



Philadelphia University
Faculty of Engineering
Department of Computer Engineering

First Semester, 2012/2013

Course Syllabus

Course Title: Mechanical Design	Course code: 0640432
Course Level: 4 th Year	Course prerequisite(s): 0620333
Lecture Time: 10:15-11:15 Sun., Tue. And Thu.	Credit hours: 3

Academic Staff Specifics

Name	Rank	Office No.	Office Hours	E-mail Address
Dr. Mohammad Al-Shabi	Assistant Prof.	406	11:00-13:00 Sun, Tues and Thu	mshabi@philadelphia.edu.jo

Course module description:

The course includes the following:

- Review of stress and deflection analysis.
- Prevention of failure due to static and dynamic loads.
- Connections: Threaded connections and fasteners, Welded and riveted joints.
- Design some mechanical elements; i.e. shaft and pulley.

Course module objectives:

- Design safe and efficient components from readily available materials.

Course/ module components:

- **Books (title , author (s), publisher, year of publication):**
 - “Mechanical Engineering Design” Joseph E. Shigley Mc-Graw Hill, 6th edition.
 - “Mechanical Elements in Machine Design” Robert L. Mott, Prentice Hall, 4th Edition, 2004.
- **Support material (s) (vcs, acs, etc).**
- **Study guide (s) (if applicable)**
- **Homework and laboratory guide (s) if (applicable).**

Teaching methods:

Lectures, discussion groups, tutorials, problem solving, etc.

Learning outcomes:

- Knowledge and understanding: Understanding the methods that are used in designing different mechanical parts and joints.
- Cognitive skills (thinking and analysis): Designing different mechanical parts with several methods and choose the best one among them.
- Communication skills (personal and academic).
- Practical and subject specific skills (Transferable Skills).

Assessment instruments

- **Homework.** One assignment is needed. The assignment is to be submitted by the last lecture just before the second exam. The assignment is submitted by group of students that does not exceed 3 members. The group should propose a printed copy of the assignment.
- **Quizzes.** Three 10-minute quizzes will be given to the students throughout the semester. These quizzes will cover material discussed during the previous lecture.
- **Final examination:** 40 marks

Allocation of Marks	
Assessment Instruments	Mark
1 st examination	20%
2 nd examination	20%
Homework	10%
Quizzes	10%
Final Examination:	40%
Total	100%

Documentation and academic honesty

- Documentation style (with illustrative examples)
- Protection by copyright
- Avoiding plagiarism.
- **Ethics and Disability Act:**
 - Students may consult with one another on solutions, but copying another student's code is strictly prohibited.
 - Students should write their own code. Using code found on books or internet is prohibited.
 - The Instructor follows general university "Academic Dishonesty/Cheating Policy".

Course/module academic calendar

week	Basic and support material to be covered	Homework
(1)	Introduction	
(2)	Materials.	
(3)	Deflection and Stiffness	
(4)	Combined Stress and Mohr's Circle	
(5)	Design of different type of loads.	Q1
(6)		
(7)	Gears	Q2
(8)		
(9)	Shaft Design	
(10)		
(11)	Springs	
(12)		Q3
(13)	Belt Drives and Chain Drives.	HW
(14)	Welding.	Q4
(15)		

Expected workload:

On average students need to spend 2 hours of study and preparation for each 50-minute lecture/tutorial.

Attendance policy:

Absence from lectures and/or tutorials shall not exceed 15%. Students who exceed the 15% limit without a medical or emergency excuse acceptable to and approved by the Dean of the relevant college/faculty shall not be allowed to take the final examination and shall receive a mark of zero for the course. If the excuse is approved by the Dean, the student shall be considered to have withdrawn from the course.

The student is responsible for all assignments on a weekly basis.

No make-up will be given for missed quizzes, tests or assignments, unless a case is made in advance with Instructor's approval.

Module references**Books**

- "Machine Design" An Integrated Approach Robert L. Norton, Prentic Hall, 2nd edition.
- "Shigley's Mechanical Engineering Design", R. Budynas and K. Nisbett, 2010, ISBN-10: 0077942906 .