

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: 04/28/06 Date revised 09/23/14

4. Department/discipline: Electric Utility Technicians

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

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

6. Course Title: Photovoltaic Energy Systems

Abbreviated course title (25 characters or less): _____

7. Course Designator: EUT 8. Course Level: 1035 9. 2XXX

10. Number of Credits: Lecture 2 Lab 1

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

12. Catalog/Course description:

Photovoltaic (PV) systems for the generation of electricity, for home use and for business, will be covered in theory and practice with emphasis on covering practical implementation measures. The course will explore current advancements in PV. as a component of this course, and how it fits with developing renewable energy technology.

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).

Practical workshops will be a component of this course. Appropriate text, videos, and other resources will be selected to provide up-to-date content. Access to the internet will be necessary, and will be listed on the syllabus.

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

1. Theory and Fundamentals of Photovoltaic Energy Systems
2. Site Assessment
 - Measuring the sun
 - Calculating energy output
3. Design Practices
 - Modules
 - Inverters
4. Installation Procedures

- Mounting systems
- Electronics
- 5. Commissioning, Servicing, and Maintenance

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. Demonstrate knowledge of PV cell technology. (A, B)
- 2. Perform a site assessment including annual solar insolation. (A, B, C)
- 3. Calculate the electrical output of a solar array. (A, C)
- 4. Demonstrate knowledge of mounting methods (B)
- 5. Mount and connect an inverter and demonstrate operation. (A, B, 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: