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

COE 485: Senior Design Projects

Catalog Description:

This course is designed to give students the experience of tackling a realistic engineering problem. The intent is to show how to put theoretical knowledge gained into practical use by starting from a word description of a problem and proceeding through various design phases to end up with a practical engineering solution. Various projects are offered by COE faculty in their respective specialization areas. The project supervisor guides the student in conducting feasibility study, preparation of specifications, and the methodology for the design. Detailed design and implementation of the project are carried out followed by testing, debugging, and documentation. An oral presentation and a final report are given at the end of the semester.

Prerequisite:

Senior standing plus whatever prerequisites stated by the faculty members in their project proposals.

References/Text Books:

Robert Angus and Norman Gundersen, ``Planning, Performing, and Controlling Projects: Principles and Applications'', Prentice-Hall, First Edition, 1997.
Also MS Project has a very useful help and tutorials in Project Management.

Course URL: http://www.ccse.kfupm.edu.sa/~elrabaa

Roles of the instructors and the Coordinator:

The instructors will carry the following responsibilities:

1. Prepare detailed project descriptions:
    a. The expected outcomes (deliverables) should be precise and clear,
    b. **Each** student should have a separate project with a different title,
    c. Large projects should be broken into smaller individualized projects. Under no circumstances should more than one student be doing an identical (or close to identical) projects,
    d. Proposed projects should achieve the broad course objectives as stated in the course catalog description.
2. Supervise, guide, and advice the students during the course of the project. This is done through weekly meetings.
3. Set up the standards for professional conduct (set up suitable deadlines for tasks and enforce them).
4. Cooperate with the coordinator to ensure fair and unified grading.

The coordinator will carry the following responsibilities:

1. The main objective of coordination is to ensure both a unified standard and grading.

2. The overall course organization (student registration into different sections, setting up deadlines, scheduling of different events for the general section …etc.)
3. Deliver weekly lectures (details below) covering general topics such as project management, presentation skills, writing skills …etc.
4. Set up the grade ranges based on the results of all sections. **All letter grades must be approved by the coordinator before they can be bubbled into the grade roster.**

Procedure for multi-sections:

1. The coordinator will collect **project proposals** from COE485 sections' instructors and make it available to the students by the beginning of the term.
2. Students will be required to carefully examine these proposals, possibly discuss them with the faculty members and then **choose a section based on their project preference**. The students' attention is drawn by the coordinator to the following important issues:
    a. Students are advised to select a project based on their background, capabilities and interest.
    b. The senior project is not the place to learn too much new theoretical stuff but rather how to apply the knowledge already gained to a practical project development.
    c. The grade will not be determined solely by the supervisor. So the project has to be of enough merit to get good grades from all examiners. The student bares the responsibility of selecting a good project; poor projects get low grades even if they are executed flawlessly.
    d. Projects on literature survey are not accepted. Each project should have a design part that incorporates some computer programming activity.
    e. In the case of multi-student project, the project description must contain enough details to differentiate the task of each student. Also the action plan should clearly define distinct tasks for each member of the team.
    f. All Project presentations must be done by using Power point. Presentations are usually 20-minutes long.
3. After that the students are required to submit a **project proposal** detailing, in their own words, their **project description, deliverables and the action plan**.
4. By the midterm, a **progress report** detailing the work progress is to be submitted.
5. At the end of the term (for one term projects), a **final report** should be submitted and a **final presentation** is give. For two-term projects an **IC request** should be submitted detailing the reasons for extending the project, the progress up to date and a revised action plan.

The table below shows the deadlines (4:00 pm) for the above-mentioned items. Submission of requested items should be done at the location specified by the instructor. There will be a penalty on late submission.

Item	Deadline
Signed Commitment Forms	**Mon. 3/3/2003**
Project Proposals	**Mon. 17/3/2003**
Progress Reports	**Sun. 31/3/2003**
IC Requests	**Wed. 21/5/2003**
Final Reports	**Wed. 28/5/2003**
Final Presentations	**Tues. 4/6/2003**

Schedule of coordination lectures:

The following lectures are given by the coordinator. Sections' instructors may feel free to refer their students to attend some or all of these lectures. All lectures will be given on each indicated Monday from 12:00 pm to 12:50 pm in Room 22-119.

