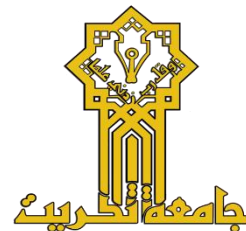




Ministry of Higher Education and
Scientific Research - Iraq
University of Tikrit
College of Petroleum Process Engineering
Department of Petroleum and Gas Refining
Engineering



MODULE DESCRIPTOR FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	ENGINEERING MECHANICS AND STRENGTH OF MATERIALS		Module Delivery
Module Type	BASIC	<input checked="" type="checkbox"/> Theory <input checked="" type="checkbox"/> Lecture <input type="checkbox"/> Lab <input checked="" type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar	
Module Code	PGR115		
ECTS Credits	4		
SWL (hr/sem)	100		
Module Level	1	Semester of Delivery	1
Administering Department	PGR	College	PPE
Module Leader	Mugdad Hamid Rejab	e-mail	
Module Leader's Acad. Title	Assist.Prof.	Module Leader's Qualification	Ph.D.
Module Tutor		e-mail	
Peer Reviewer Name		e-mail	
Review Committee Approval	10/6/2023	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			
Module Aims أهداف المادة الدراسية	<ol style="list-style-type: none"> 1. Provide the students with the required basics of engineering mechanics, Resolution of a forces, Resultant of a force system, Moments and Couples, Equilibrium, Moments of Inertia (Areas), Moments of Inertia (mass), Friction. 2. Enabling the student to study the concepts of engineering mechanics and their applications in statics. 3. This course covers basic concepts of strength of material, Simple stress- Normal stress, Shearing stress- Bearing stress, Thin – walled cylinders, Simple strain –Hooks; law, Axial deformation, Statically Indeterminate Members, Thermal stresses, Torsion- Torsion formulas. 4. To understand Shear and moment in beams, Stresses in beams- bending stresses, Deflection and slope in beams. 		
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	<ol style="list-style-type: none"> 1. Ability to deal with forces and their resolution 2. Ability to deal with Equilibrium, Moments and Couples, Moments of Inertia and their calculations. 3. Ability to find the friction. 4. Ability to deal with strength of material, Simple strain and Simple stresses and their calculations. 5. Ability to deal with Shear and moment in beams, Stresses in beams- bending stresses, Deflection and slope in beams. 		
Indicative Contents المحتويات الإرشادية	Indicative content includes the following: <ol style="list-style-type: none"> 1. Definition of mechanical engineering and its relationship to oil and gas refining engineering, and ways to benefit from the science of mechanical engineering [2 hrs]. 2. Dimensions, units, symbols and conversion factors, basic concepts of engineering mechanics, Fundamentals of static and dynamic, Analysis of forces, Principles and Analyze the forces acting on the bodies. [8 hrs]. 3. Concepts of resultant forces, methods of calculating its, moments resulting from the effect of forces on bodies, and its applications [4 hrs]. 		

	<ol style="list-style-type: none"> 4. Equilibrium of the body, determining the center of gravity of the body [4 hrs]. 5. Utilizing moment of inertia calculations for areas and masses [8 hrs] 6. Dealing with friction in the surfaces of objects [8 hrs]. 7. Concepts of strength of materials, definitions of stress and strain, its types, and its effects on bodies [8]. 8. Sections and structures, bends and torsions resulting from loads and their effects [12].
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Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	<p>The students will be actively engaged in the tasks, which will help them develop and hone their critical thinking abilities. This will be accomplished via lectures, interactive tutorials, and assignments incorporating fascinating tasks. The course includes:</p> <ul style="list-style-type: none"> • Numerous examples worked out in detail to illustrate the basic principles. • Figures, sketches, and diagrams to provide a detailed description and reinforcement of what you read. • A consistent strategy for problem solving that can be applied to any problem. • Self-Assessment Tests at the end of each section, with answers so that you can evaluate your progress in learning. • Many problems will be discussed and solved in the tutorial classes, which offer working with one or more classmates to exchange ideas and discuss the material.
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Student Workload (SWL)

الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	59	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعياً	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	41	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعياً	2.7
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	100		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	20%(10)	4, 11	LO #1, 2, 3, 7, 8 and 9
	Assignments	4	10%(10)	Continuous	
	Case study	2	10%(10)	6, 13	LO #1-5, and 10, 11
	Report	-	-	-	-
Summative assessment	Midterm Exam	3	10%(10)	7	LO #1-7
	Final Exam	3	50%(50)	16	All
Total assessment			100%(100Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Fundamental and Scope of Mechanics, Preview of static, Units and Dimension.
Week 2	Resultants of force systems
Week 3	Principle of moment, Coplanar Applications, couples.
Week 4	Equilibrium of force system, Equilibrium applications
Week 5	Trusses and Frames
Week 6	Centroids and Center of gravity
Week 7	Moments of Inertia, Radius of gyration,(Areas and mass)
Week 8	Friction, applications
Week 9	Mid-term Exam + Principles of strength of material
Week 10	Stress, type of stress (Simple, Normal, Shearing, Bearing)
Week 11	Strain, type of strain, Simple strain –Hooks; law
Week 12	Torsion- Torsion formulas
Week 13	Stresses in beams- bending stresses(Unsymmetrical, Built- up)
Week 14	Deflection and slope in beams
Week 15	Preparatory Week
Week 16	Final Exam

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	
Week 2	
Week 3	
Week 4	
Week 5	
Week 6	
Week 7	

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	<ul style="list-style-type: none"> Engineering mechanics statics, sixth edition, J.L. Meriam, L.G. Kraige Hibbeler , 10th edition , 2005 	yes
Recommended Texts	<ul style="list-style-type: none"> Engineering Mechanics by Hibbeler 10th edition , 2012 Singer “strength of materials” 3rd edition,1980 and 4th edition 	yes
Websites		

APPENDIX:

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	مقبول بقرار	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note:

NB 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.

