

## Course Description Form

1. Course Name:	
Strength of Materials/ 2 <sup>nd</sup>	
2. Course Code:	
WCV-22-01-M	
3. Semester / Year:	
Strength of Materials/ 2 <sup>nd</sup>	
4. Description Preparation Date:	
March 20 <sup>th</sup> 2024	
5. Available Attendance Forms:	
In person	
6. Number of Credit Hours (Total) / Number of Units (Total)	
60 hrs (15 weeks and 4 hrs/week)	
7. Course administrator's name	
Name: Dr. Hadeel Challoob Dekhn Email: hadeel.ch@uowa.edu.iq	
8. Course Objectives	
<b>Course Objectives</b>	<ul style="list-style-type: none"><li>• Provide the second stage students with basic knowledge of the strength of materials. Everything related to the effect of external loads, such as forces and moments on materials, and the stresses and deformations that occur in materials, is studied.</li><li>• The course also aims to enable students to access the science of engineering design by understanding how to perform correct engineering analysis, how to deal with laws, equations, illustrations, and other data, and to link the data to each other to reach outcomes and empower the student with the ability to analyze, deduce, and conclude.</li></ul>
9. Teaching and Learning Strategies	
<b>Strategy</b>	<p>1- Enabling the student to know and understand the practical applications of strength of materials in accordance with the course objectives.</p> <p>2- Preparing applied engineers in the field of strength of materials who are distinguished by a high level of knowledge and technological creativity, including its compatibility with the internationally approved solid standards for quality assurance and academic accreditation for corresponding engineering programs and commitment to the ethics of the engineering profession.</p>

## 10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-3	12	-Types of stresses -Derivation of the bending stress equation -Applications and solving engineering problems	Flexural stresses in beam	-Direct explanation and discussions.  -Utilizing the teaching ability and experience in delivering the scientific material to the student and linking it to the practical reality after graduation.	-Daily oral questions and quick written tests.  -Discussion and dialogue with students.  -Attendance.  -Monthly written tests.  -Final semester exam.
4-6	12	-Derivation of shear stress equations for different bridge shapes -Applications and solving engineering problems	Shear stresses in beams		
7-8	8	- Methods for finding stresses. -Analytical method -Drawing method (Mohr's Circle) -Calculating the transmission of stresses	Transformation of stresses and strains	-Lectures and data shows  -Assigning students to apply the examples themselves after the teacher explains the theoretical topic.	
9-11	12	-Calculating the stress of circular sections -Calculating the twisting deformation of circular sections	Torsion	-Multimedia using the e-learning system	
12-13	8	-Derivation of the equation for calculating deformation in beams -Methods of finding deformation in Beams -Double integration method -Moment -Area method	Deflection of Beams	-Giving the lecture, answering students' questions, and discussing with the students aspects that are not clear to them	
14-15	8	-Introduction to the types of columns. -Derivation of the equation for calculating stress and deformation Long columns -Intermediate columns	Columns		

## 11. Course Evaluation

15% First monthly exam  
 15% Second monthly exam  
 10% Evaluation (Quizzes and daily participation)  
 60% Final exam

## 12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	<ul style="list-style-type: none"><li>-Strength of Materials (4th Edition) by Ferdinand L.Singer &amp; Andrew Pytel.</li><li>-Statics and mechanics of materials by Hibbeler, 2004.</li><li>-Mechanics of Materials (2nd Edition) by Egor P. Popov.</li></ul>
Recommended books and references (scientific journals, reports...)	<b>Mechanics of Materials</b> Timothy A. Philpot Jeffery S. Thomas
Electronic References, Websites	<a href="https://amesweb.info/StressStrainTransformations">https://amesweb.info/StressStrainTransformations</a>