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