

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information				
معلومات المادة الدراسية				
Module Title	Strength of Material-1		Module Delivery	
Module Type	Core		<input checked="" type="checkbox"/> Theory <input checked="" type="checkbox"/> Lecture <input type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar	
Module Code	CIV004			
ECTS Credits	5			
SWL (hr/sem)	125			
Module Level	UGII	Semester of Delivery		3
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	Semester	2
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	<ol style="list-style-type: none"> 1. Learn the basics mechanics of materials and internal loading. 2. Study stresses and strains of materials. 3. Apply these concepts to design and analyze structural members like beams and columns.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	<ol style="list-style-type: none"> 1. 1.Understanding the concepts of average stress and strain and relation between the two concepts 2. 2.Ability to identify and solve statically determinate and indeterminate problems in axial loading 3. 3.Ability to solve analysis and design problems related to mechanical material properties. 4. 4.Understanding the torsion loading and resulted shear stresses in shafts. 5. 5.Understanding the internal forces and moments and draw their diagrams in beams
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. <u>Chapter one</u> Introduction : Definitions and reviews, - structural elements: Classification and Select definitions , equilibrium principle [2 hrs] <u>Chapter Two</u> Principle of simple stresses and definition of stress, types of stresses, calculations of stresses in axially loaded members [10 hrs] <u>Chapter Three</u> Principle of simple strain and definition of strains, types of strains, calculations of strains in axially loaded members [14 hrs] <u>Chapter Four</u> Torsions strains and stresses of circular shafts, angle of twist [12 hrs] <u>Chapter Five</u> Thermal stresses, principles and calculation [12 hrs] <u>Chapter Six</u> Statically indeterminate axially loaded members [12 hrs] <u>Chapter Seven</u> Shear and bending moment diagrams, principle of shear and bending moment [12 hrs]
Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Foundation engineering 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 foundation engineering courses. These strategies include lecture-based teaching, practical applications, problem-solving assignments, group work and discussions, technology integration, field trips and site visits, guest speakers, assessments and feedback, continuous learning, and encouraging self-directed learning. By incorporating these strategies, educators can create an engaging and comprehensive learning environment that equips students with the knowledge, skills, and critical thinking abilities necessary for success in the field of foundation engineering.
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Student Workload (SWL)					
الحمل الدراسي للطالب					
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل		63	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعياً		4.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل		62	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعياً		4.13
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	4	10% (10)	3, 6,9,12	LO #1, 3,5, and 7
	Assignments	2	5% (5)	2, 10	LO # 4 and 7
	Projects / Lab.	1			
	Report	1	5% (5)	13	LO # 2,6 and 7
Summative assessment	Midterm Exam	2 hr	20% (20)	7	LO # 1-7
	Final Exam	3hr	60% (60)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction to basics of mechanics of materials
Week 2	Equilibrium of beams, reactions, type of loading and stresses
Week 3	Principle of simple stress
Week 4	Calculations of simple stress
Week 5	Principle of simple strain
Week 6	Calculations of simple strain
Week 7	Combined simple stress and simple strain problems
Week 8	Principle of Torsion and torsion of circular sections
Week 9	Calculation of torsion stresses and angle of twist
Week 10	Thermal stresses in axial loading
Week 11	Indeterminate axially loaded members.
Week 12	Indeterminate axially loaded members with thermal stresses
Week 13	More example on Indeterminate axially loaded members.
Week 14	Shear and bending moment diagrams
Week 15	More examples on Shear and bending moment diagrams
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Lab 1:
Week 2	Lab 2:
Week 3	Lab 3:
Week 4	Lab 4:
Week 5	Lab 5:
Week 6	Lab 6:
Week 7	Lab 7:

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Mechanics Of Materials, Ferdinand P. Beer, 8 th ed., McGraw-Hill Educatio,2020	Yes
Recommended Texts	Mechanics Of Materials, RC Hibbeler, 8 th 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.