MODULE DESCRIPTOR FORM
نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	FUNDAMENTAL OF MECHANICS			**Module Delivery**	
Module Type	CORE			☒**Theory** ☐**Lecture** ☒**Lab** ☒**Tutorial** ☐**Practical** ☐**Seminar**	
Module Code	ZU-SC-MPHY1101				
ECTS Credits	8				
SWL (hr/sem)	200				
Module Level	1		**Semester of Delivery**	1	
Administering Department	MPHY		**College**	College of Science	
Module Leader	Yasir sabah abbas		**e-mail**	yasirsabah19962023@gamil.com	
Module Leader's Acad. Title	Assistant lecture		**Module Leader's Qualification**	Mcs	
Module Tutor			**e-mail**		
Module Reviewer			**e-mail**		
Peer Reviewer Name			**e-mail**		
Review Committee Approval	2026/1/15		**Version Number**		

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	1. Introducing students to the general basic concept of Mechanics 2. Identify the types and the most important mechanical parameters 3. Focusing on the mathematical description of body and particle motion. 4. Introducing the student to the importance of Newton's laws and its most important application.

	5. Focus on developing their mathematical skills by listing a group of important calculations.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Explain the phenomena on the basis of a number of principles 2. The student of mechanics will be able to understand and analyze many static and kinetic systems. 3. Apply the basic laws of mechanics in some calculations that facilitate daily life. 4. Mastering some of mathematical basics that are important in the application of the laws of mechanics.
Indicative Contents المحتويات الإرشادية	- The mathematical description of motion -Newton's first and third laws: statics of particles -Newton's second law; dynamics of particles. [20 hrs.] -Conservation and non-conservation of momentum -Work and energy. [15 hrs.] -Simple harmonic motion -Static equilibrium of simple rigid bodies. [10 hrs.] -Rotational motion, angular momentum and dynamics of rigid bodies [20 hrs.]
Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	- Discussing the topics of the curriculum book and supporting references. - Theoretical lectures including problem solving and discussion of homework. - Asking students a set of thinking questions during the lectures for specific topics. - Giving students homework that requires finding self-solutions.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	65	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4.3
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	135	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	9
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	200		

Module Evaluation

تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	4	10% (10)	2, 5, 10, 12	LO #1, 2, 10 and 11
	Assignments	6	10% (10)	Continuous	All
	Projects / Lab.	7	5% (5)	Continuous	All
	Report	7	10% (10)	Continuous	All
	Seminar	1	5% (5)	Continuous	All
Summative assessment	**Midterm Exam**	2 hr	10% (10)	14	LO # 1-13
	Final Exam	5hr	50% (50)	15	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	**Introduction, Unit System, Dimensions, Vectors and scalar, Vector algebra, Vector products (dot and cross), Triple products, Application of vectors, problems**
Week 2	**motion in one dimension, motion in two and three dimensions**
Week 3	**motion of a freely falling body**
Week 4	**newton's first law and newton's second law**
Week 5	**newton's third law**
Week 6	**friction, kinetic friction**
Week 7	**dynamics of particles**
Week 8	**principle of conservation of momentum**
Week 9	**work and energy**
Week 10	**elastic and inelastic collisions**
Week 11	**work and conservation of energy**
Week 12	**simple harmonic motion and energy considerations in simple harmonic motion**
Week 13	**static equilibrium of simple rigid bodies**
Week 14	**Mid Exam**
Week 15	**Final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered

Week 1	Lab 1: Graph Lab
Week 2	Lab 2: Simple pendulum
Week 3-4	Lab 3: Spiral spring
Week 5-6	Lab 4: Boil's law
Week 7-8	Lab 5: Surface tension
Week 9-10	Lab 6: Moment of inertia
Week 11-12	Lab 7: Speed of sound
Week 13	Lab 8: Friction
Week 14	Mid Exam
Week 1	Final Exam

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	University Physics by Francis W. Sears, Mark W. Zemanseky and Hugh D. Young, 1982	YES
Recommended Texts	Introduction to Physics by Jojn D. Cutnell, Kenneth W. Johnson, 8th. edition, 2010	NO
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.