Catalog description:
A supervised project in groups of normally 3 students aimed at providing practical experience in some aspects of computer, communications and electrical engineering. Students are expected to define the project, state its objectives, complete a literature survey, set project specifications and select a design method. They are also expected to do some preliminary modeling and analysis and to acquire the necessary material needed for the completion of the project in the Spring Term. A professional report and an oral presentation are also required from the students.

Credit hours: 3 credits

Required or elective: Required for senior CCE and ECE students

Prerequisites:
By course: Senior standing

Textbook(s) and/or required materials
FYP guidelines as published on the FYP website.

Course Objectives
1. Allow students to demonstrate a wide range of the skills learned at the FEA during their course of study by asking them to deliver a product that has passed through the design, analysis, testing, and evaluation stages.
2. Encourage multidisciplinary research through the integration of material learned in a number of courses.
3. Allow students to develop problem solving, analysis, synthesis and evaluation skills.
4. Encourage teamwork.
5. Make students aware of the significance of project constraints, and teach them how to apply them to real-world problems
6. Teach students how to consider design alternatives and then choose the most appropriate one, and how to conduct design iterations to finalize the design.
7. Improve students’ communication skills through the production of two professional reports (one at the end of the Fall and another at the end of the Spring Term) and a professional poster (only at the end of the Spring Term) and to give two presentations on their work, one at the end of the Fall and another at the end of the Spring Term

Course Topics
Various relevant topics (e.g., project planning, teamwork, Entrepreneurship, literature review, writing, AUB Facilities, Practical consideration, design formalization, etc.) are given, in addition to presentations by Industry experts.
Course Outcomes
1. Understand and describe meaningfully the problem objectives and its practical importance
2. Locate, gather and interpret material and information
3. Conduct a significant literature search and write critical reviews
4. Devise project specifications based on the objectives of their project and the planned execution approach
5. Participate in a design-to-product cycle
6. Apply mathematical and engineering fundamentals to creatively find solutions for open-ended real world problems
7. Use modern design tools and technologies to produce novel designs
8. Apply a multi-disciplinary approach to solving problems
9. Appreciate and consider non-technical constraints (ethical, political, aesthetic, environmental, economic, cultural, etc.) in the produced work
10. Work efficiently in a team
11. Design, implement and test a substantial artifact (or several smaller artifacts) that might be software, hardware, communications, or other model of an information system
12. Critically evaluate a design against its objectives, specifications or other related solutions
13. Demonstrate presentation skills in the form of oral presentations and poster
14. Communicate in writing through the production of project reports

Class/laboratory schedule
Students in an FYP group are expected to conduct weekly meetings with their project supervisor to assess the accomplished work and plan future developments. They are also required to attend lectures given on related topics by the FYP Coordinator and by invited speakers.

Resources of the course
Library, Labs, Internet.

Computer usage
Depends on the project.

Evaluation methods
Evaluation is done by means of detailed Rubrics that span the four categories below:
1- Supervisor Evaluation (17%)
2- Presentation (30%)
3- Report (35%)
4- Progress reports, log book, and minute taking (18%)

Professional component
The percentages of engineering topics, general education and mathematics and basic sciences depend on each particular project

Person(s) who prepared this description and date of preparation
Jean J. Saade, April 2005

Date of last revision Hassan Artail, February 2013