

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Mathematics		Module Delivery
Module Type	Core		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input type="checkbox"/> Lab <input checked="" type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	UOMU0201034		
ECTS Credits	6		
SWL (hr/sem)	150		
Module Level	University Stage	Semester of Deliver	
Administering Department	PM	College	TE
Module Leader	Tayseer Sameer Jaz	e-mail	Tayseer.Sameer@uomus.edu.iq
Module Leader's Acad. Title	Assist. Professor	Module Leader's Qualification	Ph. D
Module Tutor	Hiba Mohsin Abid	e-mail	Hiba.Mohsin@uomus.edu.iq
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date		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

- 1.To enable the student to solve the mathematical problems.
2. To provide a suitable type of discipline in the mind of the learners.
3. To prepare the student for various technical profession.
4. To prepare the student for economic purposeful, productive, creative, and

	<p>constructive living.</p> <p>5. To prepare the student for undergraduate as well as postgraduate education.</p> <p>6. To develop in the power of thinking and reasoning.</p> <p>7. To develop in the student the habit of concentration, self-reliance and discovery.</p>
<p>Module Learning Outcomes</p> <p>مخرجات التعلم للمادة الدراسية</p>	<ol style="list-style-type: none"> 1. Solve problems at various levels and in various contexts. 2. Learn how to read, understand, and formulate the definitions of mathematical concepts. 3. Cultivate how to read and analyze mathematical statements. 4. Apply logical deduction and acquire mathematical reasoning through writing formal mathematical proofs. 5. Work with ideas and approaches representing the breadth of mathematical sciences, ranging from continuous to discrete and theoretical to applied.
<p>Indicative Contents</p> <p>المحتويات الإرشادية</p>	<ol style="list-style-type: none"> 1. Evidence an understanding of general fundamental mathematical topics. 2. Evidence an understanding of mathematics topics related to engineering and technology. 3. Demonstrate ability to analyses and present information and data through the use of graphs and tables, or other similar data presentation methods.

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	<p>Effective mathematics instruction involves a combination of pedagogical strategies that address conceptual understanding, procedural fluency, and problem-solving abilities. Key strategies include explicit instruction, cooperative learning, hands-on activities, visual aids, and strategic questioning. These strategies can be integrated to create engaging and effective math lessons, ultimately leading to a deeper understanding of mathematical concepts.</p>

Student Workload (SWL) الحمل الدراسي للطالب محسوب ل ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	63	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	87	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	4	20%(20)	5,8,10,and 14	No
	Assignments	4	20% (20)	2,4,8, and 12	No
	Projects / Lab.	0	0	Continuous	All
	Report	0	0	Continuous	All
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO #1 - #6
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
المنهاج الاسبوعي النظري والعملي	
	Material Covered
Week 1	Introduction of Derivatives and Integration
Week 2	Vector, vector components, vector in space
Week 3	Complex number, Argand diagram, De Moivre's Theorem
Week 4	Partial derivatives, Chain rule, gradient derivatives, directional derivatives
Week 5	Double integral, volume by double integral
Week 6	physical application of double integral
Week 7	Triple integral
Week 8	Polar coordinates
Week 9	Matrices, matrix by matrix product
Week 10	Solve equation by inverse matrix method
Week 11	Green's theorem
Week 12	Line integration
Week 13	Maclaurin series
Week 14	Taylor series
Week 15	Solution of differential equations
Week 16	Preparatory week before the final Exam

Grading Scheme مخطط الدرجات				
Group	Grade	التقدير	Marks %	Definition

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	No

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	George B. Thomas, Jr et al., 2014. Thomas Calculus. Thirteen Edition	Yes
Recommended Texts	H.S. Gangwar and Prabhakar Gupta, 2009. A Textbook of Engineering Mathematics. Second Edition	Yes
Websites	https://rodrigopacios.github.io/mrpacios/download/Thomas_Calculus.pdf https://menso88.weebly.com/uploads/1/7/5/8/17586891/textbook_of_engineering_mathematics.pdf	

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.

Code	Course/Module Title	ECTS	Semester
TEMO 200	Mathematics	6	3
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/sem)
3	1	63	87

Description

The proficiencies of Understanding, Fluency, Problem Solving, and Reasoning are fundamental to learning mathematics and working mathematically and are applied across all three strands Number and Algebra, Measurement and Geometry, and Statistics and Probability.

Understanding refers to students building a robust knowledge of adaptable and transferable mathematical concepts and structures. Students make connections between related concepts and progressively apply the familiar to develop new ideas. They develop an understanding of the relationship between the ‘why’ and the ‘how’ of mathematics. Students build understanding when they:

- connect related ideas
- represent concepts in different ways
- identify commonalities and differences between aspects of content
- describe their thinking mathematically
- interpret mathematical information