MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Mathematics (1)**			**Module Delivery**	
Module Type	**Basic learning activities**			☒ **Theory** ☐ **Lecture** ☐ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**MATH 103**				
ECTS Credits	**9.00**				
SWL (hr/sem)	**225**				
Module Level		UGI	**Semester of Delivery**		One
Administering Department		First stage	**College**	Civil Engineering	
Module Leader	Husam Hikmat Baqir		**e-mail**	40161@uotechnology.edu.iq	
Module Leader's Acad. Title		Assistant Professor	**Module Leader's Qualification**		MSc
Module Tutor			**e-mail**		
Peer Reviewer Name			**e-mail**		
Scientific Committee Approval Date		01/06/2023	**Version Number**	1.0	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module		**Semester**	
Co-requisites module	CEMA 201	**Semester**	Three

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1. Teaching students how to know the basic principles of Mathematics and their importance to the civil engineer. 2. Teaching the students how to deal with Trigonometric function (graphing, Differentiation, integration,.etc.). 3. Teaching students how to analyze the Matrices and to solve linear simultaneous equation by Grammar's rule. 4. Teaching students how to deal with Logarithmic, exponential and power functions and hyperbolic functions the student will be provided with Basic principles of integration methods. 5. Teaching the students how to deal with some methods of integration like powers of trigonometric functions, integrals with ax2+bx+c, integration by parts, partial fraction. 6. Teaching students how to find the area under the curve using integration principle. 7. Teaching students how to deal with definition and representation of vectors and some essentials in mathematics 8. By the end of the course the student should be able to demonstrate ability to explain the mathematical skills that related to the engineering information
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1- Preparation of practical engineers in the field of civil engineering who are characterized by a high level of knowledge and technological innovation, and work in with internationally approved discreet standards of quality assurance and academic accreditation of corresponding engineering programs with a commitment to ethics of engineering career. 2- Enable students to learn and understand the various types and methods used in mathematics 3- Enable students to learn and understand the practical applications and theoretical principles in mathematics 4- Enable the student to learn and understand some types of advance methods in solving problems 5-Brain storming by encouraging students to produce a large number of ideas about some issue or problem raised during the lecture.

Indicative Contents المحتويات الإرشادية	Indicative content includes the following. 1. Homework: - There will be a minimum of three sets of homework during the academic Semester. - The homework will count 5% of the total course grade. 2. Quizzes: - There will be a three closed books and notes quizzes during the academic Semester. - The quizzes will count 15% of the total course grade. 3. Exams: - There will be two closed books and notes exam during the academic Semester, - The mid-term exam will count 20% of the total course grade. 4. Final Exam: - The final exam will be comprehensive, closed books and notes, - The final exam will count 60% of the total course grade.

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	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.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	93	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	6
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	132	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	8.8
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	225		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	10% (10)	5, 10	
	Assignments	2	10% (10)	2, 12	
Summative assessment	**Midterm Exam**	2 hr	20% (10)	7	
	Final Exam	3 hrs	60% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Trigonometric revision, graph , domain and range
Week 2	Limits , theory and examples for limits
Week 3	equation of lines and circles
Week 4	Differentiation and integration
Week 5	Matrices Addition and multiplication
Week 6	Determinants and solving system of equations using crammers rule
Week 7	Logarithmic, exponential and power functions
Week 8	Inverse trigonometric and exponential functions
Week 9	Methods of integration: powers of trigonometric functions
Week 10	integrals with ax^2+bx+c,

Week 11	integration by parts,
Week 12	integrals involving $\sqrt{a^2-x^2}, \sqrt{a^2+x^2}, \sqrt{x^2-a^2}$
Week 13	partial fraction and Substitution method
Week 14	Application of definite integrals (areas, volumes)
Week 15	Vectors: definitions and representations, vector components and the unit vector. Dot and cross product
Week 16	**final Exam**

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	• Calculus and analytic Geometry by Thomas	Yes
Recommended Texts	• *Theoretical lectures*	No
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.