South Central College

CIM 1104  Vertical Milling I

Common Course Outline

Course Information

Description  This course is an application of the milling and drilling components discussed in the introductory machine tool theory course. Proper set-up, operation, and safety of the manual mill and drill press will be introduced in a lab setting. (Prerequisites: Declare CIM as a major)

Total Credits  2.00
Total Hours  64.00

Types of Instruction

Instruction Type

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<th>Lab</th>
<th>Credits/Hours</th>
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Pre/Corequisites

Prerequisite  Declare CIM as a major.

Institutional Core Competencies

Analysis and inquiry: Students will demonstrate an ability to analyze information from multiple sources and to raise pertinent questions regarding that information.

Critical and creative thinking: Students will develop the disposition and skills to strategize, gather, organize, create, refine, analyze, and evaluate the credibility of relevant information and ideas.

Foundations and skills for lifelong learning: Students will display an understanding of learning as a lifelong process through demonstration of a desire to learn, the willingness to apply learning to other areas of their lives, the ability to think and act independently, be willing to take the initiative to get projects done, and demonstrate the ability to reflect upon what has occurred and how it impacts the student and others.

Teamwork and problem-solving: Students will demonstrate the ability to work together cohesively with diverse groups of persons, including working as a group to resolve any issues that arise.

Course Competencies

1  Identify the components of the vertical milling machine.

   Learning Objectives
   Label the parts of the mill.
   Describe the functions of elements of the mill.

2  Utilize precision measurement hand tools.
Learning Objectives
Explain precision measurement hand tools.
Use precision fixed gages.
Characterize Vernier measuring tools.
Use micrometers.

3 **Perform Speed and Feed operations.**

Learning Objectives
Calculate proper Speeds and Feeds.
Adjust Speeds and Feeds according to cutting conditions.

4 **Exhibit deburring skills.**

Learning Objectives
Inspect quality of finished part to determine if burrs are present.
Identify tools that can be used for deburring.
Select proper tool for deburring.

5 **Develop workholding skills.**

Learning Objectives
Explain fixturing.
Identify types of clamping methods.
Explain applications of a mill vise.

6 **Perform machine maintenance.**

Learning Objectives
Describe the importance of routine mill maintenance.
Identify components of mill that need to be checked regularly.
Explain steps to be taken to inspect mill after use.

7 **Create parts on the mill.**

Learning Objectives
Perform a variety of mill operations.
Utilize prints to make associated parts.

8 **Exhibit safety practices specific to mill use.**

Learning Objectives
Identify unsafe practices in milling operations.
Use caution in all aspects of milling machine use.

**SCC Accessibility Statement**

If you have a disability and need accommodations to participate in the course activities, please contact your instructor as soon as possible. This information will be made available in an alternative format, such as Braille, large print, or cassette tape, upon request. If you wish to contact the college ADA Coordinator, call that office at 507-389-7222.

Disabilities page [http://southcentral.edu/academic-policies/disability-rights.html](http://southcentral.edu/academic-policies/disability-rights.html)