MODULE DESCRIPTOR FORM
نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	MATHEMATICS			**Module Delivery**	
Module Type	BASIC			**Theory** **Lecture** **Tutorial**	
Module Code	UOMU023013				
ECTS Credits	8				
SWL (hr/sem)	200				
Module Level	1		**Semester of Delivery**	1	
Administering Department	Building and construction techniques		**College**	Al-Mustaqbal university	
Module Leader	Alaa Haseen		**e-mail**		
Module Leader's Acad. Title	Ass.lec		**Module Leader's Qualification**		
Module Tutor	Ass.lec .Baneen Mohammed Hilal		**e-mail**	baneen.mohammed.hilal@uomus.edu.iq	
Peer Reviewer Name			**e-mail**		
Review Committee Approval			**Version Number**	1.0	

Relation With Other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	**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	1/Develop the ability of student in using mathematics in engineering applications		

	2/After successful completion of this course the student will be able to understand: a/ Matrices. b/ Applications of indefinite integration and finite integration. c/ Application of derivatives in mechanics. d/ Trigonometric functions. e/ Logarithmic and exponential functions. f/ Integration. g/ Limits. h/ Slope of the straight line , Slope of the curve.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Students able to: / Demonstrates knowledge of functions are and how they are pictured as graphs, how they are combined and transformed, and ways they can be classified. / Review the trigonometric functions, /Discuss inverse, exponential, and logarithmic functions. / Review the real number system, Cartesian coordinates, straight lines, circles, parabolas, and ellipses . /Develop the limit, /Use limits to describe the way a function varies. Some functions vary continuously; /Discussed how to determine the slope of a curve at a point and how to measure the rate at which a function changes. /Develop rules for finding this derivative function easily, without having to calculate any limits directly. / Demonstrates knowledge of the derivative is one of the key ideas in calculus, and is used to study a wide range of problems in mathematics, science, / Review the one of the most important applications of the derivative is its use as a tool for finding the optimal (best) solutions to problems. /Use derivatives to find extreme values of functions, to determine and analyze the shapes of graphs, and to solve equations numerically. /Develop a method to calculate the areas and volumes of very general shapes. This method, called integration, is a way to calculate much more than areas and volumes. The definite integral is the key tool in calculus for

	defining and calculating many important quantities, such as areas, volumes, lengths of curved paths, probabilities, averages, energy consumption, /Study a number of important techniques which apply to finding integrals for specialized classes of functions such as trigonometric functions, products of certain functions, and rational functions. Since we cannot always find an antiderivative.
Indicative Contents المحتويات الإرشادية	

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 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	93	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	93/15 =6.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	107	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	107/15 =7.1
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	200		

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	15% (10)	2, 12	LO # 3, 4, 6 and 7
	Projects / Lab.	1			
	Report	1	15% (10)	13	LO # 5, 8 and 10
	Midterm Exam	1.5 hr	10% (10)	7	LO # 1-7

Summative assessment	**Final Exam**	2.5 hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week	**Syllabus**
1	Slope of the straight line, Slope of the curve
2	Limits
3	Derivatives of algebraic functions, Chain rule, Second and higher order derivative,
4	Application of derivatives in mechanics Applications of derivatives, Rate of change
5	Trigonometric functions, Derivatives of trigonometric functions
6	Inverse of trigonometric function, The exact value of trigonometric functions, Derivatives of inverse of trigonometric functions
7	Logarithmic and exponential functions, Logarithmic method in derivatives Derivative of logarithmic and exponential functions, Derivative of au , loga u
8	Hyperbolic functions, Relation between the hyperbolic functions and exponential functions, Derivative of hyperbolic functions
9	Integration of algebraic functions, Applications of indefinite integration and finite integration
10	Integration of trigonometric functions and inverse Trigonometric functions Integration of lnx, u^{-1},a^u,e^u
11	Methods of integration
12	Area under curve , Area between two curves
13	Area by calculus (Rectangular method ,Trapezoidal rule, Simpson rule).
14	Volume by revolution (Disk strip, Washer strip, Shell strip), Length of the plane curve , Area of surface of revolution.
15	Matrices (Inverse Matrix) & (Grammar Method).
16	Final Exam

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	**1. Calculus "Seven Edition" By H. Anton , I.Bivens , S. Davis**	Yes

	2. **Calculus , By Thomas**	
Recommended Texts	1. **Advanced Engineering Mathematics , By C.R. Wylie ,**	No
Websites		

APPENDIX:

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	مقبول بقرار	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
Note:				

NB 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.

ملاحظة: هذا النموذج تم وضعه وتقديمه من قبل مديرية ضمان الجودة في وزارة التعليم العالي والبحث العلمي