



## Module (Course Syllabus) Catalogue 2022-2023

College/ Institute	College of Engineering		
Department	Highway Engineering Department		
Module Name	STRENGTH OF MATERIALS-2		
Module Code	STM401		
Semester	Second Semester		
Credits	6		
Module type	Prerequisite	Core	Assist.
Weekly hours	4 hours/week		
Weekly hours (Theory)	(4) hrs. In Class		(162) hrs. Workload
Weekly hours (Practical)	0		
Lecturer (Theory)	Bakhtyar Nassih Najar		
E-Mail & Mobile NO.	<a href="mailto:bakhtyar.najar@epu.edu.iq">bakhtyar.najar@epu.edu.iq</a> (0750-430-1936)		
Lecturer (Practical)	0		
E-Mail & Mobile NO.			

# Course Book

<b>Course Description</b>	Covers the relationship between stress and strain on deformable solids. Applies analysis to members subjected to axial, bending, and torsional loads.
<b>Course objectives</b>	Stress/ deformation relationships for continuous media to structural member; axially loaded members; thin-walled pressure vessels; torsional and flexural members; shear; moment; deflection of member; combined loadings; stability of columns; indeterminate members; shear center, non-symmetrical bending, shear center.
<b>Student's obligation</b>	<ol style="list-style-type: none"> <li>1. Class starts on time. Late are not allowed.</li> <li>2. Quiz is expectable every week.</li> <li>3. Mobile telephone is not allowable in the study hall.</li> <li>4. Food and drinks are not allowable in the study hall</li> </ol>
<b>Required Learning Materials</b>	Concept of Stress, Stress and Strain-Axial Loading, Torsion, Shear Force and Bending Moment in Beams, Shear Force and Bending Moment Diagram in Beams, Bending Stresses in beams.
<b>Assessment scheme</b>	Individual, small group, and full class discussion; homework problems; examinations; and small group problem-solving sessions may be used to assess outcomes. Lecture, homework, and in-class group activities will be coordinated. Specific evaluation procedures will be defined during the first week of class. In general, grading will depend on weekly tests, homework, class participation, and a comprehensive final exam.
<b>Specific learning outcome:</b>	<p><b>Upon completion of the course student should be able to:</b></p> <ol style="list-style-type: none"> <li>1. Analyze and design structural members subjected to tension, compression, torsion, bending using the fundamental concepts of stress, strain and elastic behavior of materials.</li> <li>2. Utilize appropriate materials in design considering engineering properties, sustainability, cost and weight.</li> <li>3. Perform engineering work in accordance with ethical and economic constraints related to the design of structures and machine parts.</li> </ol>
<b>Course References:</b>	<ol style="list-style-type: none"> <li>1- Mechanics of Materials, Sixth Edition, By: James M. Gere.</li> <li>2- Mechanics of Materials, Eight Edition, By: R.C. Hibbeler.</li> <li>3- Mechanics of Materials, Sixth Edition, By: Ferdinand P. Beer, E. Russell Johnston, Jr., John T. Dewolf, David F. Mazurek.</li> </ol>

100% Engineering Science

Weekly plan:

1. Class introduction. Syllabus instructions. Brief review of statics. Forces in trusses, axially loaded rods.
2. Stresses in Beams
3. Analysis of Stress and Strain.
4. Combined loadings.
5. Deflection of Beams
6. Statically Indeterminate Beams.
7. Columns.