



South Central College

MTT 2220 CNC Programming III

Course Outcome Summary

Course Information

Description	This course provides students with continuing opportunities to work with CNC programming, building on what was learned in the previous programming course. Additional material includes alternative work holding and advanced tooling set-up and operation for production of an advanced project. (Prerequisite: MTT 2120).
Total Credits	4
Total Hours	96

Types of Instruction

Instruction Type	Credits/Hours
Lecture	2/32
Lab	2/64

Pre/Corequisites

MTT 2120

Institutional Core Competencies

Communication - Students will be able to demonstrate appropriate and effective interactions with others to achieve their personal, academic, and professional objectives.

Critical and Creative Thinking - Students will be able to demonstrate purposeful thinking with the goal of using a creative process for developing and building upon ideas and/or the goal of using a critical process for the analyzing and evaluating of ideas.

Course Competencies

1. Demonstrate proper coolant maintenance

Learning Objectives

- Describe how to check coolant viscosity
- Describe how to top up or top down coolant viscosity

2. Demonstrate ability to initiate machine maintenance

Learning Objectives

- Demonstrate checking oil level
- Demonstrate checking air pressure

Describe proper air pressure for CNC lathe collet or CNC lathe chuck

3. Discuss program stop

Learning Objectives

Use feed hold

Describe emergency stop

4. Describe program override

Learning Objectives

Use spindle override

Use feedrate override

5. Describe fourth axis

Learning Objectives

Describe fourth axis

Demonstrate fourth axis setup

6. Demonstrate indicating part

Learning Objectives

Demonstrate indicating part for flatness

Demonstrate indicating a diameter

7. Demonstrate proper tool holder use

Learning Objectives

Explain tool holder taper

Explain the different collet tapers

8. Identify different types of cutters

Learning Objectives

Use carbide endmills

Use roughing endmills

Use carbide inserted tooling

9. Utilize mid-program start

Learning Objectives

Describe mid-program start

Discuss setting parameters for mid-program start

10. Develop CNC code with Mastercam

Learning Objectives

Describe NC code format

Describe NC upload and editing of program

11. Demonstrate CNC programming of 2-dimension toolpaths

Learning Objectives

Use 2d high speed toolpaths

Use circle toolpaths (C-Mill, Slot Mill, Helix Bore)

12. Demonstrate CNC programming of 3-dimension toolpaths

Learning Objectives

Use surface rough and finish toolpaths

Use surface high speed toolpaths

SCC Accessibility Statement

South Central College strives to make all learning experiences as accessible as possible. If you have a disability and need accommodations for access to this class, contact the Academic Support Center to request

and discuss accommodations. North Mankato: Room B-132, (507) 389-7222; Faribault: Room A-116, (507) 332-7222.

Additional information and forms can be found at: www.southcentral.edu/disability

This material can be made available in alternative formats by contacting the Academic Support Center at 507-389-7222.