MTT 1110

Division: Career and Technical Education
Department: Machine Tool Technology
Course: MTT 1110
Title: Machine Tool I
Catalog Description:

This course is for first semester students. It teaches the manufacture of metal parts using machine tool operations. Students learn the theoretical operations of the engine lathe, drill press, pedestal grinder, and vertical milling machine. The course includes lecture, discussion, and demonstrations.

General Education Requirements: N/A
Semesters Offered: TBA
Credit/Time Requirement: Credit: 5; Lecture: 5; Lab: 0
Clock/Hour Requirements: 75
Offered for Non-Credit: No
Prerequisites: None

Corequisites: MTT 1125

Justification:

This course teaches students the fundamentals approved by our program advisory committee and is comparable to UVSC MTT 1110.

Student Learning Outcomes:

Upon successful completion of this course, students should be able to:

- understand the theoretical background of basic machine tool technology
- understand the basic theory, operations, and setups on cut-off saws, engine lathes, drilling machines, and vertical milling machines.
- understand the basic cutting tool geometry for drilling tools, lathe tools, and vertical milling machines, including cutting tool speeds and feeds
- understand other related topics, such as layout operations, measuring tools and procedures, general safety, and related hand tool and bench operations
- explore the different career areas available in the machine tool and manufacturing industries.

Content:

Course objectives will be accomplished by providing students with learning experiences in the following subject areas:

- proper safety techniques
- sawing cut-off operations

- power hacksaws
- horizontal band machines
- pedestal and bench grinders
- engine lathe functions
- controls and maintenance
- speeds and feeds
- lathe cutting tools
- lathe tool holders
- center work and setups
- facing and turning operations
- measuring systems
- layout operations
- semi-precision measurement
- precision measurement
- cutting threads on lathe
- tap and die operations
- measuring threads
- vertical milling machines functions, controls, and operations
- vertical milling cutting tools
- speeds and feeds
- drilling machines
- drilling technology
- reaming and countersinking
- counterboring and spotfacing
- keyseat and dovetail milling
- direct and simple indexing
- shoulder turning
- chamfering and grooving
- cut-off operations
- knurling operations
- lathe filing and polishing
- taper turning operations
- taper measuring
- chucks and chucking operations
- lathe drilling operations
- hand tools and operations
- bench operations.

General Education Outcomes:

4) Retrieve, evaluate, interpret, and deliver information through a variety of traditional and electronic media. Students will research projects through the *Machinery Handbook*, Internet, and company-specific websites. Specifications on material structure, machineability, and other details for a given job will need to be identified, evaluated, and interpreted before being applied to production.

7) Apply scientific reasoning to a variety of contexts.

Through the machining process, students are required to assess problems for possible solutions. Students will be involved in planning, design, and application of concepts they have learned in order to arrive at a quality-controlled product. Students will need to apply these skills to specific projects in order to arrive at the most efficient solution.

Key Performance Indicators:

In class:

- Students demonstrate safety practices while working in the shop.
- The student's knowledge and skills are tested by the ability to complete assignments with a 75% minimum accumulated score.
- Written tests and quizzes are given on major subject areas with a 75% minimum accumulated score.

Following class:

- Upon completion of the course, competency will be demonstrated in subsequent courses and on projects.

Representative Text and/or Supplies:

- Kibbe, Neely, Meyer, White, *Machine Tool Practices,* current edition, Regents/Prentice Hall.

Optimum Class Size: 10
Maximum Class Size: 20

Signatures:

I hereby submit this course syllabus:

_____

, ,

I hereby find this course consistent with the goals and resources of the Machine Tool Technology Department:

_____

Alan Hart, AAS, Instructor, Chair

I hereby find this course consistent with the goals and resources of the Career and Technical Education Division:

_____

Michael P. Medley, MBA, Assistant Professor, Dean

I have discussed the need for library resources related to this class with the person submitting the syllabus:

_____

Lynn Anderson, MLIS, Technical Services Librarian (Main Campus)

_____

Michelle Olsen, MLS, Campus Librarian (Richfield Campus)