COURSE INFORMATION FORM

DISCIPLINE: CIMM
COURSE TITLE: Advanced Mill Operations

CR.HR. 4  LECT HR. 2.5  LAB HR. 3  CLIN/INTERN HR.  CLOCK HR. 

CATALOG DESCRIPTION
This course covers numerous topics in mill operation not covered by the basic courses. This will include CNC mill as well as manual mill. The course is designed for students in the machining and manufacturing careers.

PREREQUISITES
CIMM 122 or concurrent enrollment

EXPECTED STUDENT OUTCOMES IN THE COURSE (ESO)
Upon completion of this course, the student will be able to:
1. Perform all manual mill and CNC mill operations safely.
2. Perform thread milling on the CNC mill.
3. Write programs using G and M codes for common canned cycles.
4. Demonstrate the use of tool presetters.
5. Program and use pallet changes on the horizontal machine.
6. Use the “A” axis.
7. Perform multiple setups of varying types.
8. Demonstrate proficiency with all facets of the CNC mill control panel.
9. Demonstrate the use of the rotary table on the manual mill.
11. Use a Sine Bar in setting up angled portions of projects.
GENERAL EDUCATION OUTCOMES (ESO)
Specify which general education outcomes, if any, are substantially addressed by the course. Numbers in parentheses identify the Expected Student Outcomes linked to the specific General Education Outcome.

Outcomes ESO

PROGRAM-LEVEL OUTCOMES

CAREER AND TECHNICAL EDUCATION PROGRAM OUTCOMES
Specify which Career and Technical program outcomes, if any, are substantially addressed by the course by completing the “Career and Technical Education template” to show the relationship between course and program outcomes to assessment measures.

1. Students will demonstrate the ability to apply foundational skills in an industrial setting, safely and to industry guidelines.
2. Students will think critically and apply problem-solving skills.
3. The program will graduate individuals who exhibit competence in CNC programming, setup and operation.

CLASS-LEVEL ASSESSMENT MEASURES
Student accomplishment of expected student outcomes may be assessed using the following measures. (Identify which measures are used to assess which outcomes.)

1. Classroom discussion/Participation: (1 – 11)
2. Assignments/Labs: (1 – 11)
3. Written and Application Exam: (1 – 11)
COURSE OUTLINE FORM

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Individual instructors may order this outline as fits the needs of their individual courses. In addition, they may place more emphasis on some areas than on others. What is assured is that this particular list is covered in the course. Other topics may be added to a course as the instructor sees fit, and as time and interest allow. An *asterisk can be used to mark an item as optional.

I. Thread milling on the CNC mill

II. Program in G and M codes using CNC mill canned cycles
   A. Write programs
   B. Prove in programs
   C. Adjust tooling for wear

III. CNC Machine control panel use
    A. All mode functions
    B. All display keys
    C. Help modes for various functions
    D. On-screen calculators

IV. Tool presetters

V. Pallet changers

VI. Use of “A” axis

VII. Use of rotary table on manual mill

VIII. Use of boring head on manual mill

IX. Use of Sine Bar on various setups
    A. Include use of Sine Plate
    B. Work from tooling ball