MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Mathematics (3)**			**Module Delivery**	
Module Type				☒ **Theory** x☐ **Lecture** ☐ **Lab** ☒ **Tutorial** ☐ **Practical** ☐x **Seminar**	
Module Code	**UOMU0206034**				
ECTS Credits	**5**				
SWL (hr/sem)	**125**				
Module Level	UGII		**Semester of Delivery**	one	
Administering Department	**Fuel and Energy Technical Engineering**		**College**	**Engineering Technical College**	
Module Leader	**Hussien Kadhim Halwas**		**e-mail**	hussein.kadhim@uomus.edu.iq	
Module Leader's Acad. Title	**Lecturer**		**Module Leader's Qualification**	**Ph.Dr-Mechanical Engineering**	
Module Tutor			**e-mail**	E-mail	
Peer Reviewer Name			**e-mail**	E-mail	
Scientific Committee Approval Date			**Version Number**		

Relation with other Modules العلاقة مع المواد الدراسية الأخرى

Prerequisite module	English Language, Graduated Projects	**Semester**	1 st and 2nd 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	Students will be able to: 1. To develop problem solving skills and understanding differentiation and integration 2. To understand Vectors and Vector Function. 3. This course deals with the Complex numbers ,Function with two or more variables, Double integration, Polar coordinates. 4. This is the basic subject for Linear integration, Triple product,Matrix. 5. To understand First order differential equations and simple higher order differential equations.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Learning differentiation and integration equation. 2. Solution the straight and plane in space equation. 3. Solution Partial differentiation. 4. Summarize Double integration. 5. Solution and draw Curves sketching in polar coordinates. 6. Learning Green's theory . 7. Solution Linear integration. 8. Solution complex numbers and matrix. 9. Learning First order differential equations and simple higher order differential equations.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. 1. Part A – Vectors General introduction on vectors in spaces -straight and plane in space equation - plane -tangent -perpendicular line - Vector Function. 2. Part B - Complex numbers polar formula - Euler equation - powers and roots of complex numbers - complex functions- Cauchy- Reman equation. 3. Part C - Function with two or more variables Partial differentiation – Matrices ,Victor and valued differentiation - Maximum and minimum values for two variable functions, Complex numbers

	Double integration - Areas and volumes -Physical applications- Triple integrals. 4. Part D - Polar coordinates Cylindrical and spherical coordinates - Curves sketching in polar coordinates. Green's theory . 5. Part E –Linear Differential equations ,Green Theory 6. Part F – Applications od Double integration

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The main strategy that will be adopted in delivering this module is to courage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering type of simple experiments involving some sampling activities that are interesting to the students.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	59	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	91	**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**	2	10% (10)	5,10	LO #1, 2, 10 and 11
	Assignments	2	20% (10)	2,12	LO # 3, 4, 6 and 7

	Projects / Lab.				
	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 الاسبوعي النظري	
	Material Covered
Week 1	General review on differentiation and integration
Week 2	Vectors :General introduction on vectors in spaces -straight and plane in space equation - plane -tangent -perpendicular line - Vector Function.
Week 3	Complex numbers - polar formula - Euler equation - powers and roots of complex numbers .
Week 4	Function with two or more variables- Partial differentiation - Partial differentiation chain rule -Victor and valued differentiation - Maximum and minimum values for two variable functions.
Week 5	Double integration - Areas and volumes -Physical applications.
Week 6	Polar coordinates - Cylindrical and spherical coordinates - Curves sketching in polar coordinates.
Week 7	Green's theory.
Week 8	Linear integration, Triple Integration
Week 9	Linear Differentials equations
Week 10	Line Integral
Week 11	Green Theory
Week 12	Review and solve problems
Week 13	Solving linear systems by matrix methods
Week 14	Review and solve problems
Week 15	Final exam

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	G. Stephenson, " Mathematical methods for science students " longman hause , 1981	No(in net available)
Recommended Texts	G. Thomas and R. Finney " calculus and analytic geometry " sixth edition, 2008 .	yes
Websites		

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.