

وصف المقرر الدراسي

Course Name: Engineering Mathematics II

Course code: ENG023

Semester/Year: Second Semester/2026

Date this description was prepared: February 18, 2026

Available attendance formats: Bologna Process

Total credit hours/unit credits: 150

Course coordinator: M.M. Nidaa Ali Shabat Al-Zughaibi
nidaa.ali@uowa.edu.iq

1. Course objectives

The aims of a mathematics module are to provide students with an understanding of mathematical concepts, skills, and techniques that can be applied to a range of realworld problems. This course aims to introduce the concepts of calculus, complex numbers, vectors, and linear algebra. Additionally, the module aims to prepare students for future academic and .professional pursuits that require mathematical proficiency

Objectives

2. Teaching and learning strategy

وصف المقرر الدراسي

The main strategy that will be adopted in delivering this module is to 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.

strategy

بنية المقرر 3.

Assessment Method	Teaching Method	Topic	Learning Outcomes	Hours, Required	Week
Classroom exams, Assignments Questions	presence	Transcendental Functions: Inverse Functions and Their Derivatives, Natural ,Logarithms Functions, Hyperbolic Functions .and their inverse		5	3-1
Classroom exams, Assignments Questions	presence	Integration Techniques: Integration by Parts, Trigonometric Integrals, Trigonometric Substitutions, Partial		5	5-4

وصف المقرر الدراسي

<p>Classroom exams, Assignments Questions</p>	<p>presence</p>	<p>Fractions, Improper Integrals.. Polar Coordinates: Polar Coordinates system, Graphing Polar Coordinate Equations, Areas and Lengths in Polar Coordinates</p>		<p>5</p>	<p>6</p>
<p>Classroom exams, Assignments Questions</p>	<p>presence</p>	<p>Matrices and Determinants: Definitions, Properties and operations, Determinant, Inverse of a matrix, Solution of linear system equations, Eigenvalues and Eigenvectors</p>		<p>5</p>	<p>9-8-7</p>
<p>Classroom exams, Assignments Questions</p>	<p>presence</p>	<p>Vector Theory: Three-Dimensional Coordinate Systems,</p>		<p>5</p>	<p>12-11-10</p>

وصف المقرر الدراسي

<p>Classroom exams, Assignments Questions</p>	<p>presence</p>	<p>Representation of vectors in space, unit vectors, Scalar Product, Vector Product, Lines and Planes in Space, Vector Function.</p> <p>.</p> <p>Complex Numbers: Complex numbers and operations, Solution of quadratic equations, The</p> <p>Preparatory week before the final Exam</p>		<p>5</p> <p>5</p>	<p>15-14-13</p> <p>16</p>
---	-----------------	--	--	-------------------	---------------------------

وصف المقرر الدراسي

--	--	--	--	--	--

4. Course Evaluation (Assessment)

% 10 = Midterm Exam
% 10 = Quizzes
%10 = Assignments
% 10 = Class Participation / Evaluation
%10 = Reports
% 50 = Final Exam

5. Learning and Teaching Resources

George B. Thomas Jr., "CALCULUS", 14th Ed	Required Texts
1. Erwin Kreyszig, "Advanced Engineering Mathematics", 10th Ed. 2. Schaum's Outline of College Mathematics, Fourth Edition. 3. Mary Attenborough, "Mathematics for Electrical Engineering and Computing", 1st Ed.	Recommended Texts
Topics in a Calculus -Wolfram Mathworld.	Websites

كلية الهندسة

وصف المقرر الدراسي

