This is the second half of a two-semester course. In this course students will be introduced to Alternating Current (AC) electric circuits and devices from the perspective used in the electric power industry. The topics of AC electric circuits, motors, generators, and other topics will be introduced through hands-on learning activities. (Prerequisite: EUT 1020 Basic Electricity).

Prerequisite(s): EUT 1020 Basic Electricity

Co-requisite:

Lab equipment consists of Heathkit AC Circuits training modules and LABVOLT electricity training modules, plus electricity multimeters.

Electrical Principles and Application, by Richard Fowler

II. Alternating Current
- Generating AC
- The Sinusoidal and Non Sinusoidal Waveforms
III. AC Measurements
   - AC Meters
   - Oscilloscopes
   - Power in AC circuits
   - Power Factor
IV. Capacitive Circuits
   - Phase Shift
V. Inductive Circuits
   - Phase Shift
VI. Tuned Circuits
VII. Transformers
VIII. Motors
   - Squirrel-Cage Induction Motors
   - Synchronous Motors
   - Multiphase AC system
IX. Reading Schematics
X. Electric Power Safety Practices

16. Learning Goals, Outcomes, and Assessment
At FDLTCC we have 4 Competencies Across the Curriculum (CAC) areas. They are as follows:

A. Information Literacy (the ability to use print and/or non-print tools effectively for the discovery, acquisition, and evaluation of information)
B. Ability to Communicate (the ability to listen, read, comprehend, and/or deliver information in a variety of formats.)
C. Problem Solving (the ability to conceptualize, apply, analyze, synthesize, and/or evaluate information to formulate and solve problems.)
D. Culture (knowledge of Anishinaabe traditions and culture, knowledge of one's own traditions and culture, knowledge of others' traditions and cultures, culture of work, culture of academic disciplines and/or respect for global diversity.)

Upon the completion of this course the student will be able to:

1. Proficient in AC electric circuits Ohms law, Power, and phase angle. (B, C)
2. Trouble shoot electrical problems with test instruments, DMM, Oscilloscope. (C)
3. Perform safety lockouts/tagouts with MCC’s (A)
4. Use trigonometry to solve inductive and capacitive circuits. (A, C)
5. Calculate motor HP, Load, PF. (A)

17. Minnesota Transfer Curriculum (MnTC): If this course fulfills an MnTC goal area, state the goal area and list the goals and outcomes below:

See www.mntransfer.org

Goal Area(s): __________
Goal and Outcomes: