A. COURSE DESCRIPTION

Credits: 3
Lecture Hours/Week: 1
Lab Hours/Week: 4
OJT Hours/Week: *.*

Prerequisites:
This course requires all 10 of these prerequisite categories
1. MACH 1601 - Introduction to Precision Machining
   And
2. MACH 1610 - Precision Measuring and Gauging
   And
3. MACH 1615 - Precision Machining Processes
   And
4. MACH 1625 - Engineering Drawings 2
   And
5. MACH 1630 - Introduction to CNC Theory
   And
6. MACH 1642 - CNC Operations 1
   And
7. MACH 1643 - CNC Operations 2
   And
8. MACH 1650 - Introduction to EDM
   And
9. One of these two
   CMAE 1510 - Print Reading
   MACH 1605 - Engineering Drawings 1
   And
10. One of these two
    MACH 1661 - Introduction to CAD/CAM
        MACH 1662 - Introduction to CAD/CAM + 3D Printing

Corequisites: None
MnTC Goals: None

This course will familiarize the student with the manufacturing of individual parts, and Tooling components using Precision Manual Machining, CNC Lathe, CNC Mill, & EDM Set-up and Operation. The Instructor will give each student several Machining Projects. Each student will manufacture the components to specifications, and complete inspection reports on all components. (Prerequisites: MACH1601, MACH1605 or CMAE1510, MACH1610, MACH1615, MACH1625, MACH1630, MACH1642, MACH1643, MACH1650, & MACH1661 or MACH1662 or equivalent) (3 Credits: 1 lecture/2 lab)

B. COURSE EFFECTIVE DATES: 01/27/2016 - Present
C. OUTLINE OF MAJOR CONTENT AREAS
   1. Safety and set-up for CNC Machines.
   2. Apply G & M code programming.
   3. Apply Conversational programming.
   5. Apply machining formulas & reference materials.
   6. Practice precision measuring and inspection methods.
   7. Develop 5-S program skills.

D. LEARNING OUTCOMES (General)
   1. Practice MN State College Southeast shop safety rules.
   2. Choose proper Personal Protective Equipment and attire for safety.
   3. Demonstrate an understanding of proper design theory for CNC machining applications to manufacture tooling.
   4. Apply basic and advanced machining processes to manufacture Machining Project components.
   5. Demonstrate proficiency in part set-up and edge pick-up processes.
   6. Use an inspection report to record all important dimensions, and Tolerances of machined parts.
   7. Practice 5-S procedures to clean the work area, and maintain machine lubrication.
   8. Improve time management skills to complete all assignments on time.

E. Minnesota Transfer Curriculum Goal Area(s) and Competencies
   None

F. LEARNER OUTCOMES ASSESSMENT
   As noted on course syllabus

G. SPECIAL INFORMATION
   None noted