COURSE INFORMATION FORM

DISCIPLINE  CIMM
COURSE TITLE  Manual Mill
CR.HR  3  LECT HR.  1.5  LAB HR.  3  CLIN/INTERN HR.  _______  CLOCK HR.  _______

CATALOG DESCRIPTION
The student will learn to select appropriate tooling, setup and safely operate a manual mill. This course is designed for students in machining and manufacturing careers.

PREREQUISITES
CIMM 100 with a C or better or concurrent enrollment

EXPECTED STUDENT OUTCOMES IN THE COURSE (ESO)
Upon completion of this course, the student will be able to:
1. Set up and safely operate a manual mill.
2. Demonstrate the ability to tram a mill head.
3. Calculate feeds and speeds for milling operations.
4. Select appropriate method and tools needed to align tooling used in milling machine operations.
5. Select appropriate cutting tools and coolant and set up and mill part to drawing specification.
6. Explain the process and square up a workpiece using face milling.
7. Drill holes to drawing specification.
8. Ream holes to drawing specification.
9. Use a digital readout to mill parts to specification.
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.

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 – 9)
2. Assignments/Labs: (1 – 9)
3. Written and Application Exam: (1 – 9)

Revised 12/9/13
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. Introduction to Vertical Milling Machine
   A. Safety
   B. Mill nomenclature

II. Tools and toolholding
   A. Introduction
   B. Proper selection
   C. Tool and workholding

III. Vertical milling machine operations
   A. Tramming
   B. Aligning workholding devices
   C. Speeds and feeds
   D. Holemaking
   E. Milling basics
   F. Squaring a block
   G. Angular milling
   H. Milling a radius
   I. Milling a slot
   J. Pocket milling