CNC TURNING PROGRAMMING
Course Syllabus

Course Number: NCMT-1691  
OHLAP Credit: No
OCAS Code: None
Course Length: 65 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 be able to demonstrate these skills: identification of basic G- and M-codes used for CNC turning; defining and explaining linear interpolation for CNC turning; defining and explaining circular interpolation for CNC turning; describing radial and diametral programming; describing facing operations for CNC turning; describing CNC rough turning operations; describing CNC finish turning operations; describing threading operations for CNC turning machines; describing tapping operations for CNC turning machines; describing various canned cycles for CNC turning applications; defining and explaining the principles of tool nose radius compensation (TNRC) for CNC turning.


Course Objectives:

A. Identify basic G- and M-codes used for CNC turning.
   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 turning.
   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 turning.
   1. Discuss circular interpolation for turning.
   2. State appropriate commands to compliment circular interpolation.

D. Describe radial and diametral programming.
   1. Discuss the difference between radial and diametral programming.
   2. Discuss calculations for radial programming

ODCTE/NIMS objectives
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.