

# Common Course Outline

## ELEI 101 Basic HVAC Electricity 4 Credits

### Community College of Baltimore County

#### Description

**ELEI 101 – Basic HVAC Electricity** serves as an introduction to the principles of electricity as used in the Heating, Ventilation, Air Conditioning/Refrigeration (HVAC/R) industry, including the proper use of test equipment, electrical circuits, and component theory and operation. An overview of the installation and servicing techniques for wiring and connecting circuitry for HVAC/R systems and the various electrical components and wiring methods needed to wire HVAC/R equipment and meet electrical codes are provided.

**4 Credits:** *2 hours lecture; 4 hours lab*

**Prerequisites:** None

#### Overall Course Objectives

Upon completion of this course students will be able to:

1. define terms such as resistance, voltage, current and power;
2. explain the difference between conductors and insulators;
3. recognize open and short circuits;
4. identify HVAC schematic symbols and diagrams;
5. demonstrate ability to properly use voltmeter, ammeter, ohmmeter and various other test and measuring equipment;
6. identify the basic types of single phase and three phase motors; and
7. demonstrate safe work habits and proficiency using the basic tools of the trade in a laboratory environment.

#### Major Topics

- I. Alternating Current circuit fundamentals
- II. Electrical safety
- III. Proper use and care of test instruments
- IV. Components as used in most HVAC systems
- V. Wiring diagrams and wiring method

#### Course Requirements

Grading procedures will be determined by the individual faculty member but will include the following:

**Grading/exams**

- A midterm exam
- A minimum of 12-14 homework assignments
- A final exam
- Attendance

Written Assignments: Students are required to use appropriate academic resources.

**Other Course Information**

This HVAC core course is a required part of the Basic HVAC certificate and the AAS HVAC degree and includes a hands-on lab portion. A lab fee is required.

Date Revised: 1/8/2019