Course Outline ENGR 697: Engineering Design Project II (ME)

Required
Mechanical Engineering

Bulletin Description
Prerequisite: ENGR 696
Completion of design project started in ENGR 696. Work is done with maximum independence under supervision of a faculty adviser. Oral and written project reports required.

Textbook
None

Coordinator
Mamdouh M. Abo-El-Ata, Professor of Mechanical Engineering

Prerequisites by Topic
1. Basic design methodology (e.g. projects in ENGR 300, 302, 464)
2. Analytical methods (e.g. ENGR 309, 364, 467)
3. Component design and analysis (e.g. engineering design electives)
4. Engineering report writing (e.g. ENGR 200, 300, 302)

Course Objectives
1. Perform significant independent design work. [A.2, B.1, B.2, B.3]
2. Develop skills in working with other engineers in a project setting. [A.4]
3. Enhance understanding of the impact of constraints on real-world design projects. [A.2, B.1]
4. Enhance oral presentation skills. [A.5]
5. Enhance report writing skills. [A.5]
6. Instill professional behavior. [C.3]

Topics
1. Organization and management of project tasks.
2. Satisfying the client (project advisor).
3. Bringing a project to successful conclusion.

1Numbers in brackets refer to objectives and outcomes of the School of Engineering.
4. Effective communication of project results in oral and written forms.

**Professional Component**

*Engineering Design  100%*

**Evaluation**

Grades are assigned by coordinator with input from project advisor and students. For each student, 50% of the grade is based on individual contribution and 50% on the group performance as shown below

1. Ability to work in a team (Individual) .....................................................15%
2. Oral presentations (Individual) ................................................................15%
3. Design ability (Individual) .......................................................................20%
4. Written reports (Group) ...........................................................................50%

**Performance Criteria**

*Objective 1*

1.1 Each student, in cooperation with his/her project team, organizes the project into tasks and assumes individual responsibility for various tasks. [1, 2, 4]

1.2 Each student is responsible for pursuing his/her assigned activities in depth, utilizing knowledge obtained from prior courses. [1, 2, 4]

1.3 In concert with team members, each student must contribute a significant body of work to the overall project. [1, 2, 4]

*Objective 2*

2.1 Students will listen to each others opinions and support each others activities. [1, 3]

2.2 Each student coordinates his/her tasks with fellow team members. [1, 3]

2.3 When problems arise on technical or managerial aspects of the project, students discuss the problems with fellow team members and seek guidance from the faculty advisor(s). [1]

*Objective 3*

3.1 Students identify and provide appropriate discussion of constraints in oral presentations and written final report. [3]

*Objective 4*

4.1 Each student prepares and clearly presents a portion of the final oral report. [2]

4.2 Individual student oral presentations are effectively coordinated with the entire team so that the team presentation is clear and unified. [3]

*Objective 5*

5.1 Each student prepares and clearly presents a portion of the final written report. [4]

5.2 Individual contributions to the final report are effectively coordinated with other contributions and the final written report is clear and unified. [4]

*Objective 6*

6.1 Each student assumes responsibility for his/her individual tasks. [2, 4]

6.2 Each student maintains a cordial working relation with fellow teammates. [1, 3]

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2 Numbers in brackets refer to evaluation methods used to assess student performance.
6.3 Each student successfully completes assignments in a punctual manner. [1, 2, 3, 4]

Spring Semester, 2005
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Class/Laboratory Schedule
One 2-hour-45-minute lab session/week

Prepared by
Mamdouh Abo-El-Ata, Spring, 2005