

**Course discipline/number/title: FST 1641: Electrical Theory II****A. CATALOG DESCRIPTION**

1. **Credits:** 3
2. **Hours/Week:** 3
3. **Prerequisites (Course discipline/number):** MATH 1015 or MATH 1016 or MATH 1115
4. **Other requirements:** None
5. **MnTC Goals (if any):** NA

**B. COURSE DESCRIPTION:** This course will allow students to continue to examine the basic design and installation of electric motor controls. The theory and applications of single-phase and three-phase transformers are also covered. The theory of programmable controllers and advanced motor controls is also presented.**C. DATE LAST REVISED (Month, year):** March, 2025**D. OUTLINE OF MAJOR CONTENT AREAS:**

1. Programmable controllers
2. Motors and motor controls

**E. LEARNING OUTCOMES (GENERAL):** The student will be able to:

1. Describe jogging control.
2. Draw jogging control schematic design.
3. Describe line diagrams.
4. Describe wiring diagrams.
5. Describe relays.
6. Describe contractors.
7. Describe magnetic contractors.
8. Describe PC power supply.
9. Describe PC input module.
10. Describe PC processor.
11. Describe PC output module.
12. Describe PC memory.
13. Describe PC program language.
14. Convert relay diagram to PC language.
15. Describe internal counters.
16. Convert a schematic diagram to a wiring diagram.

**F. LEARNING OUTCOMES (MNTC):** NA**G. METHODS FOR EVALUATION OF STUDENT LEARNING:** Methods may include but are not limited to:

1. Tests
2. Activities

**H. RCTC CORE OUTCOME(S).** This course contributes to meeting the following RCTC Core Outcome(s):  
**Critical Thinking.** Students will think systematically and explore information thoroughly before accepting or formulating a position or conclusion.**I. SPECIAL INFORMATION (if any):** None