

# Machine Operations

Diploma (D184)

## Required Courses

CMAE 1528	Career Success Skills .....	1 cr
MATH 1500	Applied Mathematics .....	3 cr
MTTS 1110	Principles of Machine Operations I .....	2 cr
MTTS 1111*	Principles of Machine Operations II .....	2 cr
MTTS 1120	Machine Operations I .....	3 cr
MTTS 1121	Machine Operations II .....	3 cr
MTTS 1122*	Machine Operations III .....	3 cr
MTTS 1124	Introduction to Engineering Graphics .....	2 cr
MTTS 1130	Print Reading .....	2 cr
MTTS 1131*	Print Applications .....	2 cr
MTTS 1134*	CNC Operations .....	3 cr
MTTS 1135	CNC Programming and Process Planning .....	2 cr
MTTS 1140	CAD/CAM I.....	2 cr
RAST 1109	Computers in Industry.....	2 cr

\*Denotes Prerequisites

### GRADUATION REQUIREMENT - 32 CREDITS

## Description

The Machine Operations Diploma program at Central Lakes College provides a comprehensive foundation to get you started as a technician suited to work in any industrial plant where precision, efficiency, and safety are valued. You will learn skills in electronics, mechanical systems, and troubleshooting to become qualified to repair and maintain computerized equipment. Instruction takes place in a state-of-the-art shop for a hands-on, practical experience. The diploma you earn from CLC will signify your competency is skills necessary for multiple career opportunities.

## Outcomes

By completing this program, students will achieve the following learning outcomes:

- Select correct testing equipment for troubleshooting machine malfunctions;
- Use and understand preventive maintenance procedures;
- Use and understand predictive maintenance procedures;
- Troubleshoot complex electrical control circuits and devices, and;
- Troubleshoot complex mechanical systems.

## Pre-Program Requirements

Some courses may require students to meet College Placement Levels in reading, writing, and/or math. See an advisor for more information.

For insurance purposes, internships may require that students be 18 years old.

## Graduation Requirements

In addition to the program requirements, students must meet the following conditions in order to graduate:

- College Cumulative GPA Requirement: cumulative grade point average (GPA) of credits attempted and completed at CLC must be at least 2.0;
- College Technical Core GPA Requirement: cumulative GPA of credits attempted and completed towards the technical core of the diploma or degree must be at least 2.0;
- Residency Requirement: students must complete 25% of their credits at Central Lakes College.

## Career & Transfer

Machine operators clean, oil, and maintain machine tools, in addition to repairing and constructing new parts for existing machinery. Skilled machine operators are needed to keep the complex industrial machinery of today's manufacturing facilities running smoothly. Their work keeps factories productive, ensuring the high quality of the final product and the safety of machine operators. The machine operator is often responsible for performing entry-level to complex troubleshooting and repair techniques on manufacturing equipment and electrical/electronic or mechanical systems. As a technician you will be responsible for analyzing, troubleshooting, maintaining, and repairing equipment. To advance in this career, machine operators must gain proficiency with basic mechanical/hydraulic and pneumatic concepts related to machine tools.

## Academic Plan

### Semester One (16 credits)

CMAE 1528 Career Success Skills.....1 cr

#### OR Substitute with

RAST 1110 Intro to Manufacturing.....2 cr

MATH 1500 Applied Mathematics .....3 cr

MTTS 1110 Principles of Machine Operations I.....2 cr

MTTS 1120 Machine Operations I.....3 cr

MTTS 1121 Machine Operations II.....3 cr

MTTS 1130 Print Reading.....2 cr

RAST 1109 Computers in Industry.....2 cr

### Semester Two (16 credits)

MTTS 1111\* Principles of Machine Operations II .....2 cr

MTTS 1122\* Machine Operations III.....3 cr

MTTS 1124 Introduction to Engineering Graphics .....2 cr

MTTS 1131\* Print Applications.....2 cr

MTTS 1134\* CNC Operations.....3 cr

MTTS 1135 CNC Programming and

Process Planning.....2 cr

MTTS 1140 CAD/CAM I .....2 cr