Common Course Outline

Course Information

Description
This course will provide an introduction and explanation on the basic features and uses of jigs and fixtures. Additionally, students will identify essential application of jigs and fixtures, having a chance to practice in the lab. (Prerequisites: CIM 1206 - Machine Tool Theory II)

Total Credits 2.00

Types of Instruction

<table>
<thead>
<tr>
<th>Instruction Type</th>
<th>Credits/Hours</th>
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<tbody>
<tr>
<td>Lab</td>
<td>1</td>
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<tr>
<td>Lecture</td>
<td>1</td>
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</tbody>
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Pre/Corequisites

Prerequisite CIM 1206 - Machine Tool Theory II

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. Discuss the purpose and functions of jigs and fixtures.

Learning Objectives
List the objectives of tool design.
Identify the source of specified design data.

2 **Identify types of functions of jigs and fixtures.**

Learning Objectives
Differentiate types of jigs and fixtures.
Describe the different styles of jigs and fixtures.
Identify applications of specific jigs and fixtures.

3 **Describe supporting and location principles.**

Learning Objectives
Identify the types of locators and supports used in jigs and fixtures.
Specify the use of locators and supports.

4 **Discuss clamping and workholding principles.**

Learning Objectives
Explain the basic principles of work holders.
Identify the types of workholding devices.

5 **Discuss basic construction principles of jigs and fixtures.**

Learning Objectives
Identify various drill bushings.
Discuss the proper placement and clearance for drill bushings.
Identify common jig and fixture hardware.

6 **Discuss design economics.**

Learning Objectives
Identify the principles of design economy.
Complete an economic analysis of a tool design.

7 **Explain how to develop an initial design.**

Learning Objectives
Discuss how designs for jigs and fixtures are planned.
Discuss human factors involved in tool design.
Identify safety factors related to tool design.

8 **Discuss jig and fixture tool drawings.**

Learning Objectives
Identify types of tool drawings.
Discuss methods to simplify tool drawings.
Identify dimensional forms.

9 **Create template jigs.**

Learning Objectives
Specify locating and supporting methods to suit a sample part.
Complete a tool drawing of a proposed tool.

10 **Explain power work holding.**

Learning Objectives
Identify the major elements of a power work holding system.
Discuss the basic actions of a power work holding system.
Discuss the primary advantages of a power work holding systems.

**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)