MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	1 Mathematics			**Module Delivery**	
Module Type	B			☒ Theory ☒ Lecture ☐ Lab ☒ Tutorial ☐ Practical ☐ Seminar	
Module Code	UOMU0206012				
ECTS Credits	7				
SWL (hr/sem)	175				
Module Level		UGx11 1	**Semester of Delivery**		1
Administering Department		Fuel and Energy Techniques Engineering Department	**College**	Technical Engineering College- Al Mustaqbal university	
Module Leader	Ammar Abdulkadhim Fathi		**e-mail**	ammarabdulkadhim@uomus.edu.iq	
Module Leader's Acad. Title		Assistant Professor Dr.	**Module Leader's Qualification**		Ph.Dr. Mechanical power engineering
Module Tutor			**e-mail**		
Peer Reviewer Name			**e-mail**		
Scientific Committee Approval Date			**Version Number**		1.0

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Mathematics (2)	**Semester**	2

	Mathematics (3)		3
	Engineering Analysis		5
	Numerical method		6
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1. Recognize that mathematics permeates the world around us 2. Appreciate the usefulness, power and beauty of mathematics 3. Enjoy mathematics and develop patience and persistence when solving problems 4. Understand and be able to use the language, symbols and notation of mathematics 5. Develop mathematical curiosity and use inductive and deductive reasoning when solving problems 6. Become confident in using mathematics to analyses and solve problems both in school and in real-life situations 7. Develop the knowledge, skills and attitudes necessary to pursue further studies in mathematics 8. Develop abstract, logical and critical thinking and the ability to reflect critically upon their work and the work of others 9. Develop a critical appreciation of the use of information and communication technology in mathematics 10. Appreciate the international dimension of mathematics and its multicultural and historical perspectives.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Determinants and Grammar's rule 2. Trigonometric functions & relation Graphing of functions 3. Vectors. 4. Function of limits 5. Types of function
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. 1. Introduction to analytic geometry [12hr]. 2. Matrix and determinations [12hr]. 3. Vectors[12hr].

	4. Functions [24hr]. 5. Limits and continuity [24hr].

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Type something like: The main strategy that will be adopted in delivering this module is to encourage 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 examples involving some solving methods that are interesting to the students.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	73	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	6
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	107	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	180		

Module Evaluation تقييم المادة الدراسية					
As		**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	10% (10)	2, 12	LO # 3, 4, 6 and 7
	Projects / Lab.	1	10% (10)	Continuous	
	Report	1	10% (10)	13	LO # 5, 8 and 10
	Midterm Exam	1 hr	10% (10)	7	LO # 1-7

Summative assessment	**Final Exam**	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
Week	**Material Covered**
Week 1	Introduction to analytic geometry The coordinate plan and straight lines: 1. Cartesian coordinates. 2. Slopes of line. 3. Slopes of non-vertical lines.
Week 2	Equations for lines, distance formula, and circle.
Week 3	Matrices and determents: 1. Symbols of matrix, order, types of matrices and operations of matrix (+,/, -, *).
Week 4	Determinations: definitions, order, properties of determinations, and Gramer's rule.
Week 5	Vectors: vector components, multiplication of a vector by scalar, vectors in X-Y plan, subtraction of vectors, and length of vector.
Week 6	Vectors: Unit vector, vector in space, sphere, two vector in (X-Y-Z) planes, product of vectors, and calculation of geometric area using vectors.
Week 7	Functions: Types of functions 1. Algebraic functions:(linear function, polynomial function, constant function and absolute value function) 2. Transcendental functions: trigonometric functions, properties of trigonometric functions, and the invers trigonometric functions.
Week 8	Exponential function, properties of the exponential function, and graph of exponential function.
Week 9	Logarithmic function, properties of the Logarithmic function, and graph of Logarithmic function.
Week 10	Hyperbolic trigonometric function, properties of the Hyperbolic trigonometric function, and invers of Logarithmic function.
Week 11	Limits: theorems of limits, sandwich theorem, and infinity as a limit.
Week 12	Continuity: continuity at an interior point, continuity at an end point.
Week 13	The continuity test: theorem II and theorem III.
Week 14	Applications: Velocity and acceleration and other rates of change.
Week 15	Final Exam

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Ayres, F., & Mendelson, E. (2009). Calculus: Schaum's outlines.	yes
	G. Thomas & R. Finney, :Calculus and analytic Geometry.	
Recommended Texts	G. Stephenson: Mathematical Methods for Science Students. Longman hous,1981.	No
Websites	https://canterbury.libguides.com/math/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.