



Philadelphia University

Faculty of Engineering - Mechatronics Engineering Department
Second Semester 2019/2020

Course Details

Title:	Reverse Engineering (0640458)
Prerequisite:	Engineering Skills
Class Time	Sun/Tues/Thurs 10.10 → 10.00
Credit Hours:	Three credit hours (16 weeks per semester, approximately 45 contact hours)
Textbook:	Product Design: Techniques in Reverse Engineering and New Product Development by Otto and Wood. PE 2011
References	1. Reverse Engineering: Mechanisms, Structures, Systems & Materials by Robert Messler 2013 3. Reverse Engineering by R. Hinrichs 2015 4. Reverse Engineering: An Industrial Perspective by Raja and Fernandes. 2008 4. Reversing: Recent Advances and Applications Edited by A. Teila 2012
Description:	The course is a requirement for level 4 th level engineering students. It introduces students to Reverse Engineering Methodology through practical case studies and class projects.
Website:	http://www.philadelphia.edu.jo/academics/mbaniyounis
Instructor:	Dr. Mohammed Baniyounis Email: mbaniyounis@philadelphia.edu.jo Office: Engineering building, room 732, ext: 2137 Office hours: Sun/Tues/Thurs: 11.30 → 13.30

Course Learning Outcomes with reference to ABET Student Outcomes

Upon successful completion of this course, student should:

1.	Understand the Reverse Engineering (RE) Methodology	[e, k]
2.	Compare forward design with re-engineering	[e, k]
3.	Analyze product functions and Evaluate their performance	[b, c]
4.	Disassemble products and specify interactions among subsystems and their functionality	[b, e, k]
5.	Understand Computer-Aided RE and Rapid Prototyping Technology	[b, e, k]
6.	Know the latest technologies used in RE for PCBs	[j, c, k]
7.	Understand RE applications in software engineering	[b, j, k]
8.	Understand professional and ethical responsibilities regarding RE	[f]
9.	Apply RE methodologies in a multi-disciplinary within a team environment	[d, g, h, i]
10.	Write technical report and present results to the class	[d, g]



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Course Academic Calendar		
Week	Subject	Notes
Feb 16	Introduction	
Feb 23	Forward Engineering Design: Design thought and process, design steps	
March 1	Forward Engineering Design: examples	
March 08	System RE: RE methodology, RE steps	Prescreening
March 15	System RE: product development, product functions	
March 22	System RE: Product teardown, engineering specs, product	Observation
Exam I (March 18-26)		
March 29	Case Studies; Group Discussions	
April 05	Mechanical RE: Computer aided RE	
April 12	Mechanical RE: rapid prototyping	Dissection
April 19	Electronic RE: Identify components	
April 26	Electronic RE: PCB RE	Analysis
Exam 2 (April 22- 30)		
May 03	Electronic RE: VHDL	
May 10	Software RE	Report Due
May 17	Student Project Presentations	
<i>Eid Al-fater 23-26 May</i>		
May 24	Review	
FINAL EXAMS (May 30 – June 06)		

Assessment Guidance:

Evaluation of the student performance during the semester will be based on the following:

- Exams:** Two in-class exams will be given. Each will cover about 6-weeks of lectures.
- Project:** A project assignment will be handed to the students. The assignment will ask the students to reverse engineer a particular product. Students will be asked to write a technical report, show their work in the lab, and present it. A group of two students are expected to work on the project.
- Final Exam:** The final exam will cover all the class material.
- Quizzes:** 10-minute quizzes will be given to the students throughout the semester and will be used as bonus points.

Grading Policy:

First Exam	15%
Second Exam	15%
Project	30%
Final Exam	40%
Total: 100%	