

MODULE DESCRIPTION – ENGINEERING MECHANICS I

وصف المادة الدراسية (ميكانيك هندسي I)

Module Information			
معلومات المادة الدراسية			
Module Title	Engineering Mechanics I		Module Delivery
Module Type	Core		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input type="checkbox"/> Lab <input checked="" type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	CIV11106		
ECTS Credits	5		
SWL (hr/sem)	125		
Module Level		Semester of Delivery	1
Administering Department	Civil Engineering	College	Al-Mansour University Colloge
Module Leader	Husseien Ali Hussein	e-mail	husein.a.hilfi@muc.edu.iq
Module Leader's Acad. Title	Assistant Lectrure	Module Leader's Qualification	Msc.
Module Tutor		e-mail	
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	10/09/2023	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p>Module Objectives أهداف المادة الدراسية</p>	<p>Graduation of civil engineers qualified to work in their various fields of specialization:</p> <ol style="list-style-type: none">1. Define and discuss the most important mechanical properties and durability of engineering mechanics.2. To introduce students to the basic concepts of engineering analysis as they apply to the strength and rigidity of statically determinate structures.3. Provide an introduction to civil engineering static systems and the methods and instruments for simulating such systems.
<p>Module Learning Outcomes مخرجات التعلم للمادة الدراسية</p>	<ol style="list-style-type: none">1. To understand and implement Newton's laws of motion.2. Recall and apply trigonometric laws to vector addition and decomposition.3. Construct "Free Body Diagrams" for real-world problems and use Newton's Laws of Motion and vector operations to evaluate the equilibrium of particles and bodies.4. Determine the moment and magnitude of a force about a given axis. Describe the experience a couple is having.5. Analyze the forces in planar truss members using the principles of particle and body equilibrium.6. Analyze the reactions of planar beams and frames using the principles of particle and body equilibrium.
<p>Indicative Contents المحتويات الإرشادية</p>	<p>Indicative content includes the following.</p> <p>STATICS – INTRODUCTION Present an overview of the fundamental quantities and idealizations in mechanics, as well as to expound on Newton's Laws. Additionally, it is recommended to review the concepts related to the use of SI units and to study numerical calculation methods. [8 hrs]</p> <p>STATIC EQUILIBRIUM – FORCES Demonstrate the process of combining forces and decomposing them into constituent parts utilizing the Parallelogram Law. The concept of a free-body diagram and its relevance to particles will be elucidated, followed by a demonstration of how the equations of equilibrium can be utilized to solve problems pertaining to particle equilibrium. [16 hrs.]</p> <p>ANALYSIS OF STATICALLY DETERMINATE BEAMS Use equilibrium to find all reaction forces and examine the various forces that are exerted on the beams. [12 hrs.]</p> <p>ANALYSIS OF STATICALLY DETERMINATE FRAMES Use equilibrium to find all reaction forces and analyze the forces acting on the members of frames. [8 hrs.]</p> <p>ANALYSIS OF STATICALLY DETERMINATE TRUSSES Show how to use the method of joints and the method of sections to determine how much force is in each part of a truss. [16 hrs.]</p>

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The major approach for presenting this module will be to encourage students to participate in the tasks while also polishing and improving their critical thinking abilities. This will be accomplished via courses, interactive tutorials that are of interest to the students.

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
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	62	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعياً	4.4
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	2	20% (20)	5 and 10	LO #2 and #4
	Online Assignments	2	10% (10)	3 and 8	LO # All
	Onsite Assignments	1	5% (5)	Continuous	LO # All
	Reports	1	5% (5)	9	LO # All
Summative assessment	Midterm Exam	2 hr	10% (10)	7	LO #4 - 6
	Final Exam	3 hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	General Principles
Week 2	Scalars and Vectors
Week 3	Force System Resultants
Week 4	The Free-Body Diagram and condition for the Equilibrium of a Particle
Week 5	Moment of a Force—Scalar Formulation and
Week 6	Moment of a Couple
Week 7	Constraints and Statically Determinacy
Week 8	Type of loads on beams
Week 9	Reactions analysis of the beams
Week 10	Rigid-Body Equilibrium
Week 11	Reactions analysis of the frames
Week 12	Simple Trusses
Week 13	The Method of Joints
Week 14	Zero-Force Members
Week 15	The Method of Sections
Week 16	Preparatory week before the final Exam

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	Engineering Mechanics Statics and Dynamic, by Higdon. Engineering Mechanics Statics and Dynamic, by Meriam.	Yes
Recommended Texts	Mechanics for Engineers-Statics and Dynamic, by Ferdinand P. Beer, E. Russell.	No
Websites		

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 (فيد 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.