

MANUFACTURING TECHNOLOGY (CERTIFICATE T0918)

Technology and Health Division

Certificate T0918

The Certificate in Manufacturing Technology is designed to prepare the student for entrance into the manufacturing field in one of the machining occupations such as manual and computer numerical control (CNC) machinists, machinery technicians, or machinist apprentices, computer aided design (CAD) operators, draftsmen, or design engineers, and computer aided manufacturing (CAM) machine programmers.

This program provides students with a broad foundation in common manufacturing processes such as injection molding, vacuum forming, sheet metal, casting processes, and laser cutting. Graduates may enter the manufacturing field in areas dealing with production, research and development, tool and die construction, mold making, or computerized manufacturing. Laboratory practice utilizes industrial types of equipment and precision measuring instruments to provide training in the various machining occupations. This certificate covers setup and tooling procedures and part certification upon completion of the metal removing process. It includes instruction on industry-based CAD and CAM methodologies and all types of lathes, mills, grinders, and specialized equipment such as CNC. Supplementary instruction is also provided in mechanical literacy, bench work, layout, inspection process, blueprint reading, metal composition, heat treatment, assembly procedures, jig and fixture design, and construction.

Required Courses

| Course Prefix | Course Name | Units |
|------------------------------------|---|-----------|
| MFG 110 | Introduction to CAD | 4 |
| MFG 120 | CAD for Manufacturing | 4 |
| MFG 130 | Manufacturing Processes and Materials | 3 |
| MFG 140 | Print Reading and Shop Practice | 3 |
| MFG 150 | Manual Machining I | 3 |
| MFG 155 | Manual Machining II | 2 |
| MFG 160 | Introduction to Mechanical Principles | 3 |
| MFG 210 | Advanced CAD | 3 |
| MFG 220 | Computer Aided Manufacturing II | 3 |
| MFG 250 | Introduction to CNC Programming | 3 |
| MFG 260 | CNC Operation | 3 |
| Three (3) units of Work Experience | | 3 |
| EDT 89 | Engineering Design Technology Work Experience | |
| Total Units | | 37 |

Manufacturing Website (<http://www.mtsac.edu/manufacturing/>)

Program Learning Outcomes

Upon successful completion of this program, a student will:

- Be technically competent
- Be employed or seeking employment in the field or a related field
- Demonstrate ability to create a CAD model, 2D print, or fabricate a part from a 2D print using manual or CNC methods

Review Student Learning Outcomes (SLOs) (<http://www.mtsac.edu/instruction/outcomes/sloinfo.html>) for this program.