

1. Course Number and Course Title:

COE 490 – Design Project I

2. Credit Hours:

0-3-1

3. Prerequisites and/or Co-Requisites :

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

4. Name and Contact Information of Instructor:

Dr. Hicham H. Hallal

5. Course 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. Students 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.

6. Textbook and other supplemental materials:

Textbook: None.

Supplemental materials:

- Templates for report, slides for presentations, etc.

7. Course Learning Outcomes:

Upon completion of the course, students will be able to:

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.

8. Teaching and Learning Methodologies:

Methods include lectures, quizzes, class discussions and a project proposal.

9. Course Topics and Schedule:

Topic	Weeks
Team building, team conflicts	1
Finding Project Ideas and formulating the problem statement	1
Project management: The lifecycle	1
How to use library resources effectively to conduct a literature review	1
Introduction to Engineering Ethics, Technology and Society	1
Design methodologies: Functional/Non-Functional Requirements, Diagrams, Alternatives	1
Formal proposal content and “giving presentations”	1
Introduction to Engineering Standards	1
Project Documentation and Presentation	1