South Central College

CIM 1102  CNC Programming I

Common Course Outline

Course Information

Description
This course covers creation and editing of basic computer control programs, incorporating knowledge of G&M codes and hands-on control functions. Application lab time is allocated for students to practice basic computer control programs for machining.  
(Prerequisites: Declare CIM as a major)

Total Credits  3.00
Total Hours  80.00

Types of Instruction

Instruction Type | Credits/Hours
--- | ---
Lab | 2/64
Lecture | 1/16

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.

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.

Course Competencies

1  Practice CNC machine safety.
   Learning Objectives
   List CNC safety practices.
   Perform machine clean-up.

2  Write a basic mill and lathe program.
   Learning Objectives
   Describe the purpose of G&M codes.
   Demonstrate proper program structure.
3  **Utilize proper coordinate and positioning systems.**
   Learning Objectives
   Describe Cartesian Coordinate System and Polar Coordinate System.
   Describe absolute and incremental positioning and the benefits of each.

4  **Operate CNC controls.**
   Learning Objectives
   Identify functions of CNC machine keys.
   Select program needed for part.
   Perform basic start-up processes.
   Determine necessary maintenance during CNC operation.
   Explain axis movements.

5  **Execute program prove-out procedures.**
   Learning Objectives
   Create a program to practice prove-out.
   Run graphical simulation.

6  **Developed canned cycles.**
   Learning Objectives
   Create different types of drilling cycles.
   Identify proper code for tapping and threading cycles.

7  **Create offsets for use in part program.**
   Learning Objectives
   Locate part program origin.
   Identify tool length offset.

8  **Identify tooling components.**
   Learning Objectives
   Describe tool-holding methods.
   Define uses for various machining tools.
   Explain various kinds of tools and tool materials.

9  **Differentiate between work-holding fixtures.**
   Learning Objectives
   Select appropriate work-holding fixture for a track.
   Define a variety of work-holding fixtures.

**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)