MINNESOTA WEST COMMUNITY & TECHNICAL COLLEGE
COURSE OUTLINE

DEPT. MECH **COURSE NUMBER: 1135**

NUMBER OF CREDITS: 3 **Lecture: 1 Lab: 2 OJT: 0**

Course Title:
Electrical Controls II

Catalog Description:
Electrical Controls II includes the control of electromechanical devices, AC and DC motors, solid state control devices, electrical schematics used to interpret logic and circuit function. Students will design, wire, and troubleshoot electromechanical and motor starter circuits using common industrial devices and components and analyze electrical control circuits used in industrial environments.

Prerequisites or Necessary Entry Skills/Knowledge:
None

FULFILLS MN TRANSFER CURRICULUM AREA(S) ***(Leave blank if not applicable)***

☐Goal 1: Communication: By meeting the following competencies:
☐Goal 2: Critical Thinking: By meeting the following competencies:
☐Goal 3: Natural Sciences: By meeting the following competencies:
☐Goal 4: Mathematics/Logical Reasoning: By meeting the following competencies:
☐Goal 5: History and the Social and Behavioral Sciences: By meeting the following competencies:
☐Goal 6: The Humanities and Fine Arts: By meeting the following competencies:
☐Goal 7: Human Diversity: By meeting the following competencies:
☐Goal 8: Global Perspective: By meeting the following competencies:
☐Goal 9: Ethical and Civic Responsibility: By meeting the following competencies:
☐Goal 10: People and the Environment: By meeting the following competencies:

Topics to be Covered
Electrical calculations.
Symbols and diagrams.
Test instruments.
Electrical safety.
Control logic.
Input and output control devices.
AC and DC circuits and components.
AC and DC motors.

Motor starter circuits.
Solid State motor drives.
Proximity sensors.
Photo-electric sensors.

Student Learning Outcomes
Identify and control potential safety hazards and implement safe working practices.
Design, connect, and operate electrical control circuits.
Interpret electrical logic functions.
Identify and wire solid state NPN/PNP sensor control circuits.
Design magnetic motor starter control and power circuits.
Analyze motor types and motor starter circuits.
Troubleshoot and perform circuit measurements using test Instruments.

Is this course part of a transfer pathway: Yes ☐ No ☒
***If yes, please list the competencies below**

Revised Date: 1/26/2022