Week	Date	Topic
1	22/2/2003	Course Orientation
2	1/3/2003	Project planning I
3	8/3/2003	Project Planning II (introduction to MS Project)
4	15/3/2003	Project Execution I: Problem Analysis
5	22/3/2003	Project Execution II: Literature Survey
6	29/3/2003	Project Execution III: System Design
7	5/4/2003	Writing a Technical Report I
8	12/4/2003	Project Execution IV: Design Reviews & Progress
9	19/4/2003	Project Execution V: Design Validation
10	26/4/2003	Project Execution VI: Prototyping
11	3/5/2003	How to deliver a technical presentation I
12	10/5/2003	Sample Presentations & their Critique I
13	17/5/2003	Sample Presentations & their Critique I
14	24/5/2003	Writing a Technical Report II
15	31/5/2003	How to deliver a technical presentation II

Grading Policies:

The grades are divided among the course coordinator, project supervisor and the final examining committee. The course instructor should enlist two examiners for the final project evaluation. The project proposal should be submitted to the coordinator for evaluation. The break up of the grades is shown below:

Item	Grader	Grade
Quality of project proposal and Action plan	**Coordinator**	**10%**
Attendance	**Supervisor**	**≤ 0%**
Progress	**Supervisor**	**≤ 0%**
Project Implementation • **Engineering approach: System design, critical examination of different approaches and justification for the selected approach(s) and the utilization of basic engineering science in the design.** • **Completion of the design.** • **Design verification and testing: Simulations, modeling, emulation, prototyping (when appropriate) and testing.** • **Work habits: Motivation, organization, self-reliance, planning, critical thinking**	**Supervisor/Examiner1/Examiner 2** **Supervisor/ Examiner1/Examiner 2** **Supervisor/ Examiner1/Examiner 2** **Supervisor/ Examiner1/Examiner 2** **Supervisor**	**70%** **20%** **20%** **20%** **10%**
Project Documentation (Final Report) **1.** Compliance with the report writing guidelines **2.** Clarity of the problem description and proposed solution **3.** System design, approach selection and design segmentation **4.** Implementation/Testing report and any 'product manuals' if the project requires such a thing.	**Supervisor/ Examiner1/Examiner 2**	**10%** **2.5%** **2.5%** **2.5%** **2.5%**
Final Presentation **1.** Clarity of stated problem and solution **2.** Quality of presentation (organization, body language …etc) **3.** Discussion (how the student answers the committee questions which demonstrate his understanding of the project and its socio-economical aspects).	**Supervisor/ Examiner1/Examiner 2**	**10%** **2.5%** **2.5%** **5%**

Explanation of items above that has a grade of ≤ 0%: These items when done in full carries no grade (i.e. 0%). However, if they are not done or done poorly they receive negative marks and can lower the over all grade. They are similar to a traffic light or a stop sign; if you abide by these signs there are no rewards, but if you do not abide by these signs you get a hefty fine!

Important notes:

- Students that are not regularly meeting with their project supervisor will receive *Warnings* and a ``DN'' will be given to them if this situation persists. Students should meet weekly with their supervisors to discuss the work progress and determine future directions.
- In connection with the progress and final reports, it is prohibited to copy or past text, figures, diagrams, or plots from other sources (books, articles, etc.) without referencing the original source. If there is a dire need to refer to figures, diagrams, or plots that appear in other sources, then you should include clear reference to their authors in the caption. An ``F'' grade will be given to the student if this rule is not observed.

IC Grade Policy:

Students with two-term projects (as indicated by the supervisor on the proposal) will receive an IC grade only if they show proof of 30% project completion. Other wise they will receive an F grade. Students with one-term projects can receive an IC grade only if they show proof of 60% completion of the project. In any case, an IC grade will only be granted with the supervisor's consent. Students who do not submit a final report or an IC request (with appropriate justification and supervisor approval) shall receive an F grade.

Students who obtain an IC grade in the current term will be required to submit their final report at least two weeks before the end of the next term or they will receive an F grade. Also, these students should be ready to deliver a presentation on their senior project one week before the end of next term.