	Ministry of Higher Education and Scientific Research - Iraq Al-Nahrain University College of Science Department of Medical Physics	

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	MPHY1101				
ECTS Credits	8				
SWL (hr/sem)	200				
Module Level		1	**Semester of Delivery**		1
Administering Department		MPHY	**College**	College of Science	
Module Leader	Dr. Haneen Akram		**e-mail**	Haneenakram837@nahrainuniv.edu.iq	
Module Leader's Acad. Title		Teacher	**Module Leader's Qualification**		PhD
Module Tutor	Rafah Mohammed Hussien		**e-mail**	rafah.m.h@nahrainuniv.edu.iq	
Module Reviewer			**e-mail**		
Peer Reviewer Name			**e-mail**		
Review Committee Approval			**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	Mechanics is one of the basic subjects for first year students in colleges of science. The aim of this semester is to provide the student with knowledge of the foundations of classical physics, including the laws of motion, equilibrium, concepts of energy and work, and other important concepts.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Providing the student with the basic concepts of the laws of motion. 2. Learning basic concepts on which physical laws depend, such as equilibrium, conservation of energy and work. 3. Providing the student with scientific experience, practical skills and solving scientific problems using simplified mathematical methods
Indicative Contents المحتويات الإرشادية	Chapter One: Vector Algebra Chapter Two: Laws of Motion Chapter Three: Newton's Laws of Motion Chapter Four: Energy Chapter Five: Momentum and Collision

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

Strategies	The learning strategy depends on the following: 1. Feeding the student with theoretical foundations and concepts from theoretical lectures 2. Daily and semester tests 3. Assigning students to solve the required mathematical problems and discussing them during the class

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**	1	10% (10)	Continuous	All
	Online Assignments	1	5% (5)	Continuous	All
	Lab	1	15% (15)	Continuous	All
	Seminar	1	10% (10)	Continuous	All
Summative assessment	**Midterm Exam**	2 hr	10% (10)	8	LO # 1-7
	Final Exam	4hr	50% (50)	15	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	Chapter One: Introduction to vector algebra, vector values and eigenvalues, types of vectors, addition and subtraction of vectors.
Week 2	Scalar and vector multiplication, triple scalar and vector multiplication, descent, solving math problems and homework.
Week 3	Chapter Two: Units and their conversions, displacement, velocity, acceleration, laws of uniform linear motion in one dimension.
Week 4	Free fall, problem solving and homework.
Week 5	Laws and applications of laws of motion in two directions, examples and assignments.
Week 6	Chapter Three: Newton's Laws of Motion (First, Second and Third Laws).
Week 7	Applications of Newton's laws of motion.
Week 8	Mid Exam
Week 9	Chapter 4: Energy, Work, Examples and Homework.
Week 10	Work and energy theory, examples and applications.
Week 11	Gravitational potential energy, examples and applications.
Week 12	Spring potential energy, applications and examples.

Week 13	Chapter 5, Momentum and Collision.
Week 14	Law of conservation of momentum, collision, examples and applications.
Week 15	Final Exam

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab 1: Instructions to students, Basic personal needs and other requirements. Writing the account of an experiment, Introduction to graphical representation of experimental data, Errors, their determination and minimization, least square fitting. Units.
Week 2	Lab 2: Graph Lab
Week 3-4	Lab 3: Forces and Equilibrium
Week 5-6	Lab 4: Hooks Law
Week 7-8	Lab 5: Spiral Spring: Determination of force constant and effective mass of a spring.
Week 9-10	Lab 6: Simple Pendulum
Week 11-12	Lab 7: The bifilar suspension
Week 13	Lab 8: The bifilar suspension
Week 14	Mid Exam
Week 15	Final Exam

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	College Physics, Raymond, A. Serway, Eight edition, USA, 2009	YES
Recommended Texts	University Physics, SAMUEL J. LING, Volume 2, 2021	YES
Websites	https://fizikamentor.wordpress.com/wp-content/uploads/2018/04/college-physics.pdf https://faculty.ksu.edu.sa/sites/default/files/physics_serway.pdf	

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.

ملاحظة: هذا النموذج تم وضعه وتقديمه من قبل مديرية ضمان الجودة في وزارة التعليم العالي والبحث العلمي