



**JORDAN UNIVERSITY OF SCIENCE & TECHNOLOGY**  
**MECHANICAL ENGINEERING DEPARTMENT**  
**ME 312 STRENGTH OF MATERIALS LAB**  
\_\_\_\_\_ Semester

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<b>Catalog Data- 2013 :</b>	1 Credit hour (3 lab. Hours). Destructive tests (hardness, tensile, compression, impact, torsion, bending, fatigue, and creep). Non-Destructive tests. Heat treatment methods. Microstructure examination. Sand, shell, and centrifugal casting.
<b>Text Book(s):</b>	Strength of Materials Lab Manual.
<b>References:</b>	Mechanics of Materials by Beer and Johnson, McGraw Hill, 6 <sup>th</sup> edition. Materials Science and Engineering by Callister and Rethwisch, John Wiley & Sons, Inc. 8th edition.
<b>Instructor:</b>	_____
<b>Class Schedule:</b>	_____
<b>Office Hours:</b>	_____
<b>Pre/Co-Requisite:</b>	ME214 Mechanics of Materials. IE363 Engineering Materials.
<b>Outcomes:</b>	1- Develop the student's ability to relate theoretical information to actual experiments. [a] 2- Develop the student's ability to analyze experimental data. [b] 3- Extend the student's ability to evaluate experimental outcomes. [a]
<b>Topics Covered:</b>	1. Hardness Test. 2. Tension Test. 3. Compression Test and Impact Test. 4. Torsion Test. 5. Combined Loading Test. 6. Beam Bending and Deflection test. 7. Buckling Test and Fatigue Test. 8. Creep Test. 9. Metallographic Analysis. 10. Nondestructive Testing. 11. Heat Treatment Test. 12. Centrifugal Casting test.
<b>Computer Usage:</b>	Not formally required, however students are encouraged to use computers to prepare their lab reports.
<b>Design Activities/Project(s):</b>	N/A.
<b>Lab. Experiment(s):</b>	12 experiments are performed during semester.
<b>Scientific Visit(s):</b>	N/A.

<b>Evaluation:</b>	Lab Reports:	40%
	Mid exam:	20%
	Final Exam:	60%

**Relationship of the Course to ME Outcomes:**

ABET a – k	√	Level (L, M, H)	Mechanical Eng. Program Outcomes
<b>a</b>	√	<b>M</b>	a. Apply knowledge of mathematics, science, and engineering in practice.
<b>b</b>	√	<b>H</b>	b. Design and conduct experiments as well as analyze and interpret data.
<b>c</b>			c. Design a system, components, or process to meet desired needs.
<b>d</b>			d. Function on multidisciplinary teams.
<b>e</b>			e. Identify, formulate, and solve engineering problems.
<b>f</b>			f. Understanding of professional and ethical responsibility of an engineer.
<b>g</b>			g. Communicate effectively.
<b>h</b>			h. Broad education to understand the impact of engineering solutions in global and societal context.
<b>i</b>			i. Recognition of the need for, and possess the ability to engage in, lifelong learning.
<b>j</b>			j. Possess knowledge of contemporary issues.
<b>k</b>			k. Use the techniques, skills, and modern engineering tools necessary for engineering practice.
<b>l</b>			l. Adhere to safety rules and regulations.

**L: Low, M:Medium, H: High**

**ABET Category:**

Engineering Science	1	Credits
Engineering Design	0	Credits

**Prepared By:** \_\_\_\_\_

**Date:** \_\_\_\_\_

- Rules and notes:**
- 1) Never come late to the classroom, you will disturb your mates and your instructor if you do so.
  - 2) Turn OFF your cell phones during the class.
  - 3) DO Not TALK during the class please, unless you have a question for me.
  - 4) **No** quizzes make-ups.
  - 5) Make up exams are not held without an official signed and approved excuse from the **Department Chairman**. Please understand that this is a university law and I have no control over it.
  - 6) Office hours are the hours I dedicate for you to ask me. If you think they do not suit you, then we can still arrange for a time of our convenience by sending an e-mail to me (you should expect an approval from my side).
  - 7) The exams specified on the course syllabus are not subject to negotiations or change once approved by you **TODAY**. It is your responsibility to inform the other instructors about your assigned exams.