

Washtenaw Community College Comprehensive Report

MTT 111 Machine Shop Theory and Practice Effective Term: Fall 2015

Course Cover

Division: Advanced Technologies and Public Service Careers

Department: Industrial Technology

Discipline: Machine Tool Technology

Course Number: 111

Org Number: 14440

Full Course Title: Machine Shop Theory and Practice

Transcript Title: Mach Shop Ther&Prac

Is Consultation with other department(s) required: No

Publish in the Following: College Catalog , Time Schedule , Web Page

Reason for Submission: Course Change

Change Information:

Consultation with all departments affected by this course is required.

Course description

Pre-requisite, co-requisite, or enrollment restrictions

Outcomes/Assessment

Objectives/Evaluation

Rationale: MTT 111 is now part of a new certificate. Prerequisites as well as outcome and objective changes are required.

Proposed Start Semester: Fall 2015

Course Description: This course is a second level course in machine tool operation. Topics that will be covered include: safety, precision measurement, feeds and speeds, rotary tools and turning tools. In addition to the above, students will gain valuable "hands-on" experience learning advanced operations on the sawing machines, engine lathes, milling machines and grinding machines.

Course Credit Hours

Variable hours: No

Credits: 4

Lecture Hours: Instructor: 45 Student: 45

Lab: Instructor: 45 Student: 45

Clinical: Instructor: 0 Student: 0

Total Contact Hours: Instructor: 90 Student: 90

Repeatable for Credit: NO

Grading Methods: Letter Grades

Audit

Are lectures, labs, or clinicals offered as separate sections?: NO (same sections)

College-Level Reading and Writing

College-level Reading & Writing

College-Level Math

Level 2

Requisites

Prerequisite

MEC 101 minimum grade "C"; may enroll concurrently and

Prerequisite

MTT 102 minimum grade "C"

General Education

Request Course Transfer

Proposed For:

Student Learning Outcomes

1. Complete advanced set-up and machining processes on traditional lathes.

Assessment 1

Assessment Tool: Capstone Project to be machined in lab

Assessment Date: Fall 2015

Assessment Cycle: Each Semester

Course section(s)/other population: All

Number students to be assessed: All

How the assessment will be scored: Department Rubric

Standard of success to be used for this assessment: 75% of all students will achieve 75% or greater.

Who will score and analyze the data: department faculty

2. Complete advanced set-up and machining processes on traditional milling machines.

Assessment 1

Assessment Tool: Capstone Project to be machined in lab

Assessment Date: Fall 2015

Assessment Cycle: Each Semester

Course section(s)/other population: All

Number students to be assessed: All

How the assessment will be scored: Department Rubric

Standard of success to be used for this assessment: 75% of all students will receive 75% or greater.

Who will score and analyze the data: department faculty

3. Grind parts flat and to specified angles.

Assessment 1

Assessment Tool: Capstone Project to be machined in lab

Assessment Date: Fall 2015

Assessment Cycle: Each Semester

Course section(s)/other population: All

Number students to be assessed: All

How the assessment will be scored: Department Rubric

Standard of success to be used for this assessment: 75% of all students will achieve 75% or greater.

Who will score and analyze the data: department faculty

4. Accurately measure using precision measurement tools.

Assessment 1

Assessment Tool: Capstone Project to be machined in lab

Assessment Date: Fall 2015

Assessment Cycle: Each Semester

Course section(s)/other population: All

Number students to be assessed: All

How the assessment will be scored: Department Rubric

Standard of success to be used for this assessment: 75% of all students will

achieve 75% or greater.

Who will score and analyze the data: department faculty

Course Objectives

1. Recognize safe and unsafe practices in the shop.
Matched Outcomes
2. Pass seven safety quizzes before working on major projects.
Matched Outcomes
3. Identify the parts of a dial caliper.
Matched Outcomes
4. Measure using a dial caliper.
Matched Outcomes
5. Identify the parts of a vernier height gauge.
Matched Outcomes
6. Measure using a vernier height gauge.
Matched Outcomes
7. Identify the parts of a micrometer.
Matched Outcomes
8. Use an optical comparator.
Matched Outcomes
9. Use a combination square, bevel edge solid square, cylindrical square with dial test indicator, angle plates and surface gauge at the surface plates.
Matched Outcomes
10. Locate the center of a round feature at a vertical mill using a dial test indicator.
Matched Outcomes
11. Identify Taper, Plug, Bottom taps and their uses.
Matched Outcomes
12. Calculate the tap drill size for a given threaded hole.
Matched Outcomes
13. Use taps properly.
Matched Outcomes
14. Use dies properly.
Matched Outcomes
15. Mount the tools into the proper tool holders at the machine tools.
Matched Outcomes
16. Calculate the appropriate spindle speed for a given machining operation, tool type and part material.
Matched Outcomes
17. Calculate the appropriate feed rate for a given machining operation, tool type and part material.
Matched Outcomes
18. Operate the vertical milling machines safely.
Matched Outcomes
19. Operate the engine lathes safely.
Matched Outcomes
20. Demonstrate cutting operations using the engine lathes by machining their projects.
Matched Outcomes
21. Operate the manual surface grinders safely.
Matched Outcomes
22. Demonstrate trueing and dressing a grinding wheel at the surface grinder.
Matched Outcomes
23. Demonstrate surface grinding operations by surface grinding the top and bottom faces of a steel part.
Matched Outcomes
24. Measure parts using a micrometer.
Matched Outcomes
25. Center a round feature at the lathe using a dial test indicator.
Matched Outcomes

26. Grind angles and tapers to specification.

Matched Outcomes

27. Thread at the lathes.

Matched Outcomes

28. Bore at the lathe.

Matched Outcomes

29. Mill single and compound angles at the mill.

Matched Outcomes

30. Align the vise to the table and the head to table at a vertical mill.

Matched Outcomes

31. Set angles using gauge blocks and sine-bar.

Matched Outcomes

New Resources for Course

Course Textbooks/Resources

Textbooks

Manuals

Periodicals

Software

Equipment/Facilities

Level III classroom

Reviewer

Action

Date

Faculty Preparer:

Thomas Penird

Faculty Preparer

Feb 18, 2015

Department Chair/Area Director:

Thomas Penird

Recommend Approval

Feb 18, 2015

Dean:

Brandon Tucker

Recommend Approval

Feb 23, 2015

Vice President for Instruction:

Bill Abernethy

Approve

Mar 16, 2015