MACH 2640: CNC Precision Machining Capstone

A. COURSE DESCRIPTION

Credits: 5
Lecture Hours/Week: 1
Lab Hours/Week: 8
OJT Hours/Week: *.*

Prerequisites:
This course requires all 13 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 1630 - Introduction to CNC Theory
   And
5. MACH 1642 - CNC Operations 1
   And
6. MACH 1643 - CNC Operations 2
   And
7. MACH 1650 - Introduction to EDM
   And
8. MACH 2633 - CNC Precision Machining Mill
   And
9. MACH 2635 - CNC Precision Machining Lathe
   And
10. MACH 2637 - CAM Programming and Toolmaking Application I
    And
11. MACH 2660 - Advanced CAD/CAM I
    And
12. One of these two
    MACH 1605 - Engineering Drawings 1
    CMAE 1510 - Print Reading
    And
13. One of these two
    MACH 1661 - Introduction to CAD/CAM
    MACH 1662 - Introduction to CAD/CAM + 3D Printing

Corequisites: None
MnTC Goals: None

In this course, students will be required to design and manufacture a machining project. Students will write a Capstone Summary Report that includes design prints, process, set-up, and CNC programming details supported by digital pictures. (Prerequisites: MACH1601, MACH1605, MACH1610, MACH1615, MACH1625, MACH1630, MACH1641, MACH1650, MACH1661, MACH2633, MACH2635, and MACH2660 or equivalent) (5 Credits: 1 lecture/4 lab)

B. COURSE EFFECTIVE DATES: 01/27/2016 - Present
C. OUTLINE OF MAJOR CONTENT AREAS
   1. Drafting and Design theory applied to project details
   2. Process development for manufacturing
   3. 2-D & 3-D model design
   4. Application of CAD/CAM
   5. Communications and presentation skills
   6. Practice 5-S program principles

D. LEARNING OUTCOMES (General)
   1. Practice Southeast Technical College shop safety rules
   2. Wear proper attire for safety
   3. Design and manufacture a machining project
   4. Use the lab time to support the capstone course project
   5. Write a capstone summary report that includes design prints, set-up, and CNC programming details supported by digital pictures
   6. Practice 5-S procedures to clean work area and maintain machine lubrication
   7. Complete all assignments

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

F. LEARNER OUTCOMES ASSESSMENT
   As noted on course syllabus

G. SPECIAL INFORMATION
   None noted