

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	PHYSICS		Module Delivery
Module Type	B		<ul style="list-style-type: none"><input checked="" type="checkbox"/> Theory<input checked="" type="checkbox"/> Lecture<input checked="" type="checkbox"/> Lab<input type="checkbox"/> Tutorial<input type="checkbox"/> Practical<input type="checkbox"/> Seminar
Module Code	ENG001		
ECTS Credits	5		
SWL (hr/sem)	125		
Module Level	UGI	Semester of Delivery	1
Administering Department	CV101	College	Civil Engineering College
Module Leader	Dr.Yousif Kh.Yousif	e-mail	Yousif.kh69@uoanabr.edu.iq
Module Leader's Acad. Title	lecturer	Module Leader's Qualification	Ph.D.
Module Tutor	Dr.Yousif Kh.Yousif	e-mail	Yousif.kh69@uoanabr.edu.iq
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	01/06/2023	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 Aims أهداف المادة الدراسية	<ul style="list-style-type: none"> • Introduce to the students, the concepts, principles, methods and major findings of classical Physics. • Perform basic analyses to study Newtonian mechanics, and thermal Physics, with topics include: Physics and measurement. • Familiarize the student with understanding Vectors, kinematics and dynamics of motion of a single particle in one and two dimensions. • Provide the students with a basic understanding work and energy, system of particles, linear momentum and collisions, kinematics and dynamics of rotational motion, equilibrium of rigid bodies.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	<ol style="list-style-type: none"> 1. The students should be able to describe the translational motion of a single particle in terms of position and inertial frames, inertia, velocity, acceleration, and force. 2. The students should be able to describe the rotational motion of a rigid body using the concepts of rotation angle, angular velocity, angular acceleration, angular momentum, moment of inertia, and torque. 3. The students should be able to Identify the forces acting on ordinary mechanical systems to be gravity and electromagnetics (Drag force, frictional force, normal force, etc.). 4. Define what is meant by: temperature, specific and molar capacity of heats .
Indicative Contents المحتويات الإرشادية	<p>Indicative content includes the following.</p> <p>Chapter one Physics and Measurement: Standards of Length , Mass and Time, Density of Atomic Mass, Dimensional Analysis, Conversion of Units, Estimate and Order of Magnitude, Calculations and Significant Figures</p> <p>Chapter Two Motion in One Direction: Particle Model, Position, Velocity and Speed, Instantaneous Velocity and Speed, Acceleration, One-Dimensional Motion with Constant Acceleration, Freely Falling Object.</p> <p>Chapter Three Vectors: Coordinate System, Vector and Scalar Quantity, Some Properties of Vectors, Adding Vectors, Subtracting Vectors, Component of Vectors and Unit Vectors.</p> <p>Chapter Four Motion in Two Dimension: The Position, Velocity and Acceleration Vectors, Two-Dimensional Motion with Constant Acceleration, Projectile Motion, Horizontal Range and Maximum Height of a Projectile, Uniform Circular Motion</p>

