Faculty members are required to have the outline submitted to the Academic Affairs Office. The course outline is the form used for approval of new courses by the Academic Affairs and Standards Council.

**DEPT. MECH COURSE NUMBER: 1135**

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

<table>
<thead>
<tr>
<th>Course Title:</th>
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<tr>
<td>Electrical Controls II</td>
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<tr>
<th>Catalog Description:</th>
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<td>This course 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.</td>
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**FULFILLS MN TRANSFER CURRICULUM AREA(S)**

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:

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<tr>
<th>Prerequisites or Necessary Entry Skills/Knowledge:</th>
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<td>None</td>
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# Topics to be Covered

1. Electrical calculations.
2. Symbols and diagrams.
3. Test instruments.
4. Electrical safety.
5. Control logic.
6. Input and output control devices.
7. AC and DC circuits and components.
8. AC and DC motors.
11. Proximity sensors.
12. Photo-electric sensors.

# Student Learning Outcomes

1. Identify and control potential safety hazards and implement safe working practices.
2. Design, connect, and operate electrical control circuits.
3. Interpret electrical logic functions.
4. Identify and wire solid state NPN/PNP sensor control circuits.
5. Design magnetic motor starter control and power circuits.
6. Analyze motor types and motor starter circuits.
7. Troubleshoot and perform circuit measurements using test instruments.

| Is this course part of a transfer pathway: | Yes ☐ No ☒ |

Revised Date: 05/2020