

Fond du Lac Tribal and Community College
COURSE OUTLINE FORM

Updated 9/23/14

Please return this form to the college vice president of academic affairs and the chairperson of the Academic Affairs and Standards Council (AASC)

1. Prepared by: _____

2. Date submitted: _____

3. Date approved: 05/19/04 Date revised 09/23/14

4. Department/discipline: Electric Utility Technology

5. Department(s) endorsement(s): _____

(Signatures of the person(s) providing the endorsement are required.)

6. Course Title: Basic Electricity

Abbreviated course title (25 characters or less): _____

7. Course Designator: EUT 8. Course Level: 1020 9. 2XXX

10. Number of Credits: Lecture 2 Lab 1

11. Control Number (on site) 20 Control Number (online) _____

12. Catalog/Course description:

This is the first half of a two-semester course. In this course students will be introduced to Direct Current (DC) and Alternating (AC) electric circuits and devices from the perspective used in the electric industry. The topics of DC electric circuits, motors, generators, AC current generation and circuit systems and other topics will be introduced through hands-on learning activities.

13. Course prerequisite(s) or co-requisite(s): Accuplacer scores/ Other courses

Prerequisite(s):

Co-requisite:

14. **Course Materials** (Recommended course materials and resources. List all that apply, e.g. textbooks, workbooks, study guides, lab manuals, videos, guest lecturers).

Electricity Principles and Application, by Richard Fowler
Digital Multimeter – (Minimum 600 v insulation)

15. **Course Content** (Provide an outline of major topics covered in course)

Review of Useful Mathematics Concepts

- a. Electrical units
- b. Scientific notation
- c. Fractions
- d. Ohm's Law calculations
- e. Solving series circuit problems
- f. Solving parallel circuit problems
- g. Energy and power calculations
- h. Kirchhoff's Laws

- i. Introduction to trigonometry and waves
- 2. DC electricity fundamentals
 - a. Electron theory & sources of electricity
 - b. Electric current, voltage, resistance, Ohm's Law
 - c. Resistor color code
 - d. Magnetism and electricity
 - e. Electrical circuits with lab experiments
 - f. Use of multimeter
- 3. Introduction to AC electricity fundamentals
 - a. Alternating current
 - b. Frequency
 - c. Introduction to trigonometry and waves
 - d. Introduction to the oscilloscope
- 4. Reading Electrical Schematics
- 5. Electric Power Safety Practices
 - a. Electrical shock levels
 - b. Arc Faults
 - c. Lock out tag out

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 completion of this course the student will be able to:

- 1. Use electrical test equipment, DMM, Oscilloscope, Signal generator & power supplies. (C)
- 2. Solve problems in DC electrical knowledge, Ohms law. (C)
- 3. Troubleshoot electrical problems in a lab setting. (C)
- 4. Proficient in electrical safety including Lockout tagout, (A, B)
- 5. Basic understanding of AC electricity. (C)

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: