vector analysis	Ministry of Higher Education and Scientific Research - Iraq University of Warith Al-Anbiyaa College of Advanced Technologies Department of Radiology and Nuclear Medicine	

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية			
Module Title	**College Algebra**	**Module Delivery**	
Module Type	**C**	☐Theory ☒ Lecture ☐ Lab ☒ Tutorial ☐ Practical ☒ Seminar	
Module Code	**RSNM102**		
ECTS Credits	**6.00**		
SWL (hr/sem)	**150**		
Module Level		**Semester of Delivery**	
Administering Department	Radiologic Sciences and Nuclear Medicine	**College**	College of Advanced Technologies
Module Leader	Dr.Hasan Qahtan Hussein	**e-mail**	hasan.qahtan@uowa.edu.iq
Module Leader's Acad. Title	Lecturer	**Module Leader's Qualification**	Ph.D

Module Tutor		**e-mail**	
Peer Reviewer Name		**e-mail**	
Scientific Committee Approval Date		**Version Number**	

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	This course aims to provide you with the mathematical foundations required for engineering studies.The focus is on application and problem solving. Objectives • Enable you to use mathematical tools to solve basic engineering problems. • Develop your ability to analyze engineering models using mathematical equations. • Build practical skills in differentiation and integration for engineering applications. • Strengthen your understanding of vectors and matrices and their role in engineering analysis. • Enable you to solve differential equations related to engineering systems. • Introduce you to statistics and probability used in engineering data analysis. • Train you to apply numerical methods to problems without analytical solutions. • Prepare you to use engineering software such as MATLAB and Excel for calculations and analysis.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	On successful completion of this module you will be able to • Apply core mathematical methods to solve engineering problems. • Use calculus and differential equations in engineering analysis. • Apply vectors and matrices in engineering applications. • Use basic statistics and numerical methods. • Use MATLAB and Excel for mathematical analysis.

Indicative Contents المحتويات الإرشادية	• Algebra and functions • Trigonometry • Differential and integral calculus • Ordinary differential equations • Vectors and matrices • Complex numbers • Statistics and probability • Numerical methods

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

Strategies	• Lectures to introduce core mathematical concepts. • Tutorials to practice problem solving and reinforce understanding. • Worked examples focused on engineering applications. • Problem based learning through structured exercises.

Student Workload (SWL)
الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	46	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	104	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	4
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**	5	5 % (5)	2,5,8,10,13	LO # 1, 4, 5, 7,8
	Assignments	5	5 % (5)	1,4,7,11,15	LO # 1-15
	Lab.	10	10 % (10)	1-9	LO # 1-15
	Report	10	10 % (10)	1-8	LO # 1-15

Summative assessment	**Midterm Exam**	3 hr.	20 % (20)	9	LO # 1-15
	Final Exam	3 hr.	50% (50)	15	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Algebra
Week 2	functions
Week 3	vector analysis
Week 4	vector analysis
Week 5	vector analysis
Week 6	differential equations and vectors
Week 7	differential equations and vectors
Week 8	Matrices
Week 9	Matrices
Week 10	Matrices
Week 11	complex numbers
Week 12	complex numbers
Week 13	Differential equations
Week 14	Differential equations
Week 15	Differential equations

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	-
Week 2	-
Week 3	-
Week 4	-
Week 5	-

Week 6	-
Week 7	-
Week 8	-
Week 9	-
Week 10	-
Week 11	-
Week 12	-
Week 13	--
Week 14	-
Week 15	-

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Thomas, Weir and Hass Calculus Pearson Education >>>>>> Kreyszig Advanced Engineering Mathematics John Wiley and Sons >>>>>>> Stroud and Booth Engineering Mathematics Palgrave Macmillan	

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.

رئيس القسم

التاريخ :

استاذ المادة

م.د.حسن قحطان حسين

التاريخ: 2026/1/23