

NORTHWESTERN CONNECTICUT COMMUNITY COLLEGE

COURSE SYLLABUS

Course Title: Manufacturing Processes / Precision Machining **Course #:** MFG 102

Course Description:

This course explains common methods of machining used to shape parts to specifications with the emphasis on traditional tool room machinery (Lathes, milling machines, drilling machines and grinders). Related topics also include shop safety, hand tools, measurement, layout work and cutting fluids. Students will apply classroom lessons to the fabrication of parts in the lab course.

Pre-requisite/Co-requisite: Reading exempt or permission of the instructor.

Goals: To further develop theoretical knowledge and skills for careers in planning, managing and performing the process of materials into intermediate or final products, and related professional and technical support activities.

Outcomes: Upon successful completion of this course each student must have demonstrated understanding and competency in each of the following topics and techniques (thru in-class testing of each individual student independently):

- Discuss the principals of the basic types of machining processes.
- Identify and discuss careers in the machining industry.
- Identify and understand technical and personal skills needed for success in the machining field.
- Explain work safety practices used in the manufacturing environment.
- Describe proper housekeeping and lubrication for a machining environment.
- Explain and demonstrate Semi- Precision and Precision measurement procedures.
- Describe common types and purpose of cutting fluids.
- Define layout and explain its purpose.
- Identify common hand tools and describe their uses.
- Identify the various sawing machines and identify saw tooth geometry.
- Explain drilling, countersinking, reaming and treading processes.
- Demonstrate understanding of standardized thread systems and their designations.
- Calculate speeds and feeds for manufacturing processes.
- Explain and identify the principal operation of a lathe.
- Explain and identify the principal operation of a vertical milling machine.

- Identify various types of grinders and their capabilities.
- Explain the grinding wheel identification system.