Philadelphia University
Faculty of Engineering and Technology
Department of Mechanical Engineering

Course Information

Title:	Strength of materials lab (620314)
Prerequisite:	Solid Mechanics (620213)
Credit Hours:	1 credit hours (14 weeks per semester)
Textbook:	Lab manual, lecture notes.
References:	Mechanics of Materials- 4th edition Gear + materials engineering Callister 9th edition.
Course Description:	The course is a requirement for Mechanical and Civil engineering students. Itintroduces practically concept of mechanical properties of materials.
Course requirements:	Computer , internet connection , webCam
Instructor:	**Eng. Lina Al-Khateeb** **Office**: Mechanical Engineering building, room E612211 , ext. : 2361

Course Topics(Experiments):

Week	Topic
1	- Introduction to strength of materials
2	- Tensile test
3	- Hardness test
4	- Creep test
5	- Buckling test
6	- Fatigue test
7	- Impact test
8	- Shear and bending test
9+10	- Load of mechanical cell
11	- Summary of lab
12	- Practical final exam
13	- Theoretical final exam

ABET Student Outcomes (SOs)

1	An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2	An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3	An ability to communicate effectively with a range of audiences
4	An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5	An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6	An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7	An ability to acquire and apply new knowledge as needed, using appropriate learning strategies

Course Learning Outcomes and Relation to ABET Student Outcomes:

Upon successful completion of this course, a student should be able to:

1.	Understand the concepts of mechanical properties and demonstrate background of the theoretical aspects.	[6]
2.	Analyze the data which using in experiments and apply the elements of data statistics.	[6]
3.	Prepare the students to have hands on experiments and to have exposure to equipment and machines	[6]
4.	Prepare the students to solve problems related to their course work.	[6]
5.	Encourage the students to use computers in analyzing the data.	[6]
6.	Compare the theoretical results with experimental one.	[6]

Evaluation methods:

Evaluation of students' performance (final grade) will be based on the following categories:

Reports: Each experiment has a report describing theory, procedure, readings, results, discussion, and conclusion.

Quizzes: Three quizzes will be given to the students during the semester. These quizzes will cover each three experiments in the lab. Fifteen minutes for each quiz.

Final Exam: The final exam will cover all the class material.

Grading policy:

Mid	30% (15% Reports, 15% Quiz)
Third	30% (15% Reports, 15% Quiz)
Final Exam	40%
Total:	100%

Attendance policy:

Absence from classes 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.