Course Description Form

1. Course Name:
Mathematics 2

2. Course Code:
MATH133

3. Semester / Year:
Spring semester / 2023-2024- First stage

4. Description Preparation Date:
1/2/2024

5. Available Attendance Forms:
Attendance

6. Number of Credit Hours (Total) / Number of Units (Total):
30 practical hours/3 units

7. Course administrator's name (mention all, if more than one name)
Name: Mustafa Nadhim Salim
mustafa.nadhim@uomosul.edu.iq

8. Course Objectives
-Recognize the ideas behind different mathematical equations, the associated conditions, and the methods for solving them. -Gaining expertise in addressing partial derivatives in mathematical situations. -Giving the learner the opportunity to learn about mathematics in general and how it's used in various experiments -Giving the learner the ability to comprehend mathematics, apply it to situations, and follow the right procedures -Equipping the learner with the knowledge and abilities to handle diverse mathematical topics and applications. -Giving the student the ability to tackle challenging issues and a range of applications in diverse domains -Improving the student's proficiency using contemporary mathematical techniques. -Improving the student's proficiency with mathematics on websites for academic communication and the Internet. -Improving the student's capacity for discussion and conversation.

9. Teaching and Learning Strategies
- Scientific lectures - Giving exercises and solutions to the exercises to students in various areas of general mathematics - Assigning students to prepare reports on various mathematics topics - Giving an assignment on the topic at the end of each lecture to solve mathematical problems

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2 practical	B1,A1 :The student should be able to know and understand the rules of derivatives and their applications	Derivative requirements for extracting physics for derivations	Lectures, giving exercises and solutions to exercises to students, daily exams, homework	Quizzes, Homework, Discussion and solving exercises within the lecture, student interaction

				Lectures, giving exercises and solutions to exercises to students, daily exams, homework	Quizzes, Homework, Discussion and solving exercises within the lecture, student interaction
2	2 practical	B1,A1 :The student should be able to know and understand about the engineering applications of the derivative	Engineering applications of the derivative	Lectures, giving exercises and solutions to exercises to students, daily exams, homework	Quizzes, Homework, Discussion and solving exercises within the lecture, student interaction
3	2 practical	B1,A1 :The student continues his knowledge of the partial derivative of higher orders	Finding the partial derivative of second and higher orders	Lectures, giving exercises and solutions to exercises to students, daily exams, homework	Quizzes, Homework, Discussion and solving exercises within the lecture, student interaction
4	2 practical	B1,A1 :The student continues with his knowledge of the partial derivative of the first order	Find the partial derivative of first order	Lectures, giving exercises and solutions to exercises to students, daily exams, homework	Quizzes, Homework, Discussion and solving exercises within the lecture, student interaction
5	2 practical	B1,A1 :The student should be able to know and understand Learn about the concept of perfect differentiation	Complete differentiation and differentiation	Lectures, giving exercises and solutions to exercises to students, daily exams, homework	Quizzes, Homework, Discussion and solving exercises within the lecture, student interaction
6	2 practical	B1,A1 :Learn about the concept of double and triple integration	Double and triple integration	Lectures, giving exercises and solutions to exercises to students, daily exams, homework	Quizzes, Homework, Discussion and solving exercises within the lecture, student interaction
7	2 practical	B1,A1 :The student learns about another type of derivatives, which are exponential and trigonometric functions	Derivative of exponential and trigonometric functions	Lectures, giving exercises and solutions to exercises to students, daily exams, homework	Quizzes, Homework, Discussion and solving exercises within the lecture, student interaction,
8	2 practical	Learn about the rules of indefinite integration	Integration rules and solving examples	Lectures, giving exercises and solutions to exercises to students, daily exams, homework	Quizzes, Homework, Discussion and solving exercises within the lecture, student interaction,
9	2 practical	B1,A1 :Learn about integration applications	Calculating the area between a curve and the x-axis and between two curves	Lectures, giving exercises and solutions to	Quizzes, Homework, Discussion and solving exercises

					exercises to students, daily exams, homework	within the lecture, student interaction
10	2 practical	B1,A1 :The student should be able to know and understand the another application of integration	Calculate the volume resulting from the rotation of space	Lectures		Quizzes, Homework, Discussion and solving exercises within the lecture, student interaction
11	2 practical	B1,A1 :Practical application and solution of various integration problems	Definite and indefinite integration with examples	Lectures, giving exercises and solutions to exercises to students, daily exams, homework		Quizzes, Homework, Discussion and solving exercises within the lecture, student interaction
12	2 practical	B1,A1 :The student learns about an important topic, which is integration by division of fractions	Partial integration	Lectures, giving exercises and solutions to exercises to students, daily exams, homework		Quizzes, Homework, Discussion and solving exercises within the lecture, student interaction
13	2 practical	B1,A1 :The student went on to learn about integration by dividing fractions (partial)	Partial integration	Lectures, giving exercises and solutions to exercises to students, daily exams, homework		Quizzes, Homework, Discussion and solving exercises within the lecture, student interaction
14	2 practical	B1,A1 :The student learns about integration by division	Integration by part	Lectures, giving exercises and solutions to exercises to students, daily exams, homework		Quizzes, Homework, Discussion and solving exercises within the lecture, student interaction
15	2 practical	B1,A1 :The student continues to learn about integration by division	Integration by part	Lectures, giving exercises and solutions to exercises to students, daily exams, homework		Quizzes, Homework, Discussion and solving exercises within the lecture, student interaction

11.Course Evaluation

Attendance 1%

Assignments 4%

Short tests (Quiz) 5%

(The third week, the fifth week, the seventh week, the ninth week, and the eleventh week