6MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	Strength of Material-2			**Module Delivery**	
Module Type	Core			☒ **Theory** ☒ **Lecture** ☒ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	CIV008				
ECTS Credits	5				
SWL (hr/sem)	125				
Module Level		UGII	**Semester of Delivery**		4
Administering Department		CV101	**College**	Civil Engineering College	
Module Leader	Dr. Dhafer Khalefa Jadaan		**e-mail**	Dhafer.jadaan@uoanabr.edu.iq	
Module Leader's Acad. Title		Lecturer	**Module Leader's Qualification**		Ph.D.
Module Tutor	Mr. shamil Kamil		**e-mail**	E-mail	
Peer Reviewer Name		Name	**e-mail**	E-mail	
Scientific Committee Approval Date		01/06/2023	**Version Number**		1.0

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	ENG006 Statics, CIV003 Strength of material 1	**Semester**	2,3
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1. Ability to apply the basics of flexural and transverse stresses in designing structural members against failure. 2. Ability to understand the allowable stresses principles in designing structural elements. 3. Ability to locate the maximum stresses (principal stresses) and determine them to avoid associated failures. 4. Ability to locate the maximum strains (principal strains) and determine them to avoid associated failures.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. 1.Understanding the concepts shear and bending moment diagrams. 2. 2.Ability to identify and solve problems for flexural stresses. 3. 3.Ability to solve problems for transverse shear stresses. 4. 4. Understanding the Stress and strain transformations. 5. Application of Mohr circle in calculations of stress transformations. 6. 5.Understanding the buckling of columns and impacts on column design. 7. Learning the basics of combined loading. 8. Understanding the basics of bimodular materials.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. **Chapter one** Introduction: Definitions and reviews, - of basics of strength of material 1 [2 hrs] **Chapter Two** Principle of flexural stresses and differentiate of types of stresses, calculations of flexural stresses in beams loaded transversely [10 hrs] **Chapter Three** Principle of transverse shear stresses and differentiate of types of stresses, calculations of transverse shear stresses in beams loaded transversely [12 hrs] **Chapter Four** Stress transformation, principal stresses, and maximum in-plane shear stresses [12 hrs] **Chapter Five** Strain transformation, principal strains and maximum absolute strain[12 hrs] **Chapter Six** Application of Mohr circle in calculations of stress and Strain transformation, principal stresses and strains and maximum absolute strain[12 hrs] **Chapter Seven** Deflection of beams loaded transversely, review of methods and focus is given to the double integration method [12 hrs]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Strength of material courses require effective learning and teaching strategies to ensure students develop a strong understanding of complex concepts and their practical applications. The range of strategies that can enhance the learning experience for students in Strength of material courses. These strategies include lecture-based teaching, practical applications, problem-solving assignments, group work and discussions and technology integration.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	78	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	5.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	47	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	3.13
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	125		

Module Evaluation
تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	unspecified	-	unspecified	unspecified
	Assignments	8	15% (10)	3,4,5,6,8,11, 13,15	LO# 1,2,3,4, and 5
	Projects / Lab.	10	10% (10)	2,3,4,5,6,7,8, 9,10	LO #6
	Report	unspecified	-	unspecified	unspecified
Summative assessment	**Midterm Exam**	2 hr	25% (25)	7	LO # 1-3
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction and review to basics of mechanics of materials 1
Week 2	Principle of Flexural stresses in beams
Week 3	Calculations of Flexural stress for simple cases of beams
Week 4	Calculations of Flexural stress for complicated cases of beams
Week 5	Principle of transverse shear stresses in beams
Week 6	Calculations of transverse shear stress for simple cases of beams
Week 7	Calculations of transverse shear stress for complicated cases of beams
Week 8	Stress transformation, calculation of stresses at any angle
Week 9	principal stresses, and maximum in-plane shear stresses.
Week 10	Strain transformation, calculation of strains at any angle
Week 11	principal strains, and maximum in-plane shear strain.
Week 12	Mohr circle for stress transformation
Week 13	Mohr circle for strain transformation
Week 14	Combined loading.
Week 15	Deflection of transversely loaded beams.
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab 1: Support Reactions for Simply Supported beam
Week 2	Lab 2: Tension test
Week 3	Lab 3: Verification of the theory of pure Bending
Week 4	Lab 4: verification of deflection of a simply supported beam
Week 5	Lab 5: Torsion test
Week 6	Lab 6: Reactions of restrained beams
Week 7	Lab 7: Buckling of Columns

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Mechanics Of Materials, Ferdinand P. Beer, 8th ed., McGraw-Hill Educatio,2020	Yes
Recommended Texts	Mechanics Of Materials, RC Hibbeler, 8th ed.,2011, Pearson Prentice Hall	Yes
Websites	https://www.uoanbar.edu.iq/Bank-Section.php	

Grading Scheme مخطط الدرجات				
Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	**A** - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.