MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

<table>
<tr><td colspan="4" align="center">Module Information
معلومات المادة الدراسية</td></tr>
<tr><td>Module Title</td><td>Calculus-1</td><td colspan="2">Module Delivery</td></tr>
<tr><td>Module Type</td><td>B</td><td colspan="2" rowspan="4">☒ Theory
☒Lecture
☐Lab
☒ Tutorial
☐Practical
☐Seminar</td></tr>
<tr><td>Module Code</td><td>ENG003</td></tr>
<tr><td>ECTS Credits</td><td>6</td></tr>
<tr><td>SWL (hr/sem)</td><td>150</td></tr>
<tr><td>Module Level</td><td>UGI</td><td>Semester of Delivery</td><td>1</td></tr>
<tr><td>Administering Department</td><td>CV101</td><td>College</td><td>Civil Engineering College</td></tr>
<tr><td>Module Leader</td><td>Dr. Atheer F. Al-Anbaki</td><td>e-mail</td><td>atheer.alanbaki@uoanabr.edu.iq</td></tr>
<tr><td>Module Leader's Acad. Title</td><td>Lecturer</td><td>Module Leader's Qualification</td><td>Ph.D.</td></tr>
<tr><td>Module Tutor</td><td>Dr. Salam R. Armoosh</td><td>e-mail</td><td>salam.armoosh@uoanabr.edu.iq</td></tr>
<tr><td>Peer Reviewer Name</td><td>N/A</td><td>e-mail</td><td>E-mail</td></tr>
<tr><td>Scientific Committee Approval Date</td><td>01/06/2023</td><td>Version Number</td><td>2.0</td></tr>
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<tr><td colspan="3" align="center">Relation with other Modules
العلاقة مع المواد الدراسية الأخرى</td></tr>
<tr><td>Prerequisite module</td><td>None</td><td>Semester</td><td></td></tr>
<tr><td>Co-requisites module</td><td>None</td><td>Semester</td><td></td></tr>
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	Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية
Module Aims أهداف المادة الدراسية	The Aims of this course are to enable students to: 1. Solve problems using the Fundamental Theorem of Calculus. 2. Evaluate Limits of the functions and their continuity. 3. Find the derivative of algebraic, trigonometric, exponential, and logarithmic functions. 4. Sketch the graph of a function using the information for the first and second derivatives
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	By the end of successful completion of this course, the student will be able to: 1. To develop mathematical skill so that students are able to sketch the graph of various functions and evaluate Limits by using different techniques including L'Hopital's rule 2. Apply mathematical methods and principals in solving various derivative problems from Engineering fields, involving applications of derivatives. 3. Demonstrate algebraic facility with algebraic topics including linear, quadratic, exponential, logarithmic, and trigonometric functions, 4. Compute derivative and anti-derivative of algebraic, trigonometric, inverse trigonometric, exponential, logarithmic, and apply them to solve problems in a wide range of engineering applications.
Indicative Contents المحتويات الإرشادية	Calculus is the branch of mathematics that deals with the finding and properties of function types, derivatives, and integrals of ordinary functions. The first course of calculus deals with the following subjects: Tangent line and slope problems, Drawing of functions, Continuity and limit of functions, Limits at infinity, horizontal and vertical asymptote. Derivative of functions and rates of change. Differentiation of polynomials, quotient rules, Derivatives of exponential, logarithmic, and trigonometric functions, Chain rule and implicit differentiations, Applications of differentiation maximum and minimum values. the mean value, Derivative of hyperbolic functions and indeterminate forms and L'Hopital's rule, Optimization problems and anti-derivative of functions.

	Learning and Teaching Strategies استراتيجيات التعلم والتعليم
Strategies	Calculus I course require effective learning and teaching strategies to ensure students develop a strong understanding of complex concepts and their practical applications. The range of strategies that can enhance the learning experience for students in Calculus I courses. These strategies include lecture-based teaching, practical applications, problem-solving assignments, group work and discussions, assessments and feedback, continuous learning, and encouraging self-directed learning.

Student Workload (SWL)

<div dir="rtl">الحمل الدراسي للطالب</div>

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	63	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4.0
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	87	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	5.8
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150		

Module Evaluation

<div dir="rtl">تقييم المادة الدراسية</div>

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative Assessment	**Quizzes**	5	**25% (25)**	5, 9	LO # 1 and 2, 3 and 4
	Assignments (HW)	2	**5% (5)**	6, 11	LO # 1 and 2, 3 and 4
	Report	1	**5% (5)**		
	Activities	1	**5% (5)**	15	
	Lab				
Summative Assessment	**Midterm Exam**	2 hr	**10% (10)**	7	All
	Final exam	3 hr	**50% (50)**	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

<div dir="rtl">المنهاج الاسبوعي النظري</div>

	Material Covered
Week 1	Functions
Week 2	Functions
Week 3	Limits
Week 4	Limits
Week 5	Differentiation rules
Week 6	Differentiation rules
Week 7	The Chain Rule, Implicit Differentiation
Week 8	Applications of Differentiation

Week 9	Applications of Differentiation
Week 10	Exponential and logarithmic functions.
Week 11	Trigonometric functions and their derivatives
Week 12	Hyperbolic functions and their derivatives
Week 13	Advanced Applications of differentiation
Week 14	Derivative and anti- derivative functions
Week 15	Derivative and anti- derivative functions
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus)
المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	N/A

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Lecture Notes	Yes
Recommended Texts	Calculus, Early Transcendental by James Stewart, 9th Edition, 2020, Cengage Learning.	Yes
Websites	https://www.uoanbar.edu.iq/Bank-Section.php	

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.