MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسيه

Module Information

معلومات المادة الدراسية

Module Title	**Physics of Diagnostic Radiology**	**Module Delivery**	
Module Type	**C**	☒ **Theory** ☒ **Lecture** ☒ **Lab** ☐ **Tutorial** ☒**Practical** ☒ **Seminar**	
Module Code	**UOMU0301054**		
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	Msc.sara jalel	**e-mail**	sara.jaleel.ahmed@mustaqbal-college.edu.iq
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	The course aims to study methods of diagnostic imaging inside the body and to know the locations of diseases in it, where imaging methods are not subject to surgery. Where imaging methods using X-rays are studied, as well as the development of medical imaging using computed tomography, ultrasound imaging, magnetic resonance imaging, nuclear imaging and other methods of imaging.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	32. Understand the different medical imaging methods 33. Explain how to product X-ray 34. Explain how Image Formation in MRI and Computed tomography 35. Distinguish between the Computed tomography and MRI. 36. Distinguish between the components of the medical devices used in imaging. to the article 37. Understand how the magnetic field is used in medical imaging technology
Indicative Contents المحتويات الإرشادية	An Introduction to the physics of diagnostic radiology, types of the physics of diagnostic radiology (X-ray, MRI, and CTscan), X-ray Production, Methods of X-ray interaction with matter, types of X-ray, and X-ray Image Formation. Computed tomography (CT scan) work, Computed tomography Image Formation, Magnetic resonance imaging, nuclear magnetic , principle of NMR and MRI.

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	1. Lectures 2. Discussion 3. Teaching strategies to be used to develop these skills and abilities 4. Lab work 5. Small group discussion 6. Evaluate the scientific values of reports. 7. Evaluate the work in team

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	60	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem)	90	**Unstructured SWL (h/w)**	31

الحمل الدراڤ غ المنتظم للطالب خلال الفصل		الحمل الدراڤ غ المنتظم للطالب أسبوعنا	
Total SWL (h/sem) الحمل الدراڤ الڤ للطالب خلال الفصل	**150**		

Module Evaluation

تقيم المادة الدراسنة

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	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)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبو٢ النظري

	Material Covered
Week 1	Introduction to the physics of diagnostic radiology.
Week 2	Types of the physics of diagnostic radiology
Week 3	X-ray, production of X-ray, and types of X-ray
Week 4	Methods of X-ray interaction with matter
Week 5	X-ray Image Formation

Week 6	Radiographic image quality
Week 7	First exam
Week 8	Computed tomography (CTscan)
Week 9	Computed tomography work & CT scan Image Formation
Week 10	Magnetic resonance imaging, nuclear magnetic , principle of NMR and MRI
Week 11	MRI work
Week 12	The basic MRI system components
Week 13	MRI Image Formation
Week 14	Comparison between CTscan & MRI
Week 15	Second exam

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبو؛ للمختy	
	Material Covered
Week 1	Lab 1:
Week 2	Lab2:
Week 3	Lab 3:
Week 4	Lab4:
Week 5	Lab 5:
Week 6	Lab 6:
Week 7	Lab 7:

Learning and Teaching Resources مصادر التعلم والتدرiس

	Text	Available in the Library?
Required Texts	Dendy, P. P., & Heaton, B. (2011). *Physics for diagnostic radiology*. CRC press. Curry, T. S., Dowdey, J. E., & Murray, R. C. (1984). Introduction to the physics of diagnostic radiology.	Yes
Recommended Texts	None	No
Websites	none	

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.