MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Fundamentals of Engineering Mechanics-Dynamics**			**Module Delivery**	
Module Type	**C**			☒ **Theory** ☐ **Lecture** ☐ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**ATU12036**				
ECTS Credits	**4**				
SWL (hr/sem)	**100**				
Module Level	1		**Semester of Delivery**	1	
Administering Department	ATU12		**College**	PMTE	
Module Leader			**e-mail**		
Module Leader's Acad. Title	Assistant Professor		**Module Leader's Qualification**	Ph.D.	
Module Tutor	-----		**e-mail**	E-mail	
Peer Reviewer Name			**e-mail**		
Scientific Committee Approval Date	01/06/2023		**Version Number**	1.0	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Mathematics	**Semester**	1st
Co-requisites module	-----	**Semester**	-----

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	The student can use the knowledge of Engineering Mechanics (Statics) for analyzing force systems (structures, machines, frames…etc.) , in order to became able to design components and finally the systems as a whole in the next years.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Knowing how to calculate rectangular components, moment, couple and resultant. 2. The Student can apply equilibrium equations to find forces - and or - reaction that maintain the state of equilibrium to the structures. 3. Learning the ability to analyze truss structures, using method of joints and method of sections. 4. The student can calculate the forces in frames and machines.
Indicative Contents المحتويات الإرشادية	Indicative content includes the followings: 1. An introduction to the subject of static as a basic course that can be related to many other subjects in the next years [3hrs] 2. The different systems of units and the conversion to each other [6hrs] 3. Force and force systems, moment and couple, finally the resultant and the equivalent force-couple system [21hrs] 4. Drawing the free body diagram F.B.D. for single and multiple members [9hrs] 5. Equilibrium equations to 2- and 3- dimension systems [15hrs] 6. The method of joints and method of sections [18hrs] 7. The internal forces and reactions in the frames and the machines [18hrs]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Type something like: The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering types of simple experiments involving some sampling activities that are interesting to the students.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	48	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	52	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	
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% (20)	5 and 12	LO #1, #2 and #3, #4
	Assignments	2	10% (10)	4 and 11	LO #1, #2 and #3
	Projects / Lab.	-	-	-	-
	Report	1	10% (10)	14	LO #1, #2 and #3
Summative assessment	**Midterm Exam**	2hr	10% (10)	7	LO #1 and #2
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Rectilinear motion, Curvilinear motion x-y coordinates-
Week 2	-Normal – tangential coordinates, -Polar – coordinates.
Week 3	Relative motion, Motion relative to a frame in translation-
Week 4	Kinetics of particles -Newton's 2nd law - rectilinear motion, curvilinear motion
Week 5	Work and energy of particles -Work of a force -Kinetic energy of a particle, -Potential energy.
Week 6	Impulse and momentum of particles -Impulsive motion -Angular momentum of a particle

Week 7	Conservation of liner momentum -liner impact
Week 8	-Conservation of angular momentum
Week 9	-Impulse and momentum of particles
Week 10	Angular momentum -Rate of changed of angular momentum -Conservation of angular momentum
Week 11	Kinematics of rigid bodies -Translation of rigid bodies -Rotation of rigid bodies
Week 12	Absolute motion -General motion -Absolute and relative velocity in plane motion
Week 13	-Instantaneous center of rotation Absolute and relative acceleration
Week 14	Moment of inertia -Mass moment of inertia Force/mass/acceleration -Force/mass/acceleration for rigid bodies
Week 15	-Momentum for rigid bodies
Week 16	**Preparatory week before the final Exam**

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

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**

Required Texts	ENGINEERING MECHANICS – STATICS, MERIAM and KRAIGE, Sixth Edition	Yes
Recommended Texts	VECTOR MECHANICS FOR ENGINEER – STATICS, BEER and JOHNSON, Ninth Edition	Yes
Websites	https://www.youtube.com/@alaaaljassani6779/videos	

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.