COURSE TITLE & NUMBER: Power Limited Circuit and Instrumentation: ELM 2311  
CREDITS: 5 (2 Lec / 3 Lab)  
PREREQUISITES: ELM1302: Residential Wiring and Code 2, ELM 1102: A/C Electrical and Electronic Theory, ELM 1202: Transformers, Generators, and Alternators, or the approval of the instructor

CATALOG DESCRIPTION:  
Power limited circuits and instrumentation covers the installation, maintenance and repair of low voltage circuits and the fundamentals of instrumentation.

OUTLINE OF MAJOR CONTENT AREAS:  
1. Safety  
2. NEC as applied to Power Limited circuits and instrument.  
3. Applicable wiring methods and materials  
4. Power Limited Circuits  
   A. Alarm systems  
   B. Data  
   C. HVAC  
   D. Communications  
5. Instrumentation Fundamentals of:  
   A. Controls  
   B. Concepts  
   C. Measurements

COURSE GOALS/OBJECTIVES/OUTCOMES:  
1. Students will identify low voltage systems  
2. Students will list low voltage conductors and cables used.  
3. Students will explain low voltage system components.  
4. Students will describe appropriate NEC articles applied to low voltage systems.  
5. Students will determine the purposes of low voltage systems.  
6. Students will explain open loop control system.  
7. Students will explain closed loop control system.  
8. Students will identify fundamentals of pressure, flow, levels and temperature.

HCC COMPETENCIES MET:  
Work productively, cooperatively  
Communicate 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 2311 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 2311 Instructor. Three days that are less than full days (tardy or leave early) 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: February 7, 2018

AASC APPROVAL DATE: February 21, 2018
REVIEW DATE: February 2023