King Fahd University of Petroleum & Minerals
College of Computer Sciences Engineering
Computer Engineering Department

COE 485: Senior Design Project
Syllabus — Term 142

Catalog Description

Various design phases leading to a practical engineering solution. Feasibility study, preparation of specifications, and the methodology for the design. Detailed design and implementation, testing, debugging, and documentation.

Prerequisite: Senior standing.

Instructor

Dr. Ahmad Khayyat. Office: 22/150. Phone: 8234. Email: akhayyat@kfupm.edu.sa. Website: `http://www.ccse.kfupm.edu.sa/~akhayyat/`.

Office Hours

Sunday, Tuesday, Thursday 9:30 AM – 10:30 AM.

Course Website

- `https://blackboard.kfupm.edu.sa/`
- Additionally, we will be using Piazza for discussion; a system for getting you help fast and efficiently from classmates and the instructor, and for sharing your experiences.

  Course page on Piazza: `https://piazza.com/kfupm.edu.sa/spring2015/coe485/`

Deliverables and Grading Policy

Deliverable	Points	Due	Evaluated by
Project plan	5%	week 1	Instructor
Progress reports	5%	biweekly	Instructor
Design document	20%	week 5	Instructor, Advisor
Design presentation and proof of concept	5%	week 6	Instructor, Advisor
Final report draft	10%	week 12	Instructor, Advisor
Final report	35%	week 14	Instructor, Advisor, Examiners
Final presentation	10%	week 15	Instructor, Advisor, Examiners
Prototype demonstration	10%	week 15	Instructor, Advisor, Examiners
Demonstration video (bonus)	+3%	week 15	Instructor
Source code (bonus)	+3%	week 15	Instructor

- All deliverables must be submitted to the course instructor through the course website.
- All documents and slides must be submitted as PDF files only.
- Late submission penalty for all deliverables: 20% per day.

- No *Incomplete* grade (IC).
- Attendance is required: the fourth unexcused absence results in a DN grade.
- Mandatory weekly meetings with project advisor; missing any four weeks results in a DN grade.
- A *proof of concept* is a minimal prototype that shows that your solution concept works, and that you can use the target platform.

Project Guidelines

- **Design problem:** The project should be a *design* or a *design analysis* project, where you design a product or a service, or analyze an existing solution to identify weaknesses and propose improvements. *A prototype must be produced*.
- **Design process:** The problem should not be specific, where there is only one clear solution. It should be a general problem. *You* need to identify the requirements, *formulate* them into specifications, *identify* different solutions, *choose* one based on specific, documented criteria, and then *implement* it.
- **Hardware/software integration:** The implemented solutions must involve *integrating hardware and software components*. Components may include standard, ready-made components, e.g. web server, database server, UART, as well as custom components designed by the team, e.g. microcontroller software, application server, FPGA-based hardware.
- **Engineering tools:** The project must involve the use of *engineering tools*, e.g. simulators, CAD tools, formal description, standard benchmarks, and must refer to and conform to *standards*, e.g. IEEE 802.11p, CAN, I2C.
- **Contemporary issues:** The project should deal with one or more *contemporary issues*, e.g. rising cost of health care, education, energy, environment. You must demonstrate how you can, as computer engineers, contribute solutions (products/services) that eases people concerns.
- **Impact:** You must assess the *impact* of your solution, both its intended impact, e.g. efficiency and low-cost due to automation, low-cost business overhead due to cheap communication via computer networks, and its unintended negative impacts that may result from the deployment or use of your solution, e.g. privacy issues, security issues.

General Remarks

- **Purchasing:** Upon the approval of your project advisor and the course instructor, you can purchase any required parts and will be reimbursed their cost, *provided you submit original invoices invoiced to KFUPM*.
- **Discussion:** It is strongly encouraged to start new discussions, participate in ongoing ones, and share any interesting findings regarding any issues you or anybody else might encounter on the discussion board. You may want to subscribe to the forums to get notified of new posts. Starting an interesting and engaging discussion may grant you bonus points.
- **Seeking help:** Use the office hours or set up appointments with the course instructor or your project advisor to obtain any necessary guidance.
- **Email:** Email is the main form of communication outside the classroom. You are expected to read your email regularly.
- **Responsibility:** Projects are student-driven; the student is responsible for carrying out the required tasks.
- **Attribution:** In any documentation, non-original text or figures must be cited from the original sources.