



MODULE DESCRIPTOR FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Physics		Module Delivery
Module Type	Basic		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input checked="" type="checkbox"/> Lab <input checked="" type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	UOMU036124		
ECTS Credits	5		
SWL (hr/sem)	125		
Module Level	1	Semester of Delivery	
Administering Department	Dept. of Biochemistry	College	College of Science
Module Leader	e-mail		
Module Leader's Acad. Title	Module Leader's Qualification		
Module Tutor	e-mail		
Peer Reviewer Name	e-mail		
Review Committee Approval	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 والمحفوظات الإرشادية

Module Aims أهداف المادة الدراسية	<ol style="list-style-type: none">1. This course is designed to give students in non-physics departments a basic background in physics.2. Developing quantitative and analytical skills for the students and their understanding of the fundamental principles.3. Teaching the students the skill of dealing with physical nature and trying to find solutions to scientific problems.4. Making the student possess the intellectual skill in thinking about solving some scientific problem through mathematical and physical equations.5. Work to provide a foundation for understanding and applying scientific principles to real-world situations.6. The course will aim to bring together the principles and methodologies of physics and biology to study living systems. It seeks to understand biological phenomena using physical concepts, such as thermodynamics, electromagnetism, and statistical mechanics.7. Give the idea of the physical processes that govern life, from the molecular level to cellular and organismal levels. It involves studying the structure and function of biomolecules, the mechanics of cellular processes, and the dynamics of biological systems.8. Combining the principles of physics with the intricacies of biological systems to gain a deeper understanding of life.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	<p>The module will focus on a number of concepts, models, laws, tools and techniques of physical science that underpin biophysical methods. It will address a broad range of challenging biological questions.</p> <p>During this module students will:</p> <ol style="list-style-type: none">1- how to approach scientific problems with a focus on physical nature. They should learn problem-solving strategies and techniques specific to physics and be able to apply them to find solutions to scientific problems.2- develop intellectual skills related to thinking about and solving scientific problems. This includes utilizing mathematical and physical equations as tools to analyze and understand phenomena in the physical world.3- Understand the physical basis of experimental techniques used to study the biological systems introduced and explain the key results.4- learn how to apply physical concepts such as thermodynamics, electromagnetism, and statistical mechanics to understand biological phenomena.5- Students should gain knowledge about the structure and function of biomolecules, the mechanics of cellular processes, and dynamics of biological systems.

	<p>6- Demonstrate an understanding of the key physical principles behind several important biological processes underpinning living matter</p> <p>7- Apply modern biophysical tools and techniques to real applications.</p>
Indicative Contents المحتويات الإرشادية	<p>In lecture lab #1-#5 they will need (16hr).</p> <p>In lecture lab #6- #13 they will need (50 hr).</p> <p>In lecture lab #- #15 they will need (20hr).</p>
Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	To encourage students to participate in exercises, answer questions, theoretical and practical reports, seminars, conduct collective and individual skill tests, and theoretical, laboratory and field brainstorming. At the same time refine and expand critical thinking skills. This will be achieved through quizzes, interactive tutorials, and by thinking about the type of simple experiments that include some sampling activities that are of interest to the students.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	64	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	86	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	6
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	2	5% (10)	3, 5, 7, 11, 14	#1-#2, #3, #5, #6
	Assignments	2	5% (10)	9 and 13	#4 and #5
	Projects	1	10% (10)	Continous	
	Report	1	10% (10)	12	#6 and #7
Summative assessment	Midterm Exam	1h	10%10	8	#1-#6
	Final Exam	3h	50%50	16	all

Total assessment	100% (100 Marks)	
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Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	General concepts of biophysics
Week 2	use of correct physical units with numerical magnitudes, unit conversion skills, Scientific unit systems and unit types.
Week 3	The laws of kinetic physics Interpretation of mechanical motion of bodies
Week 4	Application of Newton's laws in solving physical problems
Week 5	Surface tension
Week 6	Interpretation of Heat Analysis and interpretation of heat transfer between objects
Week 7	Heat laws and conversion of units used in this field
Week 8	Mid exam
Week 9	Radiations, sources, types
Week 10	Radiation doses Interpretation and analysis of the amount of radiation exposure
Week 11	Physical applications in diagnosis and treatment
Week 12	Ct-scan
Week 13	The waves, Classification of wave types, Sound waves
Week 14	Explain the phenomenon of the Doppler effect that occurs with sound waves Solve some exercises about the phenomenon of the Doppler effect
Week 15	Physics of blood pressure
Week 16	The preparatory week before the final exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Introduction Introducing the laboratory and the available equipment. Learn the basics of working in the laboratory. Safety procedures and proper methods in dealing with experiments.
Week 2	Define the units of measurement used Conversion methods between measurement systems Learn graphing skills and how to draw measured points (Graphic fonts)
Week 3	Measurement of Acceleration Due to Gravity Using Simple Pendulum
Week 4	Ohm's Law
Week 5	The surface tension
Week 6	Viscosity of liquid
Week 7	Boyle's Law
Week 8	Hook's Law
Week 9	First Mid Exam
Week 10	Speed of sound
Week 11	The focal length of a convex lens
Week 12	Laser application for measurement of single slit
Week 13	The flow of water through a capillary tube as an introduction to decay curves and the study of half-life
Week 14	Blood Pressures
Week 15	Preparatory week before the final Exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	<ol style="list-style-type: none"> 1. Fundamentals of physics , Jearl Walker,Cleveland state University 8th edition,2008 2. Biophysics: An Introduction, Springer, dition,2010 3. physics in biology & medicine, academic 	Yes

	press, 3th edition;2008from GE Healthcare, Handbook 4. Compendium of Medical Physics, Medical Technology and Biophysics, By Nico A.M. Schellart,2nd edition,2008	
Recommended Texts	College Physics – Volume 1, Author: Textbook Equity Open Education, https://www.infobooks.org/pdfview/3181-college-physics-volume-1-of-3-textbook-equity-open-education/	Ys
Websites	https://www.ivsl.org	

APPENDIX:

GRADING SCHEME مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتنىاز	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:				
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.				