ELM 2313: Renewable Energy Systems and House Project

A. COURSE DESCRIPTION

Credits: 6
Lecture Hours/Week: 2.5
Lab Hours/Week: 7
Prerequisites: None
MnTC Goals: None

Covers the basic types, purposes and installations of wind and solar systems. The course also involves the wiring of a residential house project.

B. COURSE EFFECTIVE DATES: 01/08/2018 - Present

C. OUTLINE OF MAJOR CONTENT AREAS

1. Safety
2. NEC as applied to Residential Wiring
3. Residential Wiring Methods and Materials
4. Residential Wiring Calculations and Installation
5. Residential Wiring Branch Circuits, Feeder Calculations and Installation
6. Residential Wiring Special Circuits
7. Renewable Energy Purposes and Systems
8. Requirements for Renewable Energy Installations
9. Regulations Covering Renewable Energy Systems

D. LEARNING OUTCOMES (General)

1. Students will use required codes.
2. Students will prepare circuit schedules.
3. Students will determine branch circuits and feeders.
4. Students will design and install branch circuits and feeders.
5. Students will design and install a service.
6. Students will identify and install special circuits.
7. Students will identify available renewable energy systems.
8. Students will explain purpose and functions of components used in renewable energy systems.
9. Students will describe solar voltaic systems.
10. Students will identify renewable system types for particular situations.
11. Students will perform maintenance on wind, solar, and available systems.
12. Students will identify the purpose and use of drones in renewable energy locations.
E. Minnesota Transfer Curriculum Goal Area(s) and Competencies
   None

F. LEARNER OUTCOMES ASSESSMENT
   As noted on course syllabus

G. SPECIAL INFORMATION
   HCC COMPETENCIES MET:
   Working Productively and Cooperatively Thinking
   Creatively and Critically

   STUDENT CONTRIBUTIONS:
   The student is expected to devote the time necessary to become adept at analyzing the material and their
   application to troubleshooting and maintenance procedures.

   STUDENT ASSESSMENT SHALL TAKE PLACE USING INSTRUMENTS SELECTED/DEVELOPED
   BY THE COURSE INSTRUCTOR.

   ADDITIONAL INFORMATION:
   ELM 2313 requires students to maintain a minimum of 95% attendance. Attendance below 95%, may be
   made up by completing 1-3 credits make-up classes. The 1-3 credits make up class will equal 3 days of
   attendance. This course must be pre-approved by the ELM 2313 Instructor. Three days that are less than
   full days (tardy or early leave) will equal one full day absence. Course attendance below 95% will result
   in retaking this course.

   National Electrical Code, NFPA (Current Edition)

   Curriculum Committee Approval Date: March 5, 2019

   AASC APPROVAL DATE: March 20, 2019
   REVIEW DATE: March 2024