

1. Course Name:					
Fundamentals of Engineering Mathematics					
2. Course Code:					
CIV12202					
3. Semester / Year:					
Second/First Year					
4. Description Preparation Date:					
8-12-2025					
5. Available Attendance Forms:					
Class					
6. Number of Credit Hours (Total) / Number of Units (Total)					
5/5					
7. Course administrator's name (mention all, if more than one name)					
Aya Luay Khalil aya.luay@muc.edu.iq					
8. Course Objectives					
Course Objectives	1. The student acquires knowledge and special skills to analyze and solve mathematical equations using the relevant theories, hypotheses and laws. 2. To give a rigorous analytic approach to the definitions and properties of different functions 3. To study a number of important techniques which apply to finding integrals for specialized classes of functions 4. Extends the students' knowledge to find how to add together infinitely many numbers or many powers of variables.				
9. Teaching and Learning Strategies					
Strategy	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 types of simple experiments involving some sampling activities that are interesting to the students.				
1. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	Vector algebra, vector desc. of line, length angles and projections, vector dot and cross products	Vector	Theoretical	Several Ways (Exams + Assignments)
2	5	Vector desc. of planes, intersection of planes and lines, planes: shortest distances	Vector	Theoretical	Several Ways (Exams + Assignments)
3	5	Vector valued functions, revision, vector geometry	Vector	Theoretical	Several Ways (Exams + Assignments)
4	5	Directional derivatives and gradient	Derivatives	Theoretical	Several Ways (Exams + Assignments)

5	5	Engineering applications	Derivatives	Theoretical	Several Ways (Exams + Assignments)
6	5	D-operator method and separation of variables	Derivatives	Theoretical	Several Ways (Exams + Assignments)
7	5	Mid exam 1			
8	5	Double integration	integration	Theoretical	Several Ways (Exams + Assignments)
9	5	Change of order	integration	Theoretical	Several Ways (Exams + Assignments)
10	5	Double integration in polar coordinates	integration	Theoretical	Several Ways (Exams + Assignments)
11	5	Engineering applications	Applications of integration	Theoretical	Several Ways (Exams + Assignments)
12	5	Engineering applications	Applications of integration	Theoretical	Several Ways (Exams + Assignments)
13	5	Cartesian triple integration	Applications of integration	Theoretical	Several Ways (Exams + Assignments)
14	5	Applications	Applications of integration	Theoretical	Several Ways (Exams + Assignments)
15	2	Mid exam 2			

2. Course Evaluation

Quizzes 10
 Assignments 18
 Onsite Assign. 6
 Report 6
 Midterm Exam 10

 Final Exam 50

3. Learning and Teaching Resources

Required textbooks (curricular books any)	Thomas' Calculus: Early Transcendentals 15th edition Published by Pearson (February 8th 2022) - Copyright © 2023
Main references (sources)	
Recommended books and references (scientific journals, reports...)	Thomas' Calculus: Early Transcendentals 15th edition Published by Pearson (February 8th 2022) - Copyright © 2023
Electronic References, Websites	rodrigopacios.github.io/mrpacios/download/Thomas_Calculus.pdf

