MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Physics**			**Module Delivery**	
Module Type	**Basic**			☒ **Theory** ☒ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**Che-1103**				
ECTS Credits	**6**				
SWL (hr/sem)	**150**				
Module Level		1	**Semester of Delivery**		1
Administering Department		Type Dept. Code	**College**	Type College Code	
Module Leader	Name		**e-mail**	E-mail	
Module Leader's Acad. Title		Professor	**Module Leader's Qualification**		Ph.D.
Module Tutor	Name (if available)		**e-mail**	E-mail	
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 Objectives أهداف المادة الدراسية	1. To provide students with a strong foundation in the fundamental principles of physics. 2. To prepare qualified specialists in general physics and its practical applications, capable of addressing national development needs and meeting the demands of the job market across governmental institutions and industrial sectors. 3. To cultivate an educated generation equipped with scientific knowledge and methodologies, fostering critical thinking, analysis, and adaptability to technological advancements, in line with the expanding needs of society. 4. To strengthen the university's engagement with society by offering expert consultancy, training programs, and professional development opportunities for both academic and administrative staff. 5. To prepare graduates specialized in physics, who are ready to contribute meaningfully to national progress and development. 6. To fulfill the demands of various sectors by providing highly qualified personnel in the field of physics. 7. To encourage outstanding students in physics to join the department as teaching assistants, paving the way for their future roles as members of the academic teaching staff.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Describe the major concepts in physics. Demonstrate an appropriate level of competency in both computer and research laboratory skills. Formulate hypotheses and devise and perform experiments to test a hypothesis as individuals and in a team. Effectively apply current technology and scientific methodologies for problem solving in various scientific, professional and community settings. Effectively use and critically evaluate current technical/scientific research literature, online information, as well as information related to scientific issues in the mass media. Integrate and relate scientific knowledge learned from classroom with real life situations. Communicate in written and oral forms with interested citizens and professionals on key concepts in physics and general scientific issues.

	Work cooperatively as part of a research team. Maintain life-long learning in the sciences and incorporate new information into the existing body of knowledge. Outline the applications of physics in industry and the role of physicists as entrepreneurs.
Indicative Contents المحتويات الإرشادية	• Mechanics - kinematics, forces, work and energy, momentum, circular motion, rotational motion • Materials • Fields - static electricity • Waves/light - sound, optics, • Electricity/magnetism - d.c. electricity, a.c. electricity, motors, generators, transformers • Atomic/nuclear • Particle physics • Astronomy/cosmology • Medical physics • Thermodynamics - heat, temperature • Quantum physics

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Power point lecture method using data show and whiteboard. Explanation and clarification. Providing students with the basics and additional topics related to the outputs of inorganic chemical thinking and analysis. Forming discussion groups during lectures to discuss inorganic chemistry topics that require thinking and analysis. Asking students a set of thinking questions during the lectures such as what, how, when and why for specific topics. Giving students homework that requires self-explanations in causal ways.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	94	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	6
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	56	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	4
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**150**		

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

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
Week	**Material Covered**
Week 1	Measurement, Dimensions, Units of measurement, Measurement systems, Dimensional analysis
Week 2	Vectors and their compounds, Unit vectors
Week 3	Vector Addition and Multiplication of Vectors
Week 4	Linear motion in one dimension
Week 5	Force and its types and Newton's laws of motion
Week 6	Equilibrium and Work
Week 7	Energy and Power
Week 8	**Midterm Exam**
Week 9	Material properties, Density, Elasticity and Hooke's law
Week 10	Electrostatics, Coulomb's law and Electric field
Week 11	Capacitors and Electric current
Week 12	Resistors and Ohm's
Week 13	Electric potential
Week 14	Magnetism and Magnetic field
Week 15	Biot-Savart's law and Ampere's
Week 16	**final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Safety instructions in the laboratory
Week 2	Explain how to write a report and chart
Week 3	Ohm's law
Week 4	Calculate the resultant forces that meet at one point using the vector method, and verify the validity of the result by drawing squares on the forces board
Week 5	Find the ground Acceleration using a Pendulum
Week 6	Calculate the melting point of the wax from the cooling curve
Week 7	Calculating the focal length of a lens by displacement method

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Fundamental of Physics (Halliady, Resnick, and Walker).	Yes
Recommended Texts	Electromagnetic theory (book). 2000.vol.1	Yes
Websites	https://www.coursera.org/browse/physical-science-and engineering/ electricalengineering	

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	**FX** – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
(0 – 49)	**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.