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