	<p>,Tangent and Radial Acceleration, Relative Velocity and Relative Acceleration.</p> <p>Chapter Five</p> <p>The Laws of Motion: Newton's First Law and Inertial Frames ,Mass, Newton's Second Law, The Gravitational Force and weight, Newton's Third Law, Forces and Friction, Experimental Observations</p> <p>Chapter Six</p> <p>Circular Motion and Other Applications of Newton's Law: Non uniform Circular Motion, Resistance Force Proportional to Object Speed, Air Drag at High Speed</p> <p>Chapter Seven</p> <p>Temperature: Zeroth Law of Thermodynamics, Thermometers and The Celsius Temperature Scale, The Constant Volume Gas Thermometer and The Absolute Temperature Scale, Thermal Expansion and of Solids and Liquids, The Unusual Behavior of Water, Macroscopic Description of an Ideal Gas</p> <p>Chapter Eight</p> <p>Energy and Energy Transfer: Work Done by Constant Force , The Scalar Product of Two Vectors, Work Done by Varying Force, Work DONE by a Spring, Kinetic Energy and the Work-Kinetic Energy Theorem, Conservations of Energy, Situations Involving Kinetic Energy, Power, Energy and the Automobile.</p>
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<p>Learning and Teaching Strategies استراتيجيات التعلم والتعليم</p>	
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<p>Strategies</p>	<p>Learning Strategies:</p> <ol style="list-style-type: none"> 1. Active Learning: Students are encouraged to participate in class discussions, problem-solving sessions, and laboratory experiments to actively engage with the subject matter. 2. Concept Mapping: Students create visual diagrams that connect key concepts and ideas to help them understand the relationships between different topics. 3. Problem-Based Learning: Students work on real-world problems that require them to apply physics concepts and principles to find solutions. 4. Collaborative Learning: Students work in groups to solve problems, share ideas, and learn from each other. 5. Inquiry-Based Learning: Students ask questions, investigate phenomena, and draw conclusions based on their own observations and data.
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	<p>Teaching Strategies:</p> <ol style="list-style-type: none"> 1. Lecture: The teacher presents information through lectures, demonstrations, or multimedia presentations. 2. Socratic Method: The teacher asks questions to guide students towards discovering the answers themselves. 3. Flipped Classroom: Students watch videos or read materials before class so that they can use class time for discussions and problem-solving activities. 4. Peer Instruction: The teacher poses a question or problem and students discuss it with their peers before coming up with a solution together. 5. Project-Based Learning: Students work on long-term projects that require them to apply physics concepts and skills to real-world problems. <p>Overall, effective learning and teaching strategies in physics involve active engagement with the subject matter through hands-on activities, collaboration with peers, critical thinking skills development, and application of knowledge to real-world situations.</p>
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Student Workload (SWL) الحمل الدراسي للطالب					
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل		78	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعياً	5.2	
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل		47	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعياً	3.0	
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل		125			
Module Evaluation تقييم المادة الدراسية					
As		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative Assessment	Quizzes	5	25% (25)	3, 10	LO #1,3
	Assignments (HW)	2	5% (5)	2, 12	LO # 2,5
	Report				
	Activities	1	4% (4)		
	Lab	1	6% (6)	All	All
Summative Assessment	Midterm Exam	2 hr	10% (10)	8	All LO # 1,2,3
	Final Exam	3 hr	50%	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

Week	Material Covered
Week 1	Physics and Measurement
Week 2	Dimensional Analysis
Week 3	Motion in One Direction
Week 4	Position, Velocity Speed and Acceleration
Week 5	One-Dimensional Motion with Constant Acceleration
Week 6	Vectors
Week 7	Component of Vectors and Unit Vectors
Week 8	The Position, Velocity and Acceleration Vector
Week 9	Relative Velocity and Relative Acceleration
Week 10	The Laws of Motion
Week 11	Circular Motion and Other Applications of Newton's Law
Week 12	Temperature
Week 13	Energy and Energy Transfer
Week 14	Work Done by Constant Force
Week 15	The Scalar Product of Two Vectors
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

Week	Material Covered
Week 1,2	Lab 1: Determination The Density of Solid Materials
Week 3,4	Lab 2: Verification of Hooks Law
Week 5,6	Lab 3: Determination the Value of Gravity Acceleration (Simple Pendulum)
Week 7,8	Lab 4: Determination the Coefficient of Viscosity
Week 9,10	Lab 5: Measurement of Liquid Density
Week 11,12	Lab 6: Verification of Newton's Second Law
Week 13,14	Lab 7: Verification of continuity Equation

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	R.D. Knight, Physics for Scientists and Engineers, 2nd ed., Pearson 2008	Yes
Recommended Texts	Serway - Physics for Scientists and Engineers with Modern Physics 10th ed 2019	Yes

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.