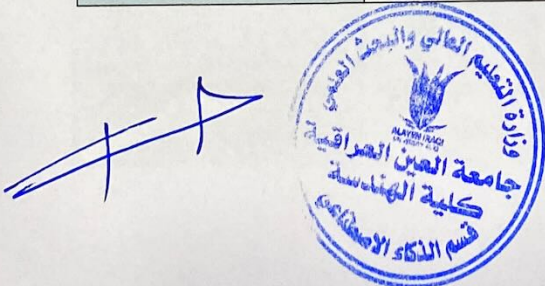


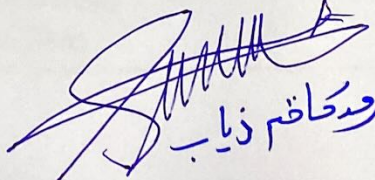
MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information				
معلومات المادة الدراسية				
Module Title	Geometric Mathematics		Module Delivery	
Module Type	Core		☒ Theory ☒ Lecture ☐ Lab ☒ Tutorial ☐ Practical ☐ Seminar	
Module Code	COE322			
ECTS Credits	5			
SWL (hr/sem)	125			
Module Level	3	Semester of Delivery		6
Administering Department	Artificial Intelligence Engineering		College	College of Engineering
Module Leader	Abu AL-Fadhel Z. Makky		e-mail	alfadhel.ms.etcn4@student.atu.edu.iq
Module Leader's Acad. Title	Asst. Lecturer		Module Leader's Qualification	Msc
Module Tutor	Abu AL-Fadhel Z. Makky		e-mail	alfadhel.ms.etcn4@student.atu.edu.iq
Peer Reviewer Name			e-mail	
Scientific Committee Approval Date			Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module		Semester	
Co-requisites module		Semester	



1  د. سعد حاتم زيا

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	This course aims to provide students with a fundamental understanding of basic and advanced engineering analysis techniques, including engineering components and systems.		
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Knowledge	A2	A2.1 Understand the basic theory of the numerical solution of ordinary differential equations. A2.2 Learn to calculate area or distance and volume through ordinary integration and double integration. A2.3 Learn to calculate the quantity within a three-dimensional volume using triple integration. A2.4 Introduce the students to the theory and application of Laplace transform. A2.5 Give students an understanding of the time and frequency domain with different functions. A2.6 Teaching students to solve equations using the Jacobian method. A2.7 Provide students with a fundamental understanding of basic and advanced statistical techniques. A2.8 Provide students with a fundamental understanding of measurements and how to locate points on a graph using polar Coordinates. A2.9 Provide an introduction to the method, tools and ideas of numerical computation, infinite series method, geometric series method. A2.10 Learning the method of solving complicated equations.
		B1	B1.1 Function efficiently as an individual B1.2 Function as a member of multidisciplinary and multicultural teams
	Skills	B2	B2.1 Communicate effectively – graphically with a range of audiences using contemporary tools. B2.2 Communicate verbally and in writing with a range of audiences using contemporary tools.
		C2	C2.1 Recognize professional and ethical responsibility. C2.2 Adhere and respect diversity.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. - Differential equations [6 hrs]		

	- Types of integration [6 hrs] - Laplace Transform [10 hrs] - Jacobian Transform [4 hrs] - Polar Coordinates [2 hrs] - Convergence and divergence [2 hrs] - Infinite and Geometric series [4 hrs]
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Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	• Presentations • Discussions • Tutorial and graphics • Problem solving • Brain storming • Research and reporting • Problem Solving Report & discussion assessment

Student Workload (SWL) الحمل الدراسي للطلاب موزع على (١٥) اسبوع			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطلاب خلال الفصل	33	Structured SWL (h/w) الحمل الدراسي المنتظم للطلاب أسبوعياً	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطلاب خلال الفصل	17	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطلاب أسبوعياً	1.2
Total SWL (h/sem) الحمل الدراسي الكلي للطلاب خلال الفصل	50		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5, 10	A2
	Assignments	2	10% (10)	2, 12	A2
	Projects / Lab.				
	Report	1	10% (10)	13	A2,B1,B2
	Midterm Exam	2 hr	10% (10)	5	A2

Summative assessment	Final Exam	4hr	50% (50)	16	A2
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)		
المنهاج الاسبوعي النظري		
	Material Covered	Los
Week 1	Differential Equations.	A2
Week 2	Properties and Rules of derivation.	A2, B1, B2, C1
Week 3	Implicit derivation.	A2, B1, B2, C1
Week 4	Chain Roul.	A2, B1, B2, C1
Week 5	Properties Integral.	A2, B1, B2, C1
Week 6	Double Integral.	A2, B1, B2, C1
Week 7	Triple Integral.	A2, B1, B2, C1
Week 8	Midterm Exam	A2, B1, B2, C1
Week 9	Fundamental of Laplace transform (L.T).	A2, B1, B2, C1
Week 10	properties, theorem of (L.T).	A2
Week 11	Inverse (L.T).	A2, B1, B2, C1
Week 12	Polar Coordinates.	A2, B1, B2, C1
Week 13	Convergence and Divergence.	A2, B1, B2, C1
Week 14	Infinte series	A2, B1, B2, C1
Week 15	Geometric series	A2, B1, B2, C1

Learning and Teaching Resources		
مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	Higher Engineering Mathematics by Dr. B.S. Grewal	Yes
Recommended Texts	An introduction to Numerical analysis by David F. Mayers	No
Websites	https://eng.alayen.edu.iq//colleges/e/42	

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 is required but credit awarded
	F – Fail	راسب	(0-44)	A 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.				