COURSE OUTLINE
ARCM-210
Construction Mechanical and Electrical Systems
3 Credits

HOWARD COMMUNITY COLLEGE

Description

This course introduces the student to the mechanical and electrical systems utilized in building construction. Topics covered include plumbing and HVAC systems and a basic introduction to heat loss and environmental control. Fire protection systems will be introduced as well as other life safety systems. The components that make up the electrical system will be introduced and the coordination of these components with the other building systems. Green building systems will be introduced. Prerequisite: ARCM-102; Pre- or Co-requisite: ARCM-200. (2 hours lecture, 2 hours lab).

Overall Course Objectives

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

1. Identify the key components of the building envelope system.
2. Define indoor air quality.
3. Calculate heat gain and loss.
4. Illustrate the key parts of heating and cooling system.
5. Recognize plumbing, heating, cooling, and electrical terminology.
6. Describe the plumbing and waste system components.
7. Interpret basic electrical and lighting systems.
8. Review associated low voltage systems.
9. Discuss fire resistance and suppression system components.
10. Recall the benefits and issues associated with Green Building Systems.

Major Topics

I. Thermal Control
   - A Site Orientation
   - B. Building Envelope
   - C. Calculating Heat Flows

II. Heating and Cooling System
   - A. Basic Design
   - B. Equipment
   - C. Indoor Air Quality

III. Plumbing System
- A. Basic Design
- B. Components: Waste & Water
- C. Fixtures

IV. Electrical System
- A. Electrical Design
- B. Equipment
- C. Power System
- D. Lighting System
- E. Low Voltage System

V. Fire Resistance and Sprinkler System
- A. Fire Resistance Design Criteria
- B. Sprinkler system
- C. Fire Alarm System

VI. Introduction to Green Building

Course Requirements

Grading/exams: Grading procedures will be determined by the individual faculty members with emphasis on: homework, exams, group projects, and labs.

Other Course Information

This course is required in the Architectural and Construction Management Program.