MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	Engineering Mechanics (Statics)			**Module Delivery**	
Module Type	**Core**			☒ **Theory** ☒ **Lecture** ☐ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**ENG006**				
ECTS Credits	**6**				
SWL (hr/sem)	**150**				
Module Level	UGI		**Semester of Delivery**	2	
Administering Department	CV101		**College**	Civil Engineering College	
Module Leader	Dr.Yousif Kh.Yousif		**e-mail**	Yousif.kh69@uoanabr.edu.iq	
Module Leader's Acad. Title	lecturer		**Module Leader's Qualification**	Ph.D.	
Module Tutor	Dr.Yousif Kh.Yousif		**e-mail**	Yousif.kh69@uoanabr.edu.iq	
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	physics	**Semester**	1
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims **أهداف المادة الدراسية**	Fundamental concepts and principles of mechanics, vectors, and force vectors and resultant. Free body diagram of forces and equilibrium of particles and rigid bodies in two .and three dimensions Moment of a force about a point and about an axis. Equilibrium of rigid body. Analysis of trusses and frames.
Module Learning Outcomes **مخرجات التعلم للمادة الدراسية**	1.The students should be able to define and describe the following basic concepts in mechanics such as Space, Time, Mass, Force, Particle, Rigid body, Scalar, Vector, Free vector, Sliding vector, Fixed vector, and perform calculations on summation, Subtraction, ،Direction cosine .Magnitude, Component, Unit vector, Vector decomposition 2.The students will be able describe and define the following components . of Newton's Laws: First .law, Second law, Third law, Gravitation law 3.The students should demonstrate an understanding of the following :concepts relating to forces Contact force, Body force, Concurrent force system, Resultant (Combination ،(of a force system Decomposition of a force (rectangular and non-rectangular), Using triangle law to obtain the resultant will create a couple because forces in rigid body, mechanics are sliding vectors, not .free vectors 4.The student will be able to apply the cross product concepts to determine .moments 5.The student will be able to calculate the resultants of forces and couples 6.The students will learn the differences and similarities between 2D and 3D ،systems. Additionally the students should understand what complications are arise in studying 3D systems, and what is done to deal with these complications
Indicative Contents **المحتويات الإرشادية**	**Indicative content includes the following.** **. Definition of vectors in 2D and 3D, Physical examples, Analytical and graphical .vector additions and subtractions** **. Scalar and vector products, Analytical methods and graphical interpretation** **.. Resultant and equivalence of 2D force system, Analytical and graphical solutions** **. Definition of moments and couples, Couples in 2D and 3D systems, Force systems**

	.with couples . Resultant and equivalence of 3D force system, Systems with couples Analytical solutions. . Concept of free body diagram (FBD), Equilibrium of rigid bodies, Equations of equilibrium in 2D and 3D space . Coefficients of friction, friction law, solving systems with friction
Learning and Teaching Strategies **استراتيجيات التعلم والتعليم**	
Strategies	.1 Active Learning: Encourage students to actively participate in the learning process by engaging them in problem-solving activities, group discussions, and hands-on experiments. .2Concept Mapping: Use concept maps to help students visualize the relationships between different concepts and ideas in engineering mechanics statics. .3Real-World Examples: Use real-world examples to help students understand the practical applications of engineering mechanics statics concepts. .4Multimedia Resources: Use multimedia resources such as videos, animations, and simulations to enhance student understanding of complex concepts. .5Peer Teaching: Encourage peer teaching by assigning group projects or activities that require students to teach each other. .6Practice Problems: Provide students with ample opportunities to practice solving problems related to engineering mechanics statics. .7Feedback and Assessment: Provide timely feedback and assessment on student performance to help them identify areas where they need improvement. .8 Scaffolded Learning: Break down complex concepts into smaller, more manageable parts and provide scaffolding support as needed. .9Differentiated Instruction: Tailor instruction to meet the diverse needs of students by providing differentiated instruction based on their learning styles, abilities, and interests. .10Reflection and Metacognition: Encourage students to reflect on their learning experiences and develop metacognitive skills that will help them become more effective learners in the future.

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 أسبوعيا**	4.2
Unstructured SWL (h/sem) **الحمل الدراسي غير المنتظم للطالب خلال الفصل**	87	**Unstructured SWL (h/w)** **الحمل الدراسي غير المنتظم للطالب أسبوعيا**	5.8
Total SWL (h/sem) **الحمل الدراسي الكلي للطالب خلال الفصل**	175		

Module Evaluation
تقييم المادة الدراسية

			Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
	Quizzes		**5**	**25% (25)**	All	LO #1, 2.3,4
	Online Assignments (HomeWorks)		**1**	**6% (6)**		
	Onsite Assignments (Class Works)		**1**	**5% (5)**		
	Report		**1**	**4% (4)**		
	Lab 15% of the 40					
Summative Assessment 60%	**Midterm Exam**		**2 hr**	**10% (10)**	8	LO # 1,2,3
	Final Exam 50%	**Theory**	**3 hr**	**50% (50)**	16	All
		Lab				
Total assessment				**Final Exam**		
				100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

Week	Material Covered
Week 1	Definition of vectors in 2D and 3D, Physical examples

Week 2	.Scalar and vector products, Analytical methods and graphical interpretation
Week 3	Definition of moments and couples, Couples in 2D and 3D systems
Week 4	.Force systems with couples
Week 5	Resultant and equivalence of 2D force system
Week 6	Resultant and equivalence of 3D force system
Week 7	.Systems with couples Analytical solutions
Week 8	Concept of free body diagram (FBD(
Week 9	Equations of equilibrium in D and 3D space2
Week 10	Equilibrium of rigid bodies
Week 11	Equilibrium of frames
Week 12	Equilibrium of trusses
Week 13	،Coefficients of friction
Week 14	،friction law
Week 15	.solving systems with friction
Week 16	Preparatory week before the final Exam

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	R.C. Hibbeler, Engineering Mechanics: Statics, .Prentice Hall, 12th ed., 2010	Yes
Recommended Texts		

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.