

- 1. Course number and name**
COE 490 – Design Project I
- 2. Credits and contact hours**
1 credit hour, 3 contact hours
- 3. Instructor’s or course coordinator’s name**
Dr. Imran Zualkernan
- 4. Textbook, title, author, and year**
None

Other supplemental materials

Templates for report, slides for presentations, youtube videos, etc.

5. Specific course information

a. Brief description of content of the course (catalog description)

Introduces design methodology in computer engineering through lectures and an open-ended, in-depth design project of significance in computer engineering. Includes the design of a system, process or component to achieve the functional objectives representative of problems encountered by practicing computer engineers. Requires students to work in teams in close accord with one or more faculty members to define, complete, validate and document their design project. Emphasizes engineering ethics and communication skills.

b. Prerequisites or co-requisites

Prerequisites: COE 241 (Microcontrollers: Programming and Interfacing), COE 311/CMP 305 (Data Structures and Algorithms), COE 370 (Communications Networks), ENG 207 (Professional Communication for Engineers), and Senior Standing.

c. Indicate whether a required, elective, or selected elective course in the program

Required

6. Specific goals for the course

a. Specific outcomes of instruction

This course requires the student to demonstrate the following:

1. Use current techniques, devices, materials and tools to conceive, plan, and design a computer system, a component or a process based on a given set of customer specifications and requirements
2. Consider different alternatives in design, compare the alternatives, and select the optimum one that meets the design specifications/requirements
3. Develop a project proposal outlining the study plan, methodology, time schedule and project resources
4. Find relevant information about a topic of interest using a wide collection of resources

5. Work effectively as member of a design team
6. Communicate effectively through an oral presentation and a written report
7. Describe the ethical and professional responsibilities of the discipline.

b. Explicitly indicate which of the student outcomes listed in Criterion 3 or any other outcomes are addressed by the course

This course contributes in a significant way to the accomplishment of the following program outcomes:

Program outcome	Emphasis in this course
(a) an ability to apply knowledge of mathematics, science, and engineering	◐
(b) an ability to design and conduct experiments, as well as to analyze and interpret data	◐
(c) an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability	◐
(d) an ability to function on multidisciplinary teams	●
(e) an ability to identify, formulate, and solve engineering problems	◐
(f) an understanding of professional and ethical responsibility	●
(g) an ability to communicate effectively	●
(h) the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context	○
(i) a recognition of the need for, and an ability to engage in life-long learning	◐
(j) a knowledge of contemporary issues	○
(k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.	●

Emphasis: ● High; ◐ Medium; ○ Low; Blank – Nothing Specific Expected

7. Brief list of topics to be covered

- i. Team building, team conflicts
- ii. Project management
- iii. How to use library resources effectively
- iv. Introduction to Engineering Ethics
- v. Formal proposal content and “giving presentations”
- vi. Introduction to Engineering Standards