



Jordan University of Science and Technology
Faculty of Engineering
Aeronautical Engineering Department

Course name and number:

AE 214 Strength of Materials

Credit, contact hours and categorization:

Credit and contact hours	Contact hours	Categorization
3 Credit Hours	Sunday-Tuesday-Thursday 1-hour lecture Or Monday-Wednesday 1.5-hours lecture	Engineering Topic

Instructor's or course coordinator's name:

Name	Dr. Abdallah Almomani
Office location	N1-L2
Email address	amalmomani0@just.edu.jo

Textbook and other supplemental materials:

Textbook			
Title	Mechanics of Materials		
Author(s)	F.P. Beer, E.R. Johnston, Jr., and J.T. DeWolf, D.F. Mazurek		
Edition	7 th Edition		
Other Information	McGraw-Hill's		
References			
Book Name	Author(s)	Edition	Other Information
Mechanics of Materials	R.C. Hibbeler	9th Edition	Pearson

Course information:

Course Catalogue		
Concepts of stress and strain, Stresses and displacements of axially loaded members, The state of stress and strain, Normal, bending, shear, and torsion stresses, Mechanical properties of materials, combined stresses, composite sections, Deflections: integration Method, Moment area method, Buckling of columns		
Course type : This course is required to fulfill the program.		
Prerequisites or co-requisites		
Line Number	Course Name	Prerequisite Type
252112	ME211B Statics	Prerequisite / Pass



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Specific goals of the course :

Specific outcomes of instruction and the student outcomes (SO) mapping		
Outcomes	SO Mapping	Course Outcome Weight (Out of 100%)
To calculate stresses in a loaded structure or a machine component	14SO 1	14%
To calculate strains/deformations for bodies subjected to loads and/or temperature change	9SO 1	9%
Use stress concentration factors to find maximum stresses	9SO 1	9%
To solve statically indeterminate problems of members subjected to several types of loadings	10SO 1	10%
Apply Hook's Law in one, two and three dimensions	10SO 1	10%
Solve problems using stress transformation equations and Mohr's circle	10SO 1	10%
Calculate stresses in thin-walled pressure vessels	7SO 7	7%
Draw shear and moment diagrams for beams subjected to several types of loadings	1SO 1, 10SO7	11%
Determine the deflections of statically determinate and indeterminate beams using double integration and superposition	11SO 1	11%
Apply Euler's equation to solve column-buckling problems for different end conditions	9SO1	9%

Brief list of topics to be covered:

Tentative List of Topics Covered		
Weeks	Topic	References
Weeks 1, 2	Concept of stress and strain-Axial loading	Chapter 1, 2 From Textbook
Weeks 3, 4	Torsion	Chapter 3 From Textbook
Weeks 5, 6	Pure bending	Chapter 4 From Textbook
Weeks 7, 8	Analysis and design of beams for bending	Chapter 5 From Textbook
Weeks 9, 10	Shearing stresses in beams and thin-walled members	Chapter 6 From Textbook
Weeks 11, 12	Transformations of stress and strain	Chapter 7 From Textbook
Weeks 13, 14	Deflection of beams	Chapter 9 From Textbook
Weeks 15, 16	Buckling	Chapter 10 From Textbook