Hibbing Community College

ELM 1102: AC Electrical & Electronic Theory & Application

A. COURSE DESCRIPTION

Credits: 6
Lecture Hours: 3
Lab Hours: 3
Prerequisites:
This course requires both of these prerequisites
   ELM 1101 - DC Electrical Theory & Applications
   ELM 1201 - AC/DC Electrical Circuits and Calculations

MnTC Goals: None

AC Electrical and Electronic Theory and Applications covers the introductory elements of AC circuits, resistive, inductive, capacitive circuits, VARs, power factor, filter circuits and solid-state devices according to applicable National Electrical Code articles. This course is the second in a series of two related courses.

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

C. OUTLINE OF MAJOR CONTENT AREAS

1. Safety
2. Inductors
   A. Series inductors
   B. Parallel inductors
3. Capacitors
   A. Series capacitors
   B. Parallel capacitors
4. Resistive-Inductive Series circuits
5. Resistive-Inductive Parallel circuits
6. Resistive-Capacitive Series circuits
7. Resistive-Capacitive Parallel circuits
8. Resistive-Inductive-Capacitive Series circuits
9. Resistive -Inductive-Capacitive Parallel circuits
10. Filters
11. Solid State Devices

D. LEARNING OUTCOMES (General)

1. Students will calculate AC circuits.
2. Students will describe different types of AC circuits.
3. Students will design different types of AC circuits
4. Students will explain functions of various AC circuit components.
5. Students will explain terms associated with AC theory
6. Students will construct different types of AC circuits.
7. Students will demonstrate knowledge of solid state components.

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
   Thinking Creatively and Critically
   Social / Civic Responsibility

   STUDENT CONTRIBUTIONS:
   The student is expected to read the required textbook, spend sufficient time outside of class to complete assignments, submit assignments when due, take tests on scheduled dates, participate in class discussions.

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

   ADDITIONAL INFORMATION:
   ELM 1102 requires students to maintain a minimum 95% attendance. Attendance below 95% may be made up by completing a 1-credit class. The 1-credit class will equal three days of absence. This credit must be pre-approved by the course instructor. Three less than full days (tardy or leaving early) will equal a full day absence. Attendance of less than 95% and not taking the 1-credit makeup class will result in retaking the course.

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