

Minnesota State College Southeast

MACH 1630: Introduction to CNC Theory

A. COURSE DESCRIPTION

Credits: 3

Lecture Hours/Week: 3

Lab Hours/Week: *.*

OJT Hours/Week: *.*

Prerequisites: None

Corequisites: None

MnTC Goals: None

This course will familiarize the student with the theory of CNC machining and set up. Students will write programs and examine programs on the various machines on the shop floor. Students will learn about all facets of programming mills, wire edm, and turning type machine tools. (Prerequisites: MACH1601, MACH1605, MACH1610, MACH1625, MACH1625, CPMT1632, CPMT1640 or equivalent) (3 Credits: 3 lecture/0 lab)

B. COURSE EFFECTIVE DATES: 01/27/2016 - Present

C. OUTLINE OF MAJOR CONTENT AREAS

1. CNC machine types
2. Coordinate geometry
3. Part program structure
4. Preparatory commands
5. Miscellaneous commands
6. Control panel

D. LEARNING OUTCOMES (General)

1. Demonstrate professionalism
2. Explain machine shop safety
3. Wear safety glasses & proper attire
4. Define G codes
5. Define conversational language
6. Define offset
7. Analyze program
8. Use reference books
9. Calculate speeds & feeds
10. Write programs
11. Define linear interpolation
12. Define circular interpolation
13. Define helical interpolation
14. Define canned cycles
15. Define diameter offset
16. Define tool offset
17. Define cutter compensation
18. Analyze offline programming
19. Define uploading
20. Define downloading
21. Define CNC media
22. Analyze machine tool screens
23. Define storage devices
24. Complete all assignments
25. Take final exam

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

None

F. LEARNER OUTCOMES ASSESSMENT

As noted on course syllabus

G. SPECIAL INFORMATION

None noted