

The University of Jordan
School of Engineering
Electrical Engineering Department
2nd Semester – A.Y. 2023/2024

Course: Project (II) – 0973599 (3 Cr. – Required Course)

Instructor: Faculty Members

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Office Hours: Will be posted soon

Platform: <http://engineering.ju.edu.jo/> (Go to Electrical Engineering Department Forms)

Catalog description: The senior design project spans two regular semesters, after which the final grade is assigned. Students can register for the senior design project only after successfully passing 120 credit hours. In part one of the project, a design problem is assigned to the student in one of the different electrical engineering disciplines. The student is asked to work within a team (supervised by a faculty member) to find a solution for the problem (which could be practical or theoretical). It is expected from the student to develop the abilities of design, research and teamwork and to train himself to observe a time table to perform his project and to be capable of explaining and expressing his findings in a professional manner. In the second part of the senior design project, the student is required to use the appropriate and available hardware and/or software to solve his problem, simulate his solution, to build a prototype, perform all needed measurements and finally recognize the impact of his engineering solutions in the global, economic, environmental, and societal contexts. The student is required to write down his findings as a technical report (dissertation) according to the department guidelines.

Prerequisites by course: 120 Cr. (Successfully passing 120 credit hours) (pre-requisite)

Prerequisites by topic: Students are assumed to have a background in the following topics:

- Main principles of various electrical engineering disciplines.
- Mathematical modeling and analysis of electrical engineering problems.

Textbook: Senior Design Project Guidelines (can be obtained from the department Website).

- References:**
- 1 Engineering Design by George Dieter and Linda C. Schmidt, McGraw-Hill Education, 5th edition, 2012.
 - 2 Engineering Design: A Project-Based Introduction by Clive L. Dym, Wiley, 4th edition, 2013.
 - 3 The Engineering Design of Systems: Models and Methods by Dennis M. Buede and William D. Miller, Wiley, 3rd edition, 2016.
 - 4 Engineering Design: A Systematic Approach by Gerhard Pahl, W. Beitz, J. Feldhusen and K. H. Grote (Authors), Ken Wallace and Lucienne T.M. Blessing (Editors), Springer, 3rd Edition, 2007.
 - 5 Project Management: A Systems Approach to Planning, Scheduling, and Controlling by Harold Kerzner, Wiley, 12 edition, 2017.
 - 6 Project Management: A Quick Start Beginner's Guide For The Serious Project Manager To Managing Any Project Easily by Donald J. Scott, CreateSpace Independent Publishing Platform, 1 edition, 2016.

Schedule: On Campus [Two semesters, 16 weeks each, regular meetings with faculty.]

Course goals: The overall objective is to introduce the student to a major engineering design experience that incorporates appropriate engineering standards and multiple constraints, and is based on the knowledge and skills acquired in earlier course work.

Course learning outcomes (CLO) and relation to ABET student outcomes (SO):

Upon successful completion of this course, a student will:	[SO]
1. Be able to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.	[1]
2. Be able to apply engineering design to produce solutions that meet specified needs.	[2]
3. Be able to effectively communicate verbally and in writing the project methodology and findings.	[3]
4. Recognize professional and ethical responsibility in engineering situations, make informed judgments, and consider the impact of engineering solutions.	[4]
5. Be able to function effectively on a team to meet the project's objectives.	[5]
6. Be able to acquire and apply new knowledge as needed.	[7]

Course topics:

	Hrs
1. Orientation: how to write log books and reports, teamwork and assigning tasks, etc.	3
2. Selecting the design challenge.	18
3. Design process.	30
4. Practical implementation.	30
5. System testing.	15
6. System optimization.	15
7. Writing the technical report and preparing the oral presentation.	15

Ground rules: It is expected from the student to develop the abilities of design, research and teamwork and to train himself to observe a timetable to perform his project and to be capable to explain and express his findings in a professional manner. The student is required, whenever it is possible, to use the appropriate and available software to solve his problem, simulate his solution, to build a prototype and perform all needed measurements. The student will be required to write down his final year project as a complete report (dissertation) according to the department instructions. Team members should be considerate to each other, and adhere to their ethical responsibilities.

Assessment & grading policy:

Supervisor P.I	15%	Assignments	0%
Supervisor P.II	25%	Projects	0%
Defense (jury)	60%	Lab Reports	0%
Quizzes	0%	Presentation	0%
		Total	100%

Last Revised: January 2024