



**MOORE NORMAN**  
TECHNOLOGY CENTER

Course Syllabus

**Machining, Basic Manual**  
TI120

Hours:    In Class 60                    Clinical                    Total 60

### Description

This is the fundamental course for understanding how the products we use every day came to be. This course introduces the student to machining fundamentals. The student begins by using basic machine tools including the lathe, milling machine, drill press, power saw, and bench grinder. Machine terminology, theory, math, part layout, and bench work using common measuring tools is included. Emphasis is placed on shop safety, housekeeping, and preventative maintenance.

### Prerequisites

Strong communication skills (Read/write in English) and have basic math skills.

### Learning Objectives

1. Demonstrate machine shop and tool safety practices.
2. Calculate: fractions, decimals, shop trigonometry, Cartesian coordinate system.
3. Demonstrate proper use of Precision Measuring Tools, Micrometers, Thread Gauges, Scales, Surface Gage, Height Gage, and Protractor.
4. Grind acceptable lathe tools.
5. Interpret basic print requirements to make a part on a mill and lathe.
6. Perform part layout.
7. Calculate cutting speeds and feeds for various milling and lathe operations,
8. Identify the most important parts of a lathe and their functions.
9. Identify standard and quick-change tooling and cutting tools for the tool post.
10. Identify tool holding for the lathe tailstock.
11. Perform routine maintenance on the machine - lathe/mill.
12. Apply proper facing, turning, grooving, threading, knurling, center drilling, drilling and tapping on a lathe technique.
13. Identify the most important parts of a mill and their functions.
14. Identify toolholders and cutting tools for the mill.
15. Identify part holding options for the mill.
16. Apply proper side milling, end milling, angle milling, center drilling, drilling and tapping on a mill technique.
17. Make parts using a mill and lathe.

### Teaching Philosophy

We believe that instructors, staff, and administrators have a shared responsibility to provide: 1) innovative course design and instruction; 2) a safe, learner-centered environment; and 3) an authentic learning experience.

### Student Responsibilities

To ensure a quality and safe learning environment, students are required to follow the Post-Secondary Student Behavior policy #560. This policy can be found at [www.mntc.edu/board-policies](http://www.mntc.edu/board-policies). Printed copies are available upon request.