South Central College

CIM 1106  Machine Tool Theory I

Common Course Outline

Course Information

Description  This course provides an exploration of the basics in machining, raw materials, use of hand tools, safety and maintenance. A basic foundational knowledge regarding lathe, milling, grinding, and drill press is also established. Teamwork, critical thinking, and problem solving are emphasized. Hands-on experience and practical applications are included. (Prerequisite: Declare CIM as a major)

<table>
<thead>
<tr>
<th>Total Credits</th>
<th>2.00</th>
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<td>Total Hours</td>
<td>48.00</td>
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Types of Instruction

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<tr>
<th>Instruction Type</th>
<th>Credits/Hours</th>
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<tbody>
<tr>
<td>Lecture</td>
<td>1/16</td>
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<tr>
<td>Lab</td>
<td>1/32</td>
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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.

Written and oral communication: Students will communicate effectively in a range of social, academic, and professional contexts using a variety of means, including written, oral, numeric/quantitative, graphic, and visual modes of communication.

Course Competencies
1 **Explore shop floor layout.**
   - Learning Objectives
   - Explain general shop layout.
   - Differentiate Conventional Machinist, Programmer, CNC Machinist.
   - Discuss housekeeping standards in shop.

2 **Identify safety elements in shop.**
   - Learning Objectives
   - Explain key safety terms.
   - Locate Personal Protective Equipment (PPE).
   - Use PPE, guards, and barriers as appropriate.
   - Describe lockout/tagout.

3 **Recognize major machine tools.**
   - Learning Objectives
   - Explain basic machine differences.
   - Identify multiple hand tools.
   - Identify lathe and milling machines.
   - Identify types of drills and insert tooling.

4 **Explain semi-precision measurement tools.**
   - Learning Objectives
   - Define key measurement terms.
   - Identify calipers, adjustable squares, and fixed gages.

5 **Discuss maintenance schedules.**
   - Learning Objectives
   - Communicate lubrication needs.
   - Use cutting fluids.
   - Demonstrate measurement of cutting fluid techniques.
   - Explain methods of application.

6 **Define clamping and workholding methods.**
   - Learning Objectives
   - Explain fixturing.
   - Identify types of clamping.
   - Explore uses of a variety of clamps.

7 **Practice basic semi-precision layout, precision layout, and drill press.**
   - Learning Objectives
   - Use a variety of machines in basic functions.
   - Demonstrate basic tool use, machine use, and maintenance of machines.

**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)