

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Medical physics فيزياء طبية	Module Delivery	
Module Type	Basic	<input checked="" type="checkbox"/> Theory Lecture <input checked="" type="checkbox"/> Lab Tutorial Practical Seminar	
Module Code	MIET1201		
ECTS Credits	6		
SWL (hr/sem)	180		
Module Level	1	Semester of Delivery	2
Administering Department	MITE	College	EETC
Module Leader	Mayss alreem nizar hammed	e-mail	Mayssalreem92@mtu.edu.iq
Module Leader's Acad. Title	Asst. lecturer	Module Leader's Qualification	M.Sc.
Module Tutor		e-mail	
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Scientific Committee Approval Date	15/6/2023	Version Number	1

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	1- to recognize the influence of forces on the human body Identify how the skeleton works 2- to show how pressure affects the body's organs Recognize physical activity of the lungs and breathing 3- to demonstrate the physics of the cardiovascular system and the urinary system 4- to distinguishes the basic principles using the applications of electricity and magnetism in medicine 5- to shall be acquainted with respiratory, cardiovascular and cardiovascular equipment 6- to distinguishes the basic principles, using the sound waves in medicine and the use of x-rays in the diagnosis and identification of diseases
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Upon completion of the course, students should be able to: 1- Understand the difference between the Forces. 2- Know the bone has at least six functions. What are the main components of the bone, and to study the methods of Measurement the minerals quantity in the bone 3- know methods of diathermy 4- understand how Energy change in the body 5- know pressures inside the body parts and measure it 6- understand how to work the lungs and How the blood and lungs interact 7- know nervous system and the neuron 8- know the graphing devices of the body organs 9- know the applications of Electricity and Magnetism in Medicine 10- know the application of sound in medicine, know sonar devices 11- know the application of light and laser in medicine 12- know Major components of the cardiovascular system 13- know physics of nuclear medicine 14- know the x- ray device
Indicative Contents	1- Define the Forces , Frictional Forces , Dynamics (4hrs)

المحتويات الإرشادية	2- functions of the skeleton and Bone consists of quite different materials and how to measure mineral in the bones (5 hrs) 3- Types of thermometers , Heat therapy, Cryogenics (4hrs) 4- Sphygmomanometer, blood pressure, bladder pressure , tonometer(4hrs) 5- Function of Lungs & Breathing, breath rate, airways, Dalton's law of partial pressures(2hrs) 6- The nervous system and the neuron, Electrocardiogram, Electro retion gram (ERG), The magneto cardio gram (MCG)(4hrs) 7- Magnetic signals from the heart –magneto cardiogram(2hrs) 8- Macro shock, Micro shock (2hrs) 9- General Properties of Sound, Acoustic Impedance, Absorption, A-mode Display, Doppler Ultrasound(4hrs) 10- Endoscope, cytosopes, Emissive IR photography.(4hrs) 11- Laser, population inversion, xray (4hrs) 12- Physics of the cardiovascular system (4 hrs)
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Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	Daily assessment - weekly assessment - quarterly assessment - objective questions - general questions - practical tests.
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Student Workload (SWL)

الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	60	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	4.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	120	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	8.5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	180		

Module Evaluation

تقييم المادة الدراسية

	Time/Numb	Weight (Marks)	Week Due	Relevant
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		er			Learning Outcome
Formative assessment	Quizzes	2	10% (10)	4, 11	LO # 1-3 and 8-10
	assessment	2	10% (10)	9, 13	LO # 8 and 11-12
	Reports	1	10% (10)	Continuous	
	practical test	2	10% (10)	7, 12	LO # 1-6 and 7-11
Summative assessment	Midterm Exam	2 hr.	10% (10)	7	LO # 1-7
	Final Exam	3 hr.	50% (50)	14	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Forces on and in the body.
Week 2	Physics of the skeleton.
Week 3	Heat & cold in medicine
Week 4	Energy, work and power of the body.
Week 5	Pressure in body organs
Week 6	Physics of the lungs and breathing.
Week 7	Mid Term Exam + Physics of cardiovascular system
Week 8	Physics of urinary system.
Week 9	Electricity within the body.
Week 10	Sound in medicine and physics of hearing.
Week 11	Light in medicine and physics of vision.
Week 12	Diagnostic X-rays
Week 13	Physics of nuclear medicine (radioisotopes in medicine).
Week 14	Physics of radiation therapy
Week 15	Radiation protection
Week 16	Preparatory week before the final exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
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Week 1	Lab 1: Introduction to laboratory tools
Week 2	Lab 2: the simple pendulum
Week 3	Lab 3: hook's law
Week 4	Lab 4: the blood pressure
Week 5	Lab 5: the friction
Week 6	Lab 6: the speed of sound
Week 7	Lab 7: the laser
Week 8	Lab 8: viscosity of liquids
Week 9	Lab 9: The cylindrical body
Week 10	Lab 10: The convex lens
Week 11	Lab 11: the concave lens

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Recommended Texts	Introductory Physics I Elementary Mechanics by Robert G. Brown	NO
Websites	https://webhome.phy.duke.edu/~rgb/Class/intro_physics_1/intro_physics_1.pdf	

Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جداً	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.

