

Minnesota State College Southeast

MACH 1601: Introduction to Precision Machining

A. COURSE DESCRIPTION

Credits: 4

Lecture Hours/Week: 2

Lab Hours/Week: 4

OJT Hours/Week: *.*

Prerequisites: None

Corequisites: None

MnTC Goals: None

This course covers the fundamental elements of basic machine shop theory that would be applied to shop applications. Students taking the course will be able to apply skills learned in the classroom to the lab where they will have hands on experience on basic machine shop equipment. Topics of study include safety, measuring parts to print, proper set up, speeds & feeds, and cutting tool usage. (Prerequisites: None) (4 Credits: 2 lecture/2 lab)

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

C. OUTLINE OF MAJOR CONTENT AREAS

1. Safety considerations
2. Setup for manual machines
3. Operation of manual machines
4. Calculate machining data
5. Metallurgy
6. Measure parts and compare to specifications

D. LEARNING OUTCOMES (General)

1. Demonstrate professionalism
2. Explain machine shop safety
3. Wear safety glasses & proper attire
4. Explain lathe operations
5. Explain grinding operations
6. Explain milling operations
7. Explain drilling operations
8. Explain sawing operations
9. Explain machine shop tooling
10. Explain blueprint document
11. Explain machine shop surface finishes
12. Explain metal materials
13. Understand metal types
14. Use reference books
15. Understand machine shop formulas
16. Calculate measurements
17. Calculate speeds and feeds
18. Calculate depth of cut
19. Identify steels
20. Saw parts
21. Set up tooling for machining
22. Set up job in machine tool
23. Use hand tools
24. Sharpen tools
25. Machine parts on engine lathe
26. Machine parts on milling machine
27. Machine parts on surface grinder
28. Machine hole types
29. Calculate measurements
30. Prepare measuring equipment
31. Demonstrate measuring tools
32. Use measuring tools
33. Measure parts to print
34. Keep tools clean
35. Maintain work area
36. Clean work area
37. Turn in assignments
38. Complete all assigned tasks or jobs
39. Complete 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