

COURSE OUTLINE
CET 299 CET Capstone Project
3 Credit Hours

Course Description

This capstone course is an integrated learning opportunity for students to apply the knowledge and skills gained through pre-requisite CET courses to a real-world problem that is related to building automation of critical environments.

Prerequisite(s)

CET 101 OSHA 30 General Industry (CET)
BIO 230 Biohazards Risk Reduction
CET 111 AC/DC Circuits I or HVA 1104 Electrical Fundamentals
CET 122 Building Systems & CET: HVAC or HVA 1044 HVAC Fundamentals
CRT 165 Modern Information Technology Networks
CET 211 AC/DC Circuits II
CET 221 Basic Controls
CET 222 Building Automation System Controls and Programming
CET 223 Applied Building System Controls
CET 231 Building Automation Networking and BACnet

Purpose of Course

The purpose of the course is to provide the student the opportunity to integrate and apply knowledge and skills into a single large project that requires further problem-specific research and learning.

Required Materials

Learning Outcomes and Competencies

The intention is for the student to be able to:

1. Define the Problem.
 - a. Examine problems rationally, logically, and coherently.
 - b. State the problem succinctly.
 - c. Describe the problem in a way that peers can understand.
2. Develop a plan to solve the problem.
 - a. List known and unknown aspects of the problem.
 - b. List possible hurdles in solving the problem and describe approaches to getting around them.
 - c. Develop a plan that includes action items and timeline, which is updated weekly as the project progresses.
3. Apply knowledge and skills learned in CET courses.
 - a. Develop sequences of operations for key equipment.
 - b. Use the sequences of operations to develop control programs.
 - c. Connect equipment and devices appropriately via wiring, ethernet, and / or wireless technologies.

- d. Incorporate knowledge about critical environment containment into control strategies.
- 4. Apply learning strategies gained in the CET Program to learn new information necessary to solve the problem.
 - a. Find equipment specifications online.
 - b. Research specification to make decisions on wiring, which parts to use, and how to connect devices.
 - c. Consult various resources to research best practices, pertinent regulations, industry standards and/or other topics as needed to solve the problem.
- 5. Write a report on the project.
 - a. Include an Executive Summary, Introduction to the Problem, Description of Problem-Solving Approach(es), Conclusions and Recommendations.
 - b. Proof read each other's reports, offering suggestions to improve.
- 6. Present project to an audience of student peers and/or industry.
 - a. Develop visual presentation materials.
 - b. Describe the problem, obstacles, how obstacles were overcome, and solution.
 - c. Field questions about the project.

Learning Units

- I. Define the Problem
- II. Develop a Plan
- III. Apply Knowledge and Skills
- IV. Apply Learning Strategies
- V. Write a Report
- VI. Present Project

Method of Delivery/Instruction

☒ Face-to-face ☒ Blended ☐ Online

Learning activities will be assigned within and outside the classroom to assist the student to achieve the intended learning outcomes through lecture, Instructor-led class discussion, guest speakers, group activities, lab, drills/skill practice, and others at the discretion of the instructor.

Method of Grading and Evaluation

The student will be graded on learning activities and assessment tasks. Grade determinants may include the following: daily work, quizzes, chapter or unit tests, comprehensive examinations, student projects, student presentations, class participation, and other methods of evaluation employed at the discretion of the instructor.