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