

Mechanic DESCRIPTION FORM

نموذج وصف ميكانيك

Module Information معلومات المادة الدراسية			
Module Title	Mechanic physics		Module Delivery
Module Type	Support		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input checked="" type="checkbox"/> Lab <input checked="" type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input checked="" type="checkbox"/> Seminar
Module Code	UOMU038014		
ECTS Credits	6		
SWL (hr/sem)	150		
Module Level	1	Semester of Delivery	
Administering Department	Forensic Science	College	College of Science
Module Leader	Dr. Sami Abd-Aluhsein	e-mail	sami.abd.alhussein@uomus.edu.iq
Module Leader's Acad. Title	Asst. Professor	Module Leader's Qualification	PH. D
Module Tutor		e-mail	
Peer Reviewer Name		e-mail	
Scientific Committee Approval Date	8/11/2023	Version Number	1.0
			م. فرح فارس ياس كادر المختبر

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			
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Module Aims	<ol style="list-style-type: none"> 1. To describe the evolution of physics science and the relation between physics and forensic science. 2. To develop problem solving skills and understanding of mechanic concepts through the application of techniques. 3. To provides a link between the Facts and the concepts that the student study and his daily community life. 4. To describe the projectile terms in forensic science and its application. 5. To describe the difference between the vector quantity and scalar quantity. 6. To explain the relation between work, energy, and power 7. To understanding of sound and wave motion and its application in evidence.
Module Learning Outcomes	<p>Upon completion of the course, students should be able to:</p> <ol style="list-style-type: none"> 1. clarify the relationship between science and technology in science field and its election development. 2. and linking it to practical life. 3. gives the student methodology of scientific thinking and moving him from the basic way of 4. learning to a way full of fun and motivation. 5. trying to train the student for discovering through developing of the monitoring and analyzing. 6. skills. 7. gives the student life skills and applicable scientific capabilities. 8. develop the concept of modern ways in maintaining the environmental equilibrium practically, and globally. 9. Use the mechanics physics in forensic science.
Indicative Contents	<p>Indicative content includes the following.</p> <p>In Our practical life we need to indicate the location of an object whether it is static</p> <p>Or moving, and to determine the location of that object we use what is called "coordinates". There are several types of coordinates that we can apply. as "Rectangular Coordinates" and "polar coordinates". and study the benefit of vector application in our life. [6 hrs]</p> <p>Mechanics is one of the branches in physics that studies the motion, it include two main sections are (Kinematics) a science that describes the objects motion ignoring what causes the motion. (Dynamics) science that cares about the causes of motion such as Force and Energy. where first we will get to know the concepts of location, displacement, velocity and acceleration of objects for motion in one dimension and in two dimensions with some appellations) [10 hrs]</p>

	<p>The scientist physical Isaak Newton built his theory about motion through three laws that are known as Newton's Laws of Motion, where he described the forces influence on the objects motion by these laws and know the difference between the mass and weight. [6 hrs]</p> <p>While solving an exercise in motion science (dynamic) it is important to Analyze the forces influencing the object or the system in a correct way, so the object. (Static or dynamic) will be Insulated from its surrounding, then every Force from the forces influencing it will be clarified, and this method is called free body diagram. [4 hrs]</p> <p>concept of equilibrium, tensional equilibrium, rotational equilibrium, Torque, torque is a vector, couple, center of mass, center of gravity. [10 hrs]</p> <p>Work, Power, Energy and Momentum and type of energy [6 hrs]</p> <p>Clarify the periodic motion, versional motion, simple harmonic motion, the relation between uniform circular motion and simple harmonic motion, simple pendulum, damping simple harmonic motion, wave motion [10 hrs]</p>
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Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	

Assessment is based on hand-in assignments, written exam, Case study, Quizzes, seminars, Practical testing, lab, and Online testing.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem)	75	Structured SWL (h/w)	5
Unstructured SWL (h/sem)	75	Unstructured SWL (h/w)	5
Total SWL (h/sem)			150

Module Evaluation تقييم المادة الدراسية	

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	5% (5)	5, 10	LO #1, 2, 10 and 11
	Assignments	2	10% (10)	2, 12	LO # 3, 4, 6 and 7
	Projects / Lab.	1	15% (15)	Continous	
	Report	1	5% (5)	13	LO # 5, 8 and 10
Summative assessment	Midterm Exam	2 hr	15% (15)	7	LO # 1-7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهج الاسبوعي النظري محتوى كل اسبوع يجب ان يغطي الوقت المحدد	
	Material Covered
Week 1	Introduction, Vectors, coordinate system and properties of vectors.
Week 2	Analysis of vectors and multiplication of vectors
Week 3	Linear motion, acceleration, linear equation motion with regular acceleration and free fall objects.
Week 4	Motion in two dimensions (motion in plane), projectile and motion in three dimensional.
Week 5	Laws of motion, inertia and mass, newton's Law of motion.
Week 6	free body diagram and Friction
Week 7	Equilibrium, Torque, couple, and center of mass.
Week 8	Work, power, and energy.
Week 9	Momentum and impulse
Week 10	Circular Motion
Week 11	Rotational Motion.
Week 12	Work and Power in rotational motion, and angular momentum
Week 13	Wave, Vibrational Motion and Sound
Week 14	Beats, sound characteristics, ultrasonic waves, Doppler effect
Week 15	Preparatory week before the 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: Forces and Equilibrium
Week 3	Lab 3: Spiral Spring and Hooks Law
Week 4	Lab 4: Spiral Spring: Determination of force constant and effective mass of a spring.
Week 5	Lab 5: Spiral Spring: To deduce the acceleration of free fall from a combination of the static and dynamic experiments.
Week 6	Lab 6: Simple Pendulum and determination of gravitational acceleration (g).
Week 7	Lab 7: The Cantilever experiment
Week 8	Lab 8: The bifilar suspension: Variation of the period of oscillation with the distance between the vertical suspension threads.
Week 9	Lab 9: The bifilar suspension: Variation of Oscillation with length of the suspension threads.
Week 10	Exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Recommended Texts	<ul style="list-style-type: none"> ➤ Theory and Problems of College Physics By Frederick Bueche and Eugene Hecht. ➤ Fundamental of Physics by Halliday, Resnick and Walker 	Yes