Central Lakes College, Staples Campus 2024-2025

Mechatronics

Diploma (D241)

Total Credits 40

Required Courses

MATH 1500	Applied Mathematics (or higher)	3 cr
MTTS 1264	Introduction to Machining Processes	2 cr
RAST 1101*	Industrial Electronics I	3 cr
RAST 1102*	Industrial Electronics II	3 cr
RAST 1103*	Motors and Drives	3 cr
RAST 1104	Introduction to Automation	2 cr
RAST 1109	Computers in Industry	2 cr
RAST 1110	Intro to Manufacturing	2 cr
RAST 1111	Industrial Electronics Lab I	2 cr
RAST 1113*	Motors and Drives Lab	3 cr
RAST 1120	Introduction to Engineering Graphics	2 cr
RAST 1206*	Programmable Logic Controllers I	3 cr
RAST 1212*	Industrial Electronics Lab II	2 cr
RAST 2105*	Transducers	2 cr
RAST 2106*	Industrial Electronics III	2 cr
RAST 2116*	Industrial Electronics Lab III	2 cr
RAST 2165*	Fluid Power	2 cr

**Denotes Prerequisites*

GRADUATION REQUIREMENT - 40 CREDITS

Description

The Mechatronics Diploma program prepares students for careers in electrical maintenance for the manufacturing industry. As manufacturing processes increasingly become more advanced, maintenance employees must understand robotic and automated systems to properly maintain industrial equipment. Students are introduced to the same robots, controllers, and programming languages used by manufacturing companies. The curriculum was created and is maintained by experienced technical faculty, advisory board members, and past graduates to best prepare students for employment in the industrial robotics industry.

Outcomes

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

- Identify and apply appropriate safety procedures;
- Apply knowledge and skills in electrical systems;
- Apply knowledge and skills in mechanical systems;
- Apply knowledge and skills in creating program code;
- Analyze and apply specific troubleshooting knowledge and technology in the areas of electrical, mechanical, software, and program code; and
- Apply effective communication and interpersonal skills as an individual and as a team member.

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

This program prepares students for career opportunities working for maintenance departments in the manufacturing industry. Career opportunities include maintaining electrical systems, electrical control panel building, and machine wiring. Career titles include Electrical Maintenance Technician, Panel Builder, and Electrical Assembler.

Courses in this program will transfer into the Robotics Automated Systems Technology A.A.S. Degree and Diploma programs at Central Lakes College.

Academic Plan

Semester One (15 credits)

MTTS 1264	Introduction to Machining Processes	2 cr
RAST 1101*	Industrial Electronics I	3 cr
RAST 1104	Introduction to Automation	2 cr
RAST 1109	Computers in Industry	2 cr
RAST 1110	Intro to Manufacturing	2 cr
RAST 1111	Industrial Electronics Lab I	2 cr
RAST 1120	Introduction to Engineering Graphics	2 cr

Semester Two (17 credits)

RAST 1102*	Industrial Electronics II	3 cr
RAST 1103*	Motors and Drives	3 cr
RAST 1113*	Motors & Drives Lab	3 cr
RAST 1206*	Programmable Logic Controllers I	3 cr
RAST 1212*	Industrial Electronics Lab II	2 cr
MATH 1500	Applied Mathematics (or higher)	3 cr

Semester Three (8 credits)

RAST 2105*	Transducers	2 cr
RAST 2106*	Industrial Electronics III	2 cr
RAST 2116*	Industrial Electronics Lab III	2 cr
RAST 2165*	Fluid Power	2 cr

Website: http://www.clcmn.edu **Email:** askclc@clcmn.edu **Phone:** 800-933-0346

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