

**Course discipline/number/title: FST 1621: Electrical Theory I****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 covers wiring layout for general lighting circuit and switches in residential applications. The basic theory of inductors, capacitors, resistors, SCR's, diodes, transistors, and AC electric motors is also presented. The student will also examine the basic design and installation of electric motor controls.

**C. DATE LAST REVISED (Month, year):** March, 2025

**D. OUTLINE OF MAJOR CONTENT AREAS:**

1. Residential wiring
2. Electrical components
3. Motors and motor controls

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

1. Draw single poles switch applications.
2. Draw three-pole switch applications.
3. Draw four-pole switch applications.
4. Identify electric symbols.
5. Describe inductances.
6. Describe capacitance.
7. Describe resistance.
8. Describe a SCR.
9. Describe diodes.
10. Draw pilot device symbols.
11. Draw a two-wire control schematic diagram.
12. Develop two-control wiring diagram.
13. Draw three-wire control schematic diagram.
14. Develop three-wire control wiring diagram.
15. Draw three-wire control schematic 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):**

1. Attendance is crucial in this class.