MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Mechanics**			**Module Delivery**	
Module Type	**Core**			☒**Theory** ☒**Lecture** ☐ **Lab** ☒ **Tutorial** ☐**Practical** ☒ **Seminar**	
Module Code	**PENG115**				
ECTS Credits	**5**				
SWL (hr/sem)	**125**				
Module Level	1		**Semester of Delivery**	First	
Administering Department	PENG		**College**	ENG	
Module Leader	Hasan Ali Azeez		**e-mail**	Hasan.Ali@alayen.edu.iq	
Module Leader's Acad. Title	Asst. Lecture		**Module Leader's Qualification**	Master	
Module Tutor			**e-mail**		
Peer Reviewer Name			**e-mail**		
Scientific Committee Approval Date	9/2/2025		**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 Objectives أهداف المادة الدراسية	1. Understanding the principals of Statics and finding out the resultant of forces and analyzing a force into its perpendicular components. 2. Analyzing the forces and moments acting on a body. 3. Finding out the friction forces and center of gravity of shapes. 4. Understanding the principals of Dynamics and discussing different types of motion; rectilinear, curvilinear, and rotation. 5. Understanding the methods of finding out the work and energy experienced by a body. 6. Understanding the types of vibrations and the corresponding analyzing mathematics.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1- Knowledge and understanding: The Mechanics program seeks to develop capabilities of students to understand the effects of forces and moments on the body in correlation with potential work, energy, and vibrations of a body reaching for a best understanding of the material behavior in that a particular engineering application. 2- Subject-specific skills: The program provides the capability to scientifically analyze the engineering problem and to find out the potential behavior that the material/body can undergo. 3- Assessment methods: The assessment method are divided into three parts; quizzes, monthly exams, and final exams. 4- Thinking Skills: Providing a skilled staff to the scientific community that can effectively contribute to develop and tackle the relevant engineering problems. 5- Teaching and learning methods: The teaching is performed theoretically based upon theoretical concepts of Mechanics in both Statics and Dynamics concepts. 6- General and Transferable Skills (other skills relevant to employability and personal development): The most important skills are the knowledge and capability to provide scientific proposals to tackle a given engineering problem.
Indicative Contents المحتويات الإرشادية	Indicative contact includes the following Weeks 1-2: Introduction to mechanical system (8 hours) Definition and objectives of mechanism system (2hours) Historical development and evolution mechanical system (2 hours) Weeks 3-4: Force system (12 hours)

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Direct instruction Solving problems Monthly exams daily exams Homework Exercise

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ أسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	94	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	6
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	56	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	4
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	**Midterm Exam**	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Force system 1
Week 2	Equilibrium
Week 3	Truss
Week 4	Centroid and moment of inertia
Week 5	Friction
Week 6	Dynamic motion
Week 7	Stress and strain
Week 8	Normal stress
Week 9	Shear stress
Week 10	Thermal stress
Week 11	Pressure vessels
Week 12	Torsion
Week 13	Shear force diagram
Week 14	Bending moment diagram
Week 15	Compound stress
Week 16	**Preparatory week before the final Exam**

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

Learning and Teaching Resources مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Engineering mechanics and strength of material	Yes
Recommended Texts	Engineering mechanics by Meriam strength pf material by singer	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 (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.