University of Toledo
Construction Engineering Technology
Master Syllabus

Course Title: Building Systems **Course Code & Number:** CET-1250

Credit Hour Total: 3 **Weekly Contact Hours Lecture:** 3 **Lab Hours:** 0

Prerequisite(s): CET-1100, CET-1150, MATH-1320

Text: Mechanical & Electrical Systems in Architecture, Engineering & Construction 5th Ed.
Wujek & Dagastino ISBN: 0-13-500004-5

Software: None

Course Coordinator: Beall

A. **Course Description** (Approved catalog description.)

This course provides an introduction to selected building systems, equipment technologies and their capabilities. These systems include, but are not limited to: HVAC, plumbing, electrical, and other mechanical operations as they relate to building construction and building operations. Fundamentals of designing and sizing these systems will also be covered.

B. **Related Program Outcomes:**

Upon successful completion of the Construction Engineering Technology program, graduates will have:

ABET/Student Outcomes

a. an ability to select and apply the knowledge, techniques, skills, and modern tools of the discipline to broadly-defined engineering technology activities;
b. an ability to select and apply a knowledge of mathematics, science, engineering, and technology to engineering technology problems that require the application of principles and applied procedures or methodologies;
f. an ability to identify, analyze, and solve broadly-defined engineering technology problems;

Program Criteria Outcomes

2. A development of mathematical skills sufficient to solve and analyze technical problems associated with construction projects including building, highway and heavy construction.

3. The ability to demonstrate a thorough knowledge of common construction methods and design procedures associated with building, highway and heavy construction projects.

4. The ability to demonstrate a thorough knowledge of common construction materials- both their proper usage and proper testing procedures.

8. An understanding of codes and specifications in the implementation of building and highway projects.

Evidence of the success of these outcomes is provided by the collection and analysis of:

- Heat Loss & Gain Calculation Homework/Project
- Foot-candle Calculation Homework
- Circuit Breaker Design Homework

C. **Course Objectives:**

Upon completion of this course the student will have:

1. The ability to design basic electrical systems in buildings.
2. The ability to design basics plumbing systems as used in buildings.
3. The ability to design basic waste water systems for buildings.
4. The ability to design basic potable water systems for building.
5. The ability to calculate and design basic fire protection systems for buildings.
6. An understanding of fire regulations and codes related to buildings.
7. An understanding of elevator systems.
8. The ability to design basic forced air systems.
9. The ability to design basic hot water heating systems.

D. **Course Outline – Major Content Areas**

1. Building Electrical Systems
2. Fresh Water Systems
3. Sewage Systems
4. Heating System Design
5. Cooling System Design
6. Fire Safety in Buildings
7. Elevators Systems in Buildings

E. **Suggested Laboratory Tests**

None