A. COURSE DESCRIPTION

Credits: 2  
Lecture Hours/Week: 0  
Lab Hours/Week: 0  
OJT Hours/Week: *.*  
Prerequisites: None  
Corequisites: None  
MnTC Goals: None

This course introduces students to the basics of operating a lathe and a milling machine. Students will learn essential machine and lab safety procedures, use of bench tools, layout tools, drill presses, precision measurement tools, and various hand tools related to the machine shop. Students will study the vertical milling machine and the horizontal lathe as well as their components and controls. They will gain an understanding of speeds and feeds, utilizing various tools and tool holders. They will identify basic tool geometry, and the use of standard lathe spindle tooling.

B. COURSE EFFECTIVE DATES: 08/20/2022 - Present

C. OUTLINE OF MAJOR CONTENT AREAS

1. Lab and personal safety (emphasis on ANSI Z87.1)  
2. Print reading, symbols, abbreviations  
3. Hand and layout tools specific to machining  
4. Mill processes/operation  
5. Lathe processes/operation  
6. Drill press/band saw/bench grinder operation  
7. Layout of class exercises  
8. Introduction to various materials; ferrous and non-ferrous  
9. Reading of specific measuring equipment; caliper, micrometer, and height gauge

D. LEARNING OUTCOMES (General)

1. demonstrate how to use a dial caliper and micrometer to measure parts.  
2. identify all major equipment in the machining lab.  
3. apply terminology, abbreviations, and symbols.  
4. demonstrate ability to read basic shop blueprints.  
5. identify proper tooling to machine the type of part required.  
6. identify equipment components and controls.  
7. determine speeds and feeds to perform specified operations.  
8. utilize basic operations on the lathe to within a specified tolerance.  
9. utilize basic operations on the milling machine to within a specified tolerance.  
10. describe and apply appropriate lab and safety practices.

E. Minnesota Transfer Curriculum Goal Area(s) and Competencies

None
F. LEARNER OUTCOMES ASSESSMENT
   As noted on course syllabus

G. SPECIAL INFORMATION
   None noted