

SYLLABUS

DIVISION: Business and Engineering Technology **REVISED:** Spring/2013
CURRICULA IN WHICH COURSE IS TAUGHT: Air Conditioning & Refrigeration
COURSE NUMBER AND TITLE: Air 135- Circuits and Controls II

CREDIT HOURS: 3 **HOURS/WK LEC:** 2 **HOURS/WK LAB:** 3 **LEC/LAB COMB:** 5

I. CATALOG DESCRIPTION: Introduces electricity for air conditioning, which includes circuit elements, direct current circuits and motors, single and three-phase circuits and motors, power distribution systems, and protective devices. Studies the electron and its behavior in passive and active circuits and components. Demonstrates electronic components and circuits as applied to air conditioning systems.

II. RELATIONSHIP OF THE COURSE TO CURRICULA OBJECTIVES:

- Acquire an understanding of system electrical components
- Gain an understanding of basic wiring diagrams in heating systems and air conditioning systems

III. REQUIRED BACKGROUND/PREREQUISITIES:

AIR 134

IV. COURSE CONTENT:

- Components of HVAC Systems
- Schematic Diagrams
- Thermostats
- Single and 3 phase Current

V. THE FOLLOWING GENERAL EDUCATION OBJECTIVES WILL BE ADDRESSED IN THIS COURSE

- **Communications**
 - 1.1 understand and interpret complex materials;
 - 1.3 use standard English;
 - 1.5 use listening skills; and
- **Critical Thinking**
 - 2.4 weigh evidence and decide if generalizations or conclusions based on the given data are warranted;
 - 2.5 determine whether certain conclusions or consequences are supported by the information provided; and
 - 2.6 use problem solving skills.
- **Quantitative Reasoning**
 - 6.1 use logical and mathematical reasoning within the context of various disciplines;
 - 6.2 interpret and use mathematical formulas;
 - 6.3 interpret mathematical models such as graphs, tables and schematics and draw inferences from them;
 - 6.4 use graphical, symbolic, and numerical methods to analyze, organize, and interpret data;

VI. LEARNER OUTCOMES

VII. EVALUATION

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| <p>Components of HVAC Systems</p> <ul style="list-style-type: none"> • Understanding the basic electrical components of HVAC Equipment • Identifying and labeling electrical components • Ability to understand the operation of each component | <p>Lab exercises Written Test Hands on Training</p> |
| <p>Schematic Diagrams</p> <ul style="list-style-type: none"> • Understanding the different types of wiring diagrams • Ability to categorize each component into four categories (Path, Load, Safety ,Controller) • Identifying and labeling each component to construct different types of wiring diagrams | <p>Written Test Lab Exercises Drawing of wiring diagrams</p> |
| <p>Thermostats</p> <ul style="list-style-type: none"> • Understanding the types of Thermostats • Ability to identify the different types of thermostats • Searching on the internet for the newest technology in Thermostats | <p>Lab Exercises Written Exercises In class assignments</p> |
| <p>Single and 3 phase current</p> <ul style="list-style-type: none"> • Basic understanding of the phases of electricity • Identify the difference between single and 3 phase power | <p>Written Test Lab Exercises Hands on Training</p> |