



South Central College

MTT 1210 Concept Engineering I

Course Outcome Summary

Course Information

Description	In this course, students will continue developing their understanding of machining and use of tools. Their skills are more fully developed in terms of lathe, milling, grinding and drill press. Hands-on experience and practical application opportunities allow students to increase proficiency with machine tools. (Prerequisites: MTT 1130 and MTT 1140)
Total Credits	4
Total Hours	96

Types of Instruction

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

Pre/Corequisites

MTT 1130 and MTT 1140

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. Exhibit safe practices in the shop

Learning Objectives

- Demonstrate use of Personal Protective Equipment (PPE)
- Adapt PPE as needed
- Explain OSHA guidelines and apply to shop situations

2. Explain a variety of symbols and notations used on machining prints

Learning Objectives

Identify different nomenclature of engineering drawings
Differentiate between symbols and notations and their meaning

3. Interpret usage of tolerances

Learning Objectives

Compare bilateral and unilateral tolerances
Identify limit tolerances
Formulate appropriate application of Maximum Material Condition (MMC)

4. Use planning methods that ensure quality

Learning Objectives

Calculate average and standard deviation
Utilize sampling and inspection plans to check quality

5. Explain major machine tools

Learning Objectives

Discuss the different uses for machines
Differentiate hand tools
Identify proper use for lathe, mill, drills and tooling

6. Demonstrate precision layout

Learning Objectives

Use height gage as needed
Demonstrate the use of the precision angular and vernier bevel protractor
Use sine tools

7. Demonstrate clamping and workholding skills

Learning Objectives

Differentiate between C-clamp, parallel clamp and hinged clamp
Select appropriate clamp or workholding for a given task
Use clamps and workholding fixtures

8. Identify pedestal grinder parts

Learning Objectives

Label basic components of the pedestal grinder
Identify major safety components of the pedestal grinder

9. Identify surface grinder parts

Learning Objectives

Label basic components of the surface grinder
Identify safety features and guards on the surface grinder

10. Demonstrate dres

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 Faribault: Far