

DIVISION Applied Technology & Transportation
DIVISION DEAN Gary Kelly, M.S.
FACULTY CHAIR William Clarke, Ed.D.
 Technical 108
 (909) 384-8504
DIVISION OFFICE Technology 108
 (909) 384-4451

The Machinist Technology curriculum is designed to prepare students for entry-level employment in manufacturing. The courses train first-time students and re-train students already employed in the machine trades industry. The curriculum has been developed in collaboration with local industries to meet the National Industry Metalworking Standard (NIMS) Industry. Supporters of this program are Society of Plastics Industry (SPI) S & C Mold, W.A. Lane Corporation, Wilden Pump, Service Industrial Tool and Supply, Rettig Machine, Prestige Mold, Fontana Machines, MWYP International, and Zwerner Industries.

Core Competencies emphasized by courses in this department:

- Find and interpret information
- Demonstrate working knowledge of basic computer functions
- Apply learned knowledge to new situations
- Apply principles of scientific reasoning to solve problems

MACHINIST TECHNOLOGY ASSOCIATE OF SCIENCE DEGREE

To graduate with a specialization in one of the following five Machinist Technology majors: a) Machine Technology, b) Machinist Standard, c) Tool and Die, d) Computer Numerical Control CAD/CAM, e) Mechanical Hydraulics/Pneumatics, students must complete all the requirements for the appropriate certificate with a grade of C or better plus the general breadth requirements for the Associate Degree (minimum total = 60 units)

The following is a list of six Machinist Technology Certificates and the number of credits required for each certificate:

Name of the Certificate	Units Required for the Certificate	
	Specialized Course	Core Courses**
1) Machine Technology		25
2) Machinist Standard	6	25
3) Tool and Die	11	25
4) Computer Numerical Control: CAD/CAM	18	28
5) Mechanical Hydraulics/Pneumatics	27	N/A
6) Basic Operation Computerized Numerical Control	16	N/A

Note:

• **Basic Operation Computerized Numerical Control (CNC) certificate is not applicable towards Associate of Science in Machinist Technology degree.**

• **Students are required to take specialized courses and additional core course in order to receive the following certificates; Machinist Standard Certificate; Tool and Die Certificate; and Computer Numerical Certificate**



**CORE COURSES	UNITS
MACH 120B Machine Shop Theory	2
MACH 021 B Machine Shop I	4
MACH 022B Machine Shop II	4
MACH 123A Machine Shop III	4
MACH 124A Machine Shop IV	4
MACH 090B Engineering Blueprint Reading, Geometric Dimensioning & Tolerancing	3
TECALC 087 Technical Calculations	4
TOTAL UNITS	25

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MACHINE TECHNOLOGY

This certificate is designed to prepare students for entry-level employment in manufacturing using machine tools such as lathes, milling machines, and spindles to produce precision metal parts.

REQUIRED COURSES	UNITS
Machine Technology Core Requirements	25
Total Units required for Machine Technology Certificates	25

MACHINIST STANDARD

This certificate is designed to prepare students for entry-level employment in manufacturing producing precision metal parts using machine tools such as lathes, milling machines, and spindles, or in the maintenance and manufacture of new parts for existing machinery.

REQUIRED COURSES	UNITS
Machine Technology Core Requirements	25
MACH 070B Computer Numerical Control Machining I	3
MACH 129B Manufacturing Processes	3
TOTAL UNITS	31

TOOL and DIE

This certificate is designed to prepare students for entry-level employment producing tools, dies, and special guiding and holding devices that enable machines to manufacture a variety of products we use daily - from clothing and furniture to heavy equipment and parts for aircraft.

REQUIRED COURSES		UNITS
Machine Technology Core Requirements		25
MACH 160B	Tool and Die	4
MACH 061B	Jig and Fixture Making	4
MACH 129B	Manufacturing Processes	4
TOTAL UNITS		36

COMPUTER NUMERICAL CONTROL: CAD/CAM

This certificate is designed to prepare students for entry-level employment as production machinists working with complex computer numerically controlled (CNC) cutting machines.

REQUIRED COURSES		UNITS
Machine Technology Core Requirements		25
MACH 070B	Computer Numerical Control Machining I	3
MACH 071B	Computer Numerical Control Machining II	3
MACH 072B	Computer Aided Design/Computer Aided Manufacturing I	3
MACH 073B	Computer Aided Design/Computer Aided Manufacturing II	3
MACH 074B	Set-up and Operation of Various Machine Controls	3
MACH 129B	Manufacturing Processes	3
TOTAL UNITS		43

MECHANICAL HYDRAULICS/PNEUMATICS

This certificate is designed to prepare students for entry-level employment for entry level work in industrial mechanical hydraulics maintenance with training on state-of-the-art pneumatic systems,

basic components, pumps and hydraulic simulation equipment. This certificate enables the holder to perform many plant maintenance requirements.

REQUIRED COURSES		UNITS
Machine Technology Core Requirements		25
MACH 090B	Engineering Blueprint Reading, Geometric Dimensioning and Tolerancing	3
MACH 091A	Rigging Systems and Techniques	3
MACH 092A	Fluid Power Systems I	2
MACH 093A	Fluid Power Systems II	2
MACH 094A	Fluid Pump Systems	2
MACH 095A	Piping Systems	1
MACH 096A	Central Lubrication	1
MACH 097A	Mechanical Systems	2
TECALC 087	Technical Calculations	4
WELD 145	Shielded Metal Arc Welding	3
TOTAL UNITS		27

BASIC OPERATION COMPUTERIZED NUMERICAL CONTROL (CNC)

This certificate is designed to provide entry-level skills to operate a CNC lathe or milling type machine tool.

REQUIRED COURSES		UNITS
MACH 021B	Machine Shop I	4
MACH 070B	Computer Numerical Control Machining I	3
MACH 074B	Set-up and Operation of Various Machine Controls	3
MACH 075x2	Introduction to Computer Aided Drafting Technologies	3
MACH 090B	Engineering Blueprint Reading, Geometric Dimensioning and Tolerancing	3
TOTAL UNITS		16



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