

**The University of Jordan
School of Engineering
Department of Mechatronics Engineering
1st Semester – A.Y. 2019/2020**



Course:	Statics and Strength of Materials – 0908241 (3 Cr. – Core Course) Lecture Time (Sun, Tue, Thu : 9:00 – 10:00)
Instructor:	Dr. Mohammad Mashagbeh <i>Office:</i> Mechatronics Engineering Department, <i>Telephone:</i> 5355000 ext 23023, <i>Email:</i> m.mashagbeh@ju.edu.jo <i>Office Hours:</i> (Sun, Tue : 10:00 – 11:00)
Course Website:	http://elearning.ju.edu.jo
Catalog Data:	Force vectors, force system and resultants, equilibrium, structural analysis, geometric properties and distributed loadings, internal loadings, stress and strain, mechanical properties of materials, axial load, torsion, bending, combined loadings, stress and strain transformations, buckling of columns.
Prerequisites by Course:	General Physics I – 0302101.
Prerequisites By Topic:	The student should have the basic knowledge of physics and engineering mathematics
Textbook:	Statics and Mechanics of Materials, Russell C. Hibbeler, Prentice Hall, 2016, 5 th Edition
References:	Lecture notes
Schedule & Duration:	14 Weeks, 28 lectures (75 minutes each) including exams.
Minimum Student	Textbook, class handouts, and scientific calculator.
Material:	
Minimum College Facilities:	Classroom with whiteboard and projection display facilities, library.
Course Objectives:	The course provides the student with a general overview of Force vectors, force system and resultants, equilibrium, structural analysis, geometric properties and distributed loadings, internal loadings, stress and strain, mechanical properties of materials, axial load, torsion, bending, combined loadings, stress and strain transformations, and buckling of columns.

Course Learning Outcomes and Relation to ABET Student Outcomes:

Upon successful completion of this course, a student should:

1. Perform force and moment equilibrium calculations of structural members
2. Define geometric properties of structural members such as Center of Gravity and Moment of Inertia
3. Analyze internal loadings of structural members
4. Recognize the effect of the mechanical properties of materials
5. Perform stress and strain calculations for axial and torsion loads

Course Topics:

	Topic description
1	General principles
2	Force vectors
3	Force system resultants
4	Equilibrium of a rigid body
5	Structural Analysis
6	Center of gravity, centroid, and moment of inertia
7	Stress and strain
8	Mechanical properties of materials
9	Axial load
10	Torsion
11	Bending

ABET SO:

1) An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.

Ground Rules:

- **Attendance:**
Attendance is required and strictly enforced. To that end, attendance will be taken every lecture; Absence of more than 7 lectures will result in the expulsion of the student from the course.
- **Make up Examinations**
There will be no make up exams for any exam that will be taken during the course. exceptions to this rule is restricted only to the following cases:-
 1. death of only first order relatives (father, mother, sister, or brother).
 2. hospital entry (in-patient) during thr time of the examination.Any other cases will be given zero mark in the corresponding exam.
- **Special Notes**
 1. Seating plan will be as given in the attendance sheet.

Assessments: Exams and quizzes.

Grading policy:

Quizzes (online, in class)	10%
Participation	10%
Midterm Exam	30 %
Final Exam	50 %
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Total	100%

Last Updated: Sep 2019