**Course Title:** Electrical/Mechanical Tools, Equipment and Systems  
**Submitted By:** SRN  
**Semester Course Prefix and Number:** ECM 1276  
**Approval Date:** 11/12/2019  
**Old Quarter Course Prefix and Number:**  
**Revision Date:** 10/22/2019  
**Number of Credits:** 3  
**Number of Lecture Credits:** 1  
**Number of Lab Credits:** 2  
**Number of Lab Hours:** 4  
**Number of Studio/Demonstration/Internship Credits:** 4  
**Semester(s) Offered:** Fall  
**Class Size:** 24  
**Negotiated by AASC on:** (date)

### Course Purpose Code:
- 0 – Developmental Courses  
- 1 – Non-transferable  
- x 2 – Technical course related to career programs  
- 3 – College course which has the primary goal of applying certain concepts (e.g. vocal ensemble)  
- 4 – Other college course not considered a part of MNTC (e.g. computer science, health, physical education)  
- 5 – Course which is intended to fulfill the Minnesota Transfer Curriculum (MNTC) requirements or intended for transfer.  
- 6 – Continuing Education/Customized Training specialized credit course (not occurring in 0-5)

### Catalog Description:
The course is a hybrid/blended course with the majority of the learning environment traditional in-class lectures and hands on lab work but also includes Web-based learning activities to complement face-to-face work. This course is designed to familiarize the student with tools, materials, and procedures used in the installation and maintenance of electrical systems and equipment. Instruction includes the safe and proper usage of specialized tools and test equipment used in electrical work. The student will gain a working knowledge of the specifications, application, and standards related to materials used in electrical distribution. The course examines the mechanical applications and procedures used in the installation of electrical equipment and systems.

### Prerequisites and/or recommended entry skills/knowledge:
- **Course Prerequisite(s):** None  
- **Reading Prerequisite:** None  
- **Composition Prerequisite:** None  
- **Mathematics Prerequisite:** None

### Career Programs and Transfer Majors Accessing this Course:
- Electrical Controls and Maintenance Diploma  
- Electrical Controls and Maintenance AAS

### Minnesota Transfer Curriculum Goal(s) partially met by this course if applicable:
(Notes: No more than two goals may be met by any one course. AASC review and the Chief Academic Officer's approval are required.)

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<tr>
<th>Goal Code</th>
<th>Goal Description</th>
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<tr>
<td>0. x</td>
<td>None</td>
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<tr>
<td>1.</td>
<td>Communications</td>
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<td>2.</td>
<td>Critical Thinking</td>
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<td>3.</td>
<td>Natural Sciences</td>
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<td>4.</td>
<td>Mathematical/Logical Reasoning</td>
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<td>5.</td>
<td>History and the Social and Behavioral Sciences</td>
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<td>6.</td>
<td>The Humanities and Fine Arts</td>
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<td>7.</td>
<td>Human Diversity</td>
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<td>8.</td>
<td>Global Perspectives</td>
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<td>9.</td>
<td>Ethical and Civic Responsibility</td>
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<td>10.</td>
<td>People and the Environment</td>
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Learning Outcomes: (including any relevant competencies listed in the Minnesota Transfer Curriculum)
Upon completion of this course, the student will be able to:

- Identify tools, materials, and procedures used in the installation and maintenance of electrical systems and equipment
- Gain a working knowledge of the specifications, application, and standards related to materials used in electrical distribution
- Examines the mechanical applications and procedures used in the installation of electrical equipment and systems.

Student Assessment Methods May Include:
Will be determined by the Instructor.
Assessment made of lab assignments, worksheets, and papers using rubrics and check lists. Tests and quizzes of technical knowledge given at regular intervals during semester.

Use of Instructional Technology May Include: (includes software, interactive video and other instructional technologies):
ECM Laptop Computer Lease with Industrial Software

Additional Special Information: (special fees, directives on hazardous materials, etc.)
Laptop Lease and Required Tool List

Transfer Information: (Please list colleges/majors that accept this course in transfer.)
Bemidji State University’s Applied Engineering BS degree and Technology Management BS degree

Affiliated Mesabi Range College Courses and Programs:

Approvals:

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<thead>
<tr>
<th>Body</th>
<th>Representative Signatures</th>
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<tbody>
<tr>
<td>Faculty Association</td>
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<td>Academic Affairs Standards Committee</td>
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<td>Chief Academic Officer</td>
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Distribution: Original – Instructional Services
Copies: Transfer Specialist, Originating Faculty Member, Records
Revised: February 2019