Jordan University of Science and Technology

Faculty of Engineering

Mechanical Engineering Department

ME312 Mechanics Of Materials - JNQF Level: 7
First Semester 2023-2024

Course Catalog
1 Credit Hours. Strength of material experiments including: Hardness, Tensile, Compression, Impact, Torsion, Creep, Buckling, and Fatigue tests.Experiments on thin-walled pressure vessels, non-destructive testing, metallurgy, heat treatment, and casting. (1.0 Cr.)

Text Book	
Title	The lab manual, prepared by the department, besides handouts on the experiments, which will be given in the lab
Author(s)	none
Edition	1st Edition
Short Name	Manual
Other Information	

Course References

Short name	Book name	Author(s)	Edition	Other Information
Ref	Mechanics of materials	Ferdinand Beer, E. Russell Johnston, John Dewolf, David Mazurek	6th Edition	The strength of materials course textbook

Instructor	
Name	**Dr. Bassam Alshaer**
Office Location	M5L3
Office Hours	Sun : 08:30 - 09:30 Sun : 12:30 - 13:30 Mon : 08:30 - 09:30 Tue : 08:30 - 09:30 Tue : 09:30 - 10:30 Thu : 12:30 - 13:30

Email	bjalshaer@just.edu.jo

Instructor	
Name	**Dr. Nisrin Abdel Al**
Office Location	N1-L2
Office Hours	Sun : 09:30 - 11:30 Mon : 11:30 - 12:00 Tue : 09:30 - 11:30 Thu : 09:30 - 11:30
Email	nrabdelal@just.edu.jo

Instructor	
Name	**Prof. Adnan Khdair**
Office Location	N2 L2
Office Hours	
Email	akhdair@just.edu.jo

Class Schedule & Room

Section 1:
Lecture Time: Sun : 14:30 - 17:30
Room: LAB

Section 2:
Lecture Time: Wed : 14:30 - 17:30
Room: LAB

Section 5:
Lecture Time: Mon : 08:30 - 11:30
Room: LAB

Section 6:
Lecture Time: Tue : 14:30 - 17:30
Room: LAB

Prerequisites

Line Number	Course Name	Prerequisite Type
252143	ME214 Strength Of Materials	Prerequisite / Study

Tentative List of Topics Covered

Weeks	Topic	References
Week 1	Hardness test	
Week 2	Tension test	
Week 3	Compression & impact tests	

Week 4	Torsion test	
Week 5	Thin-walled pressure vessel	
Week 6	Beam bending test	
Week 7	Buckling and Fatigue tests	
Week 8	Creep test + Mid Term Exam	
Week 9	Metallographic analysis	
Week 10	Non destructive test	
Week 11	Heat treatment	
Week 12	Casting	

Mapping of Course Outcomes to Program Outcomes and NQF Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
ability to conduct standard static loading (tension,compression and torsion) and dynamics (impact) tests of metallic materials [1SO1] [1L7S1]	70%	
ability to use strain gauges for strain measurement [1SO6] [1L7S3]	10%	
ability to document results in written reports [1SO3] [1L7C4]	10%	
ability to work in groups [1SO5] [1L7C3]	10%	

Relationship to Program Student Outcomes (Out of 100%)						
SO1	SO2	SO3	SO4	SO5	SO6	SO7
70		10		10	10	

Relationship to NQF Outcomes (Out of 100%)			
L7S1	L7S3	L7C3	L7C4
70	10	10	10

Evaluation	
Assessment Tool	**Weight**
Mid	30%
Reports and Quizzes	30%
Final	40%

Policy	
1	All reports must be prepared on the computer using any software of the student's choice. Reports will be submitted via E-Learning.

2	Reports should be submitted one week after the lab date (after experimenting). The submission link will be open on the lab date and remain open for a week. Late reports are not accepted.
3	The report must be prepared according to the format provided by the instructor at the beginning of the semester.
4	It is not allowed to use other student's work or cut and paste material from the internet to prepare your report. Copying reports from other students is not tolerated. You can discuss the subject with others, but the report must be your work. Therefore, at the end of the report, you must include a signed statement, implying that the submitted report is the result of your work and not the work of others.
5	A Facebook group for all lab sessions will be created at the beginning of the semester. The datasheets and photos of the experiments will be published on the Facebook group periodically.

Date Printed: 2023-12-01