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.  ELUT            COURSE NUMBER:  2126

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

<table>
<thead>
<tr>
<th>Course Title:</th>
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<td>Regulators and Capacitors</td>
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<th>Catalog Description:</th>
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<td>This course covers the methods used in producing a reliable power source by controlling voltage loss and power factor through the use of capacitors and/or regulators.</td>
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<th>Prerequisites or Necessary Entry Skills/Knowledge:</th>
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<td>None</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:
### Topics to be Covered
- Power source production and reliability
- Voltage regulation
- Capacitors
- Regulators.
- Tap changing transformers

### Student Learning Outcomes
1. Explain the operation of a single-phase induction voltage regulator and a three-phase induction voltage regulator including how these regulators maintain the delivery of a constant line voltage to a distribution point.
2. Identify the major components for the control of voltage regulation and describe their operation in regulating a constant voltage.
3. Describe the procedure and safety required in installing and removing regulators and capacitors from service.
4. Describe the functions of a tap changing transformer and identify the difference between load tap changer and a no-load tap changer.
5. Describe the purpose and reasons for using capacitors as a means for regulating lines.
6. Describe the difference and reasons for connecting capacitors in parallel or series.

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

Revised Date: October, 2020