Hibbing Community College

ELM 1202: Transformers, Generators Alternators & Motors

A. COURSE DESCRIPTION

Credits: 6
Lecture Hours/Week: 3
Lab Hours/Week: 6
Prerequisites:
This course requires all three of these prerequisites
   ELM 1101 - DC Electrical Theory & Applications
   ELM 1301 - Residential (Wiring & Code I)
   ELM 1201 - AC/DC Electrical Circuits and Calculations
Corequisites: None
MnTC Goals: None

Transformers, Generators, Alternators, and Motors covers the basic operation and construction of: 1-phase and 3-phase transformers, generators, alternators, DC motors, 1-phase AC motors and 3-phase AC motors.

B. COURSE EFFECTIVE DATES: 08/26/2002 - Present

C. OUTLINE OF MAJOR CONTENT AREAS

1. Safety
2. Identify and relate all National Electrical Code Articles
3. Transformers
   A. Types
   B. Uses
   C. Connections
4. Generators
   A. Types
   B. Connections
5. Alternators
6. DC Motors
   A. Types
   B. Uses
   C. Connections
7. AC Motors
   A. Types
   B. Uses
   C. Connections

D. LEARNING OUTCOMES (General)

1. Students will identify single phase and three phase transformer connections.
2. Students will demonstrate transformer operation principles.
3. Students will calculate all transformer values.
4. Students will identify three phase single phase, and DC motor connections.
5. Students will demonstrate all motor operation principles.
6. Students will calculate all motor valves.
7. Students will demonstrate changing motor speeds.
8. Students will demonstrate changing motors rotation.
9. Students will identify generators and alternators vs motors.

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
Communicating Clearly and Effectively

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 1202 requires students to attend 95% of the classes. If 95% attendance cannot be met, a 1-credit make-up class will be required to be taken. The one credit class will be equal to three days of attendance. For every three less than full days (tardy or leaving early) will count as one day absence. If the 95% attendance is not maintained and the 1-credit make-up class is not taken, the student will need to re-take the course. Scientific calculator and safety glasses.

AASC APPROVAL DATE: October 25, 2017
REVIEW DATE: October 2022