



Ministry of Higher Education and
Scientific Research - Iraq
University of WARITH ALANBIYAA
College of Sciences
Departments of Medical Physics



MODULE DESCRIPTOR FORM

أ.م.د. سجاد صبيح نوري

Module Information			
معلومات المادة الدراسية			
Module Title	MATHEMATICS		Module Delivery
Module Type	BASIC		<input checked="" type="checkbox"/> Theory <input checked="" type="checkbox"/> Tutorial
Module Code	MPH202		
ECTS Credits	6		
SWL (hr/sem)	150		
Module Level	ONE	Semester of Delivery	2
Administering Department	Medical Physics	College	College Sciences
Module Leader	Saja Basim Ali	e-mail	Saja.b@uowa.edu.iq
Module Leader's Acad. Title	Assistant Lecturer	Module Leader's Qualification	MS.c.
Module Tutor	-	e-mail	-
Peer Reviewer Name	-	e-mail	-
Review Committee Approval	2023-2024	Version Number	1

Relation With Other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	No	Semester	-
Co-requisites module	No	Semester	-
Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية			
Module Aims أهداف المادة الدراسية	This course aims at: <ol style="list-style-type: none"> 1- Developing a solid understanding of fundamental mathematical concepts and their applications. 2- Fostering critical thinking and problem-solving abilities by engaging students in analyzing complex mathematical problems and applying appropriate strategies and techniques to arrive at logical solutions. 3- Enhancing students' ability to communicate mathematical ideas effectively, both orally and in written form, through clear explanations, rigorous proofs, and mathematical modeling. 4- Promoting a deep understanding of mathematical concepts, principles, and relationships by encouraging students to explore mathematical structures, patterns, and connections within and across different areas of mathematics. 5- Cultivating mathematical reasoning and logical thinking skills by providing opportunities for students to construct and evaluate mathematical arguments, justify mathematical claims, and make conjectures. 6- Encouraging students to appreciate the beauty and elegance of mathematics by exposing them to diverse mathematical topics, including geometry, algebra, calculus, statistics, and discrete mathematics. 7- Promoting mathematical literacy and numeracy by helping students develop a practical understanding of mathematical concepts and their applications. 		
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	The student would be able to: <ol style="list-style-type: none"> 1- Master the proficiency in applying differential calculus concepts, including derivatives and rates of change. 2- Have the competence in utilizing integral calculus techniques to find areas, volumes, and solve related problems. 3- Analyze mathematical models involving differentiation. 4- Master the solving of practical problems using integral calculus. 5- Improve critical thinking and problem-solving skills through the study of differential mathematics. 6- Develop mathematical reasoning and logical thinking abilities in the context of calculus. 		

Indicative Contents المحتويات الإرشادية	Indicative content includes the following: Introduction to differentiation: limits, derivatives, and their basic properties. Applications of differentiation: rates of change, optimization, and related rates. Introduction to integration: antiderivatives, definite and indefinite integrals. Techniques of integration: substitution, integration by parts, and partial fractions. Applications of integration: areas under curves, volumes, and solving practical problems.
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Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Lectures: Engaging and interactive lectures to introduce new concepts, theories, and problem-solving techniques. Tutorials: Small group sessions where students can actively participate in solving mathematical problems, reinforcing their understanding and receiving feedback. Practical Exercises: Assignments and homework that provide opportunities for students to practice and apply the learned mathematical principles. Collaborative Learning: Group projects and discussions that encourage peer-to-peer interaction and collaborative problem-solving, fostering a deeper understanding of mathematical concepts. Technology Integration: Utilizing mathematical software, computer simulations, and online resources to enhance visualization and exploration of mathematical concepts.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	45 hrs.	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	6 hrs.
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	105 hrs.	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	39 hrs.
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150 hrs.		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative Assessment	Quizzes	2	5	3, 8	1, 3
	Reports	1	5	5, 6	2, 4, 5, 6
	Project	1	5	13	2, 4, 6
	Homework	4	5	2, 5, 9, 14	1, 4, 5, 6
Summative Assessment	Midterm Exam	1	10	8	
	Final Exam	1	50	15	
Total Assessment			100		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Reviewing of Algebraic Concepts, Algebraic Expressions, Exponents and Logarithms.
Week 2	Differentiation, Techniques of Differentiation, Functions and Graphs, H.W_1.
Week 3	More Differentiation, Optimization Problems Using Derivatives, Problem-Solving.
Week 4	Techniques of differentiation, Limits and Continuity, Class participation.
Week 5	Applications of Derivatives, Solving First-Order Ordinary.
Week 6	Continuity of functions H.W_2, Class participation.
Week 7	Differential Equations, Applications of Differential Equations, Problem-Solving.
Week 8	Mid-Term Exam.
Week 9	Integration, Class Participation.
Week 10	Antiderivatives and Indefinite Integration.
Week 11	Techniques of Integration, Problem-Solving.
Week 12	Applications of Integration, Class Participation.
Week 13	Exponential and Logarithmic Functions.
Week 14	Review and Assessment, Problem-Solving
Week 15	Final Exam

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	Gilbert Strang, Calculus, Massachusetts Institute of Technology: Wellesley-Cambridge Press.	No
Recommended Texts	James Stewart, McMaster University 2008. <i>United States of America</i> .	No
Websites	<ul style="list-style-type: none"> - https://www.khanacademy.org/ - https://www.mathsisfun.com/ - https://brilliant.org/ - https://www.youtube.com/@DrTrefor 	

APPENDIX:

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	مقبول بقرار	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
Note:				
<p>NB 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.</p>				



ملاحظة: هذا النموذج تم وضعه وتقديمه من قبل مديرية ضمان الجودة في وزارة التعليم العالي والبحث العلمي