP 125	Introduction to Machining Technology	3
MSP 132	Grinding Machines.....	3
MSP 142	Advanced Machining Calculations	2
MSP 171	Intermediate Blueprint Reading.....	2
Total Credit Hours.....		21

CNC Operator

Short-Term Certificate (STC)

While pursuing the Machine Shop AOT degree and upon successful completion of the courses identified below, the stackable CNC Operator Short-Term Certificate will be awarded to students.

CNC 111	Introduction to Computer Numerical Control (MSP 111).....	2
CNC 112	Computer Numeric Control Turning (MSP 112).....	3
CNC 113	Computer Numeric Control Milling	3
MSP 121	Basic Blueprint Reading for Machinists	2
CNC 142	Applied Geometry for CNC Machine.....	3
CNC 223	Computer Numerical Control Graphics Programming: Milling.....	3
Total Credit Hours.....		16

CNC Specialist

Short-Term Certificate (STC)

While pursuing the Machine Shop AOT degree and upon successful completion of the courses identified below, the stackable CNC Specialist Short-Term Certificate will be awarded to students.

CNC 111	Introduction to Computer Numerical Control (MSP 111).....	2
CNC 112	Computer Numeric Control Turning (MSP 112).....	3
CNC 113	Computer Numeric Control Milling	3
MSP 121	Basic Blueprint Reading for Machinists	2
CNC 142	Applied Geometry for CNC Machine	3
CNC 213	Advanced Computer Numerical Control Milling	3
CNC 215	Quality Control and Assurance	3
CNC 223	Computer Numerical Control Graphics Programming: Milling.....	3
CNC 230	Computer Numerical Control Special Projects.....	3
Total Credit Hours.....		24

Manual Lathe Operator

Short-Term Certificate (STC)

While pursuing the Machine Shop AOT degree and upon successful completion of the courses identified below, the stackable Manual Lathe Operator Short-Term Certificate will be awarded to students.

		CREDITS
MSP 104	Basic Machining Calculations	2
MSP 105	Lathes	3
MSP 121	Basic Blueprint Reading for Machinists	2
MSP 125	Introduction to Machining Technology	3
Total Credit Hours.....		10

Manual Milling Machine Operator

Short-Term Certificate (STC)

While pursuing the Machine Shop AOT degree and upon successful completion of the courses identified below, the stackable Manual Milling Machine Short-Term Certificate will be awarded to students.

MSP 104	Basic Machining Calculations	2
MSP 107	Milling Machines	3
MSP 121	Basic Blueprint Reading for Machinists	2
MSP 125	Introduction to Machining Technology	3
Total Credit Hours.....		10