

## SYLLABUS

**DIVISION:** Business and Engineering Technology **REVISED:** Fall/2013  
**CURRICULA IN WHICH COURSE IS TAUGHT:** Air Conditioning and Refrigeration

**COURSE NUMBER AND TITLE:** AIR 134/111 Circuits and Controls I  
**CREDIT HOURS:** 3 **HOURS/WK LEC:** 2 **HOURS/WK LAB:** 3 **LEC/LAB COMB:** 5

---

- I. CATALOG DESCRIPTION:** AIR 134 Circuits and Controls I--Presents circuit diagrams for heating units, reading and drawing of circuit diagrams, types of electrical controls, and house wiring circuits. Includes analysis of heating circuits, components, analysis and characteristics of circuits and controls, testing and servicing.
- II. RELATIONSHIP OF THE COURSE TO CURRICULA OBJECTIVES:**
- Gain an understanding of how electricity works
  - Ability to understand and use a meter
  - Ability to understand basic electrical components and wiring diagrams
- III. REQUIRED BACKGROUND/PREREQUISITIES:**
- None
- IV. COURSE CONTENT:**
- Electron theory
  - Electric circuits
  - Alternating current
  - Electrical Instruments
- 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**

<b>Electron Theory</b> <ul style="list-style-type: none"><li>• Understand how magnetism works</li><li>• Identify the parts of the atom</li><li>• Ability to understand the flow of electrons</li></ul>	<b>Evaluation method</b> Lab exercises Written test
<b>Electric Circuits</b> <ul style="list-style-type: none"><li>• Understand items needed to make an electrical circuit</li><li>• Understand the difference between series, parallel, and combination circuits</li><li>• Ability to build a basic series and parallel circuit</li><li>• Understand Ohm's Law</li><li>• Ability to solve simple and complex Ohm's Law problems</li></ul>	<b>Evaluation method</b> Lab exercises In class assignments Written test
<b>Alternating Current</b> <ul style="list-style-type: none"><li>• Understand how Alternating Current operates</li><li>• Ability to Identify the difference between A.C. and D.C. current</li><li>• Identify problems with a circuit</li><li>• Ability to perform basic troubleshooting skills</li></ul>	<b>Evaluation method</b> Lab exercises In class assignments Written test
<b>Electrical Instrument</b> <ul style="list-style-type: none"><li>• Understand how to use a meter</li><li>• Identify the different settings on a meter</li><li>• Identify the different types of meters</li><li>• Ability to correctly use a meter in troubleshooting applications</li></ul>	<b>Evaluation method</b> Lab exercises In class assignments Written test