



COURSE TITLE - CH:	Strength of Materials Lab - (1,0,3)	COURSE NUMBER:	110402330
DESIGNATION:	Compulsory	PREREQUISITE(S):	110402212
INSTRUCTOR:	Manal Mustafa	INSTRUCTOR'S E-MAIL:	m_mustafa@hu.edu.jo
COURSE COORDINATOR:	Manal Mustafa	OFFICE HOURS:	See posted hours
SECTIONS:	Section 1: Sun. 2:00-5:00 , Section 3: Tues. 2:00-5:00 , Section 4: Wed. 2:00-5:00		

LAB. SUPERVISOR:	Ahamd Al-Shurman	INSTRUCTOR'S E-MAIL:	alshorman_ahmad@yahoo.com
	Section 1: Sun. 2:00-5:00 Section 3: Tues. 2:00-5:00 , Section 4: Wed. 2:00-5:00		

Course Description (catalog):

Conduct experiments in teams, analyse data, and communicate experimental results in written technical reports in order to improve student knowledge and understand of basic concepts of how to characterize the elastic and inelastic deformation and fracture behavior of common materials. Particularly, to calculate stress and strain, reduce data obtained from computer data acquisition systems, communicate via technical writing, use spreadsheets, word processors, and statistical analysis software. Understand the deformation and fracture characteristics of common materials. Conduct ramp and creep tension tests and fracture tests.

Textbook(s) and/or Other Supplementary Materials:

Strength of Materials Lab Manual

References:

1. Mechanics of Materials, 7th edition, R. C. Hibbeler, Prentice Hall, USA, 2008, ISBN: 13-9780132209915.

Major Topics Covered:

Topic	# Weeks	# Contact hours*
Experiment 1: Tensile Test and Compression Test	1	3
Experiment 2: Torsion Test	1	3
Experiment 3: Deflection of Beams	1	3
Experiment 4: Stability of Columns	1	3
Experiment 5: Fatigue Test	1	3
MID EXAM		1
Experiment 6: Strain Measurement with Strain Gauges	1	3
Experiment 7: Thin-walled cylinders	1	3
Experiment 8: Impact Test	1	3
Experiment 9: Creep Test	1	3
Experiment 10: Hardness Test	1	3
FINAL EXAM		2
Total	11	36

*Contact hours include lectures, quizzes and exams

Specific Outcomes of Instruction (Course Learning Outcomes):

A student who successfully fulfills the course requirements will be able to:

CLO1. Perform various material testing using following material testing machines: [a,b,d,g,k]

- 1) Universal Testing Machine
- 2) Torsion Testing Machine
- 3) Hardness Testing Machine
- 4) Fatigue Testing Machine
- 5) Impact Testing Machine
- 6) Buckling Testing Machine
- 7) Deflection of Beams Apparatus
- 8) Thin Walled Pressure Vessel Apparatus.
- 9) Creep Measurement Apparatus

CLO2. Analyse data Writ technical reports.[a, b, d, k]

CLO3. Work in a team and building up communication skills. [d,g,k]

CLO4. Design and build a device to run an experiment in material testing field. [a,b, d,e,g,k]

Student Outcomes (SO) Addressed by the Course:

#	Outcome Description	Contribution
General Engineering Student Outcomes		
(a)	Ability to apply mathematics, science and engineering principles.	M
(b)	Ability to design and conduct experiments, analyze and interpret data.	H
(c)	Ability to design a system, component, or process to meet desired needs.	
(d)	Ability to function on multidisciplinary teams.	L
(e)	Ability to identify, formulate and solve engineering problems.	M
(f)	Understanding of professional and ethical responsibility.	
(g)	Ability to communicate effectively.	L
(h)	The broad education necessary to understand the impact of engineering solutions in a global and societal context.	
(i)	Recognition of the need for and an ability to engage in life-long learning.	
(j)	Knowledge of contemporary issues.	
(k)	Ability to use the techniques, skills and modern engineering tools necessary for engineering practice.	L

H=High, M= Medium, L=Low

Grading Plan:

Reports + Quizzes	30 Points	
Midterm	30 Points	TBA
Final exam	40 Points	TBA