

Common Course Outline
ELEI 201
Advanced HVAC Electricity
3 Credits
Community College of Baltimore County

Description

ELEI 201 - Advanced HVAC Electricity is an exploration of motors, controls, and other electrical devices as applied in air conditioning, heating and refrigeration equipment. This course is an overview of controls and circuits for heat pumps and reading and interpretation of more complex electrical schematic diagrams for a variety of applications. This course is designed for advanced students in air conditioning and refrigeration and related programs.

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

Prerequisite: ELEI 101 or approval of the program coordinator

Overall Course Objectives

Upon completion of this course the student will be able to:

1. demonstrate knowledge of electric motor and control circuit theory as it applies to the air conditioning and refrigeration field;
2. apply their knowledge of the use of electronic test equipment as it would be used in the air conditioning and refrigeration field;
3. recognize troubleshooting techniques as they are used in the air conditioning and refrigeration field;
4. operate test equipment used in the troubleshooting process;
5. discuss circuit board diagnosis and replacement; and
6. explain testing techniques for residential Heating, Ventilation, Air Conditioning (HVAC) service.

Major Topics

- I. Wiring Diagrams
- II. Communicating Control Systems
- III. Electronically Commutated Motor (ECM) Basics
- IV. Gas and Oil Heat Controls
- V. Troubleshooting Techniques
- VI. Heat Pump and Air Conditioner Controls

Course Requirements

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

Grading/exams

- A minimum of 14 online homework assignments
- A midterm and final exam
- A minimum of 12 lab projects
- Attendance

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

Other Course Information

This HVAC core course is a required part of the Advanced HVAC Certificate and AAS HVAC degree. A lab fee is required.

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