Course Title: Regulators and Capacitors

Catalog Description:
Regulators and Capacitors 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.

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
- Power source production and reliability
- Voltage regulation
- Capacitors
- Regulators
- Tap changing transformers
**Student Learning Outcomes**

- 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.
- Identify the major components for the control of voltage regulation and describe their operation in regulating a constant voltage.
- Describe the procedure and safety required in installing and removing regulators and capacitors from service.
- Describe the functions of a tap changing transformer and identify the difference between load tap changer and a no-load tap changer.
- Describe the functions of a tap changing transformer and identify the difference between load tap changer and a no-load tap changer.
- Describe the difference and reasons for connecting capacitors in parallel or series.

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

*If yes, please list the competencies below*

Revised Date: 1/1/2022