CNC MILLING PROGRAMMING
Course Syllabus

Course Number: NCMT-1694  
OHLAP Credit: No
OCAS Code: None
Course Length: 60 Hours
Career Cluster: Manufacturing
Career Pathway: Production
Career Major(s): Certified Machine Technician

Pre-requisite(s):

Course Description: After completing this unit, the student should have these capabilities: Identify basic G- and M-codes used for CNC milling; define and explain linear interpolation for CNC milling; define and explain circular interpolation for CNC milling; describe facing operations for CNC milling; describe CNC rough milling operations; describe CNC finish milling operations; describe threading operations for CNC milling machines; describe tapping operations for CNC milling machines; describe various canned cycles for CNC milling applications; define and explain the principles of cutter radius compensation (CRC) for CNC milling.


Course Objectives: A. Identify Basic G- and M- Codes Used for CNC Milling.
   1. Discuss basic axes-motion and axes non-motion commands.
   2. Discuss G & M code list and their functions.
   3. State tool change commands.
   4. Discuss safe start commands.

B. Define and Explain Linear Interpolation for CNC Milling.
   1. Discuss linear interpolation for turning.
   2. State appropriate commands for complimenting linear interpolation.
   3. Discuss modal commands.

C. Define and Explain Circular Interpolation for CNC Milling.
   1. Discuss circular interpolation for turning.
   2. State appropriate commands to compliment circular interpolation.
   3. Explain the arc center method for circular interpolation.
   4. Explain the radius method for circular interpolation.

Teaching Methods: The class will primarily be taught by the lecture and demonstration method and supported by various media materials to address various learning styles. There will be question and answer sessions over material covered in lecture and media presentations. Supervised lab time is provided for students to complete required projects.
Grading Procedures:

1. Students are graded on theory and shop practice and performance.
2. Each course must be passed with seventy (70%) percent or better.
3. Grading scale: A=90-100%, B=80-89%, C=70-79%, D=60-69%, F=50-59%.

Description of Classroom, Laboratories, and Equipment:

Tulsa Technology Center campuses are owned and operated by Tulsa Technology Center School District No. 18. All programs provide students the opportunity to work with professionally certified instructors in modern, well-equipped facilities.

Available Certifications/College Credit:

The student may be eligible to take state, national or industry exam after completion of the program. College credit may be issued from Oklahoma State University-Okmulgee or Tulsa Community College. See program counselor for additional information.

College Credit Eligibility:

The student must maintain a grade point average of 2.0 or better.