MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

<table>
<tr><th colspan="5" align="center">Module Information
معلومات المادة الدراسية</th></tr>
<tr><td>Module Title</td><td colspan="2" align="center">Calculus 2</td><td colspan="2">Module Delivery</td></tr>
<tr><td>Module Type</td><td colspan="2" align="center">Core</td><td colspan="2" rowspan="4">☒ Theory
☒ Lecture
☐ Lab
☒ Tutorial
☐ Practical
☐ Seminar</td></tr>
<tr><td>Module Code</td><td colspan="2" align="center">ENG004</td></tr>
<tr><td>ECTS Credits</td><td colspan="2" align="center">6</td></tr>
<tr><td>SWL (hr/sem)</td><td colspan="2" align="center">150</td></tr>
<tr><td>Module Level</td><td>UGI</td><td>Semester of Delivery</td><td colspan="2">2</td></tr>
<tr><td>Administering Department</td><td>CV101</td><td>College</td><td colspan="2">College of Engineering</td></tr>
<tr><td>Module Leader</td><td>Dr. Atheer F. Al-Anbaki</td><td>e-mail</td><td colspan="2">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 colspan="2">Ph.D.</td></tr>
<tr><td>Module Tutor</td><td>Dr. Salam R. Armoosh</td><td>e-mail</td><td colspan="2">salam.armoosh@uoanbar.edu.iq</td></tr>
<tr><td>Peer Reviewer Name</td><td>N/A</td><td>e-mail</td><td colspan="2">E-mail</td></tr>
<tr><td>Scientific Committee Approval Date</td><td>01/06/2023</td><td>Version Number</td><td colspan="2">2.0</td></tr>
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<tr><th colspan="4" align="center">Relation with other Modules
العلاقة مع المواد الدراسية الأخرى</th></tr>
<tr><td>Prerequisite module</td><td>Calculus I</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	1. Introduce to the students the fundamental theorem of calculus. 2. Develop the ability to solve integration by definition. 3. Introduce integration techniques and solve various integration problems. 4. Apply the acquired knowledge to find areas, volumes, and arc length. 5. Understand sequence and series.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Evaluate of definite, indefinite and improper integrals by using different integration techniques 2. To determine arc length, surface area and volume by using the applications of integration techniques. 3. Define polar coordinate graphs and solve related problems including area, arc length and volume 4. Identify the properties of sequences and their limits with identifying standard convergent operations of power series'
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Fundamentals of Integrals, Definite and indefinite integrals, Integration Techniques - integration by Parts, Trigonometric Integrals, Partial Fractions, Applications of Integrals - Arc Length and Surface area, Volumes (Disk, Washer, Shell), Polar Coordinates - Common Polar Coordinate Graphs, Tangents with Polar Coordinates, Curves defined by equations, Sequences and Series.

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

Strategies	Lectures supported by modes developing material covered in lectures. These modes include theoretical lectures and problem-solving tutorials.

Student Workload (SWL)			
الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	63	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4.2
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		

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<tr><td colspan="6">Module Evaluation
تقييم المادة الدراسية</td></tr>
<tr><td colspan="2"></td><td>Time/Number</td><td>Weight (Marks)</td><td>Week Due</td><td>Relevant Learning Outcome</td></tr>
<tr><td rowspan="5"></td><td>Quizzes</td><td>5</td><td>25% (25)</td><td>2, 4, 6, 8 ,10</td><td>All</td></tr>
<tr><td>Online Assignments (HomeWorks)</td><td>1</td><td>6% (6)</td><td></td><td></td></tr>
<tr><td>Onsite Assignments (Class Works)</td><td></td><td>5% (5)</td><td></td><td></td></tr>
<tr><td>Report</td><td>1</td><td>4% (4)</td><td></td><td></td></tr>
<tr><td colspan="1">Lab 15% of the 40</td><td></td><td></td><td></td><td></td></tr>
<tr><td rowspan="3">Summative Assessment 60%</td><td colspan="1">Midterm Exam</td><td>2 hr</td><td>10% (10)</td><td>8</td><td>All</td></tr>
<tr><td>Final Exam 50% Theory</td><td>3 hr</td><td>50% (50)</td><td>16</td><td>All</td></tr>
<tr><td>Lab</td><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="3">Total assessment</td><td>Final Exam</td><td></td><td></td></tr>
<tr><td colspan="3"></td><td>100% (100 Marks)</td><td></td><td></td></tr>
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<tr><td colspan="2">Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري</td></tr>
<tr><td></td><td>Material Covered</td></tr>
<tr><td>Week 1</td><td>Principles of Integration</td></tr>
<tr><td>Week 2</td><td>Integral Methods</td></tr>
<tr><td>Week 3</td><td>Integration Techniques - Integration by Parts</td></tr>
<tr><td>Week 4</td><td>Integration Techniques - Trigonometric Integrals</td></tr>
<tr><td>Week 5</td><td>Integration Techniques - Partial Fractions</td></tr>
<tr><td>Week 6</td><td>Integration Techniques - Partial Fractions</td></tr>
<tr><td>Week 7</td><td>Applications of Integrals - Infinite Integral Areas</td></tr>
<tr><td>Week 8</td><td>Applications of Integrals - Arc Length, Surface area</td></tr>
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Week 9	Applications of Integrals – Volumes (Disk, Washer ,Shell)
Week 10	Polar Coordinates - Common Polar Coordinate Graphs.
Week 11	Polar Coordinates - Tangents with Polar Coordinates, Curves defined by parametric equations.
Week 12	Polar Coordinates - Tangents with Polar Coordinates, Curves defined by parametric equations.
Week 13	Sequences and Series.
Week 14	Sequences and Series.
Week 15	Sequences and Series.
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	Stewart, J., Clegg, D. K., & Watson, S. (2020). Calculus: early transcendentals. Cengage Learning.	Yes
Recommended Texts	Thomas, G. B., Haas, J., Heil, C., & Weir, M. (2018). Thomas' Calculus. Pearson Education Limited. Kreyszig, E., Stroud, K. and Stephenson, G., 2008. Advanced engineering mathematics. Integration, 9(4).	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	**FX – Fail**	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded

(0 – 49)	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.