MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

<table>
<tr><td colspan="3" align="center">Module Information
معلومات المادة الدراسية</td></tr>
<tr><td>Module Title</td><td colspan="2">Laser in Medicine</td></tr>
<tr><td>Module Type</td><td colspan="2">Core</td></tr>
<tr><td>Module Code</td><td colspan="2"></td></tr>
<tr><td>ECTS Credits</td><td colspan="2">7</td></tr>
<tr><td>SWL (hr/sem)</td><td colspan="2">175</td></tr>
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Module Title	Laser in Medicine		**Module Delivery**	
Module Type	Core		☒ Theory	
Module Code			☒ Lecture	
ECTS Credits	7		☒ Lab	
SWL (hr/sem)	175		☒ Tutorial ☐ Practical ☐ Seminar	
Module Level	3	**Semester of Delivery**	2	
Administering Department	Type Dept. Code	**College**	Type College Code	
Module Leader	Musab Khidr Mohammed	**e-mail**	musab.k.m@uowa.edu.iq	
Module Leader's Acad. Title	Professor	**Module Leader's Qualification**	Ph.D.	
Module Tutor	Abdullah Ali Al-Harbi	**e-mail**	ABDULLAH.ALI@UOWA.EDU.IQ	
Peer Reviewer Name	Hikmat Adnan Jawad	**e-mail**	hikmatadnan@gmail.com	
Scientific Committee Approval Date	2026/2/7	**Version Number**	1.0	

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Basics of Laser	Semester	1
Co-requisites module	Laser in Medicine	Semester	2

Module Aims, Learning Outcomes and Indicative Contents	
أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1 - Introduce students to aspects of laser use in medicine considering basic physics, tissue interactions, diagnostics and therapeutics, and therapeutic guidelines. 2- Provide students with the technical basics of medical laser systems, associated instruments, modes of laser light delivery, and endoscopy. 3- Provide students with an introduction to application of lasers to diagnostics and disease treatment in medical sub-disciplines including: ophthalmology, dermatology, cardiovascular disease, urology, otorhinolaryngology, neurology, dentistry, and oncology.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Explain interaction of laser with the biological tissue. 2. List the advantages and disadvantages of using laser in medicine 3. Define eye sight problem 4. compare between different types of eye sight correction by laser 5. Describe the retina problems which caused due to diabetes and how can solve these problems by laser. 6. Define endoscope and how does it work to destroy kidney stones. 7. Provide detailed of treated cancer and tumor by laser 8. Classify the laser that use in dentistry. 9. Describe the benefit of using laser in dermatology 10. Illustrate the hazard of using laser without safety.

Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Part A – laser tissue interaction Basic of interaction of laser with the biological tissue, beneficial example of reflection, transmission through the biological tissue, the benefit of absorption, laser effects on the tissue, photothermal effect, photochemical effect, advantages and disadvantages of laser medicine [10 hrs] Part B- Laser application in medicine The eye, Eyesight problems, Laser eye treatment, LASIK and PRK surgery, Femto LASIK, Relex Smile, laser treatment for retinal eye conditions, diabetic retinopathy, diabetic maculopathy, retinal vein occlusion, Kidney stones and lithotripsy, types of lithotripsy, endoscope, Holmium laser, laser in cancer treatment, How does laser therapy is given, Types of lasers used in cancer treatment, Treating cancer with lasers, Type of laser in dentistry, Uses of laser in dentistry, Types of dental lasers, Type of laser in dermatology, Laser tattoo removal, Types of tattoo removal lasers. [25 hrs].
	Part C- laser Hazard: Laser safety, laser hazard, laser eyes hazard for patient and worker, laser skin hazard. Laser classes. [10 hrs]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	This course will be delivered through lectures in the classroom. The students will be receive the outcome of each lecture through discussions, videos related to the subject and questions. In addition, the information will be developed by self-learning through reading and searching to hand in the essay and home works.

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 أسبوعيا	5
Unstructured SWL (h/sem) الحمل الدراسي الغير المنتظم للطالب خلال الفصل	97	Unstructured SWL (h/w) الحمل الدراسي الغير المنتظم للطالب أسبوعيا	6
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	175		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	4	15% (15)	3,6,8,11	LO #1-2, 4-5, 6-7, 9-10
	Assignments	5	10% (10)	2,3,5,6,7	LO #1, 2, 4, 5, 6
	Projects / Lab.	15	15% (15)	Continuous	
	Report				
Summative assessment	Midterm Exam	1	10 % (10)	7	LO # 1-6
	Final Exam	3 hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Laser tissue interaction
Week 2	laser eye surgery
Week 3	LASIK, PRK, femto LASIK and Relex Smile
Week 4	Laser in retinal surgery
Week 5	Laser in lithotripsy.
Week 6	Holmium laser
Week 7	Midterm exam
Week 8	Laser in cancer treatment
Week 9	laser therapy
Week 10	Laser in dentistry
Week 11	Types of dental laser
Week 12	laser in dermatology
Week 13	Laser tattoo removal
Week 14	Types of laser tattoo removal
Week 15	**laser hazards and safety**
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Lab 1: Introduction to Medical laser lab.
Week 2	Lab 2: Preparing Nanomaterials in Different Sizes Using Laser Ablation
Week 3	Lab 3: Preparing Nanomaterials in Different Concentrations Using Laser Ablation by Changing Number of Pulses
Week 4	Lab 4: Measuring the Absorption Coefficient of Different Media Using a Laser Beam
Week 5	Lab 5: LASER SAFETY

<table>
<tr><td colspan="3" align="center">**Learning and Teaching Resources**
مصادر التعلم والتدريس</td></tr>
<tr><td></td><td align="center">**Text**</td><td align="center">**Available in the Library?**</td></tr>
<tr><td>**Required Texts**</td><td>Medical, Metrology and Communication, <u>Chunlei Guo</u>, <u>Chandra Subhash Singh</u>، 2021</td><td align="center">No</td></tr>
<tr><td>**Recommended Texts**</td><td>Laser in medicine, G. T Absten and S. N. Joffe</td><td align="center">No</td></tr>
<tr><td>**Websites**</td><td colspan="2" align="center">https://www.springer.com/journal/10103</td></tr>
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		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.

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