

وزارة التعليم العالي والبحث العلمي
جهاز الإشراف والتقويم العلمي
دائرة ضمان الجودة والاعتماد الأكاديمي

استمارة وصف البرنامج الأكاديمي للكليات والمعاهد

للعام الدراسي ٢٠٢٣-٢٠٢٤

الجامعة : تكريت

الكلية/ المعهد: كلية هندسة العمليات النفطية

القسم العلمي : هندسة سيطرة المنظومات النفطية

تاريخ ملء الملف : ٢٠٢٣/١١/٢٥

التوقيع :

اسم المعاون العلمي : أ.م.د. عمر ياسين ضايح

التاريخ : ٢٠٢٣/١٢/٣

التوقيع :

اسم رئيس القسم : م. ياسين خضر ياسين

التاريخ : ٢٠٢٣/١١/٢٨

دقق الملف من قبل

شعبة ضمان الجودة والأداء الجامعي

اسم مدير شعبة ضمان الجودة والأداء الجامعي: م.م. أيوب إبراهيم محمد

التاريخ : ٢٠٢٣/١١/٢٨

التوقيع :

مصادقة السيد العميد

أ.م.د. غسان حمد عبد الله

٢٠٢٣/١٢/٣

التوقيع :



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



MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Applied Mechanics Engineering		Module Delivery
Module Type	Basic		<input checked="" type="checkbox"/> Theory <input checked="" type="checkbox"/> Tutorial
Module Code	PCS124		
ECTS Credits	5		
SWL (hr/sem)	125		
Module Level	1	Semester (s) offered	
Administering Department	PCS	College	PPE
Module Leader	Omar Assi Hussein	e-mail	omar-assi81@tu.edu.iq
Module Leader's Acad. Title	Assistant Professor	Module Leader's Qualification	Ph.D
Module Tutor		e-mail	
Peer Reviewer Name		e-mail	
Review Committee Approval	03/06/2023	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, Indicative Contents and Brief Description أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية مع وصف مختصر			
Module Aims أهداف المادة الدراسية	<ol style="list-style-type: none"> 1. To provide the students with a foundation of the theory and principles of statics. 2. To study the effects of forces on bodies at rest using Newton's laws of motion. 3. To provide the students with experience in solving problems to determine the forces and moments on structures in static equilibrium. 4. To introduce the students to the engineering applications of mechanics. 5. Learn Active materials & their specification, work and heat in ideal gasses and steam 1st law of thermodynamics practical law in steam and gasses, 2nd law of thermodynamics practical law in steam and gasses. 6. understanding the concepts of Hook's law, tension and compression stress, thin-walled cylinders and spheres, combined stress (Mohr's circle) shear and normal stress. 		
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	<p>On successful completion of the course students will be able to:</p> <ul style="list-style-type: none"> LO1. Apply basic knowledge of mathematics, science and engineering principles to solve technical problems. LO2. Design and analyze a system component, or process to meet desired needs in Mechanical Engineering. LO3. Design a system and conduct experiments to find suitable solution in the field of mechanical engineering. LO4. Identify, visualize, formulate and solve engineering problems in the field of mechanical Engineering. LO5. Use the techniques, skills, and modern engineering tools necessary for engineering practice with appropriate considerations for societal, and environmental constraints. LO6. Apply their fundamental field skills towards the understanding of the impact of engineering solutions on the society in a global and social context. LO7. Impart knowledge of contemporary issues about society and environment. LO8. Apply ethical principles and responsibilities during professional practice. LO9. Function on multidisciplinary teams as a team member/leader and create user friendly environment. 		

	<p>LO10. Communicate effectively in oral, written, visual and graphic modes within interpersonal, team, and group environments.</p> <p>LO11. Apply the techniques, skills and modern engineering tools necessary for engineering projects.</p> <p>LO12. Recognize the need for professional advancement by engaging in lifelong learning.</p>
<p>Indicative Contents المحتويات الإرشادية</p>	<p>Indicative contents include the following.</p> <p>Part A: Static. (24 Hours)</p> <ol style="list-style-type: none"> 1. Introduction to Engineering Mechanics . (2 hrs). 2. Force system, unit’s system, parallelogram law, forces + components, resultant of coplanar forces components of force in space, moment of a force, moment of couples, equilibrium. (8 hrs). 3. Free body diagram, coplanar system, analysis of trusses (6 hrs). 4. Centroids & center of gravity – centroids of area, centroids determined by integration, moments of inertia (4hrs). 5. Parallel axes theorem, 2nd moment of area by integration, radius of gyration, moment of inertia of composite area .(4 hrs). <p>Part B:Dynamics. (12hours)</p> <ol style="list-style-type: none"> 6. Kinetics of particle, rectilinear motion, curvilinear motion, rectangular components of curvilinear motion, normal and tangential component of acceleration (6 hrs) 7. Kinetics: Force, mass and acceleration, kinetics of particle newton’s 2nd <p>Part C: Strength of Materials. (10hours)</p> <ol style="list-style-type: none"> 8. Hook’s law, tension and compression stress, thin-walled cylinders and spheres. (5 hrs) 9. Combined stress (Mohr’s circle) shear and normal stress, stress in beams (initial principal). (5 hrs)
<p>Course Description</p>	<p>Mechanics is the study of forces that act on bodies and the resultant motion that those bodies experience. With roots in physics and mathematics, Engineering Mechanics is the basis of all the mechanical sciences: civil engineering, materials science and engineering, mechanical engineering and aeronautical and aerospace engineering. Engineering Mechanics provides the “building blocks” of statics, dynamics, strength of materials, and fluid dynamics. Engineering mechanics is the discipline devoted to the solution of mechanics problems through the integrated application of mathematical, scientific, and engineering principles. Special emphasis is placed on the physical principles underlying modern engineering design.</p>
<p>Learning and Teaching Strategies استراتيجيات التعلم والتعليم</p>	
<p>Strategies</p>	<p>The teaching of the course is delivered through a combination of class</p>

lectures, Class discussions, exercises, and assignments work.

Student Workload (SWL)

الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	73	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعياً	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	52	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعياً	3.7
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	30 % (30)	3, 6, 9, 12	All LO
	Assignments	4	10% (10)	Continuous	All LO
	Lab.				
	Report				
Summative assessment	Midterm Exam	2 hr	10% (10)	7	LO # 1-5
	Final Exam	3 hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الأسبوعي النظري

	Material Covered
Week 1	Introduction of Static Two-Dimension Force System
Week 2	Moment in two Dimension, Couple
Week 3	Resultant Force – Couple System
Week 4	Resultant of nonconcurring Force Equilibrium in Two Dimension

Week 5	Structures Three – Dimension Force System
Week 6	Structures)Method of join(Structures) , Method of Section(
Week 7	Frames and machines
Week 8	Center of Areas & Centroids
Week 9	Center of Areas & Centroids
Week 10	Composite bodies
Week 11	Moment of inertia
Week 12	Friction
Week 13	Application of Friction & Belt Friction
Week 14	Wedges
Week 15	Preparing for Final Exam
Week 16	Final Exam

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	1-Engineering Mechanics. Statics.J.L.Meriam,L.G.Krage.	Yes
	2-Elements of Classical Thermodynamics, A.B.Pippard	No
Recommended Texts	Sandor, B.I.; Roloff, R; et. al. “Mechanics of Solids” Mechanical Engineering Handbook Ed. Frank Kreith Boca Raton: CRC Press LLC, 1999	No
Websites	https://cae.tu.edu.iq/ed/electronic-lectures.html	

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.