



South Central College

MTT 2120 CNC Programming II

Course Outcome Summary

Course Information

Description	This course provides students with continuing opportunities to work with computer numerical control (CNC) programming, building on what was learned in the previous programming course. Topics include lathe programming, program downloading, editing and advanced set-ups and operations. (Prerequisite: MTT 1220).
Total Credits	4
Total Hours	96

Types of Instruction

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

Pre/Corequisites

MTT 1220

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. Create an advanced G&M code program

Learning Objectives

- Use lathe "M" codes
- Use lathe "G" codes

2. Demonstrate tapping process

Learning Objectives

- Demonstrate rigid tapping operation
- Demonstrate float tapping

3. Demonstrate the control memory operation

Learning Objectives

Choose upload programs
Choose download programs

4. Explain machine controls

Learning Objectives

Identify length offsets
Identify diameter offsets

5. Use advanced setup of Work Coordinate System (WCS) and tools in mill and lathe

Learning Objectives

Utilize advanced setup in lathe with tooling
Demonstrate work shift of program for multiple parts on fixture plate

6. Create a computer folder for file management

Learning Objectives

Demonstrate file management
Create folders with organized labeling

7. Execute use of machine axis

Learning Objectives

Demonstrate 2-axis cutting
Describe 4-axis cutting

8. Demonstrate lathe graphing

Learning Objectives

Explain lathe dry run
Explain simulate program

9. Explain ways to break an edge

Learning Objectives

Use auto chamfer
Discuss different tooling to make chamfers

10. Explain tooling holders

Learning Objectives

Use Cat-40 taper holders and collet systems
Identify insertable tool holders and their uses

11. Program 2-dimension geometry with Mastercam

Learning Objectives

Use contouring and drilling tool paths
Use pocketing and high speed toolpaths
Create 3-dimension geometry

12. Identify different types of cutting tools

Learning Objectives

Use end mills (flat, bull nose and ball nose)
Use corner rounding and chamfer tools
Use various types of drills

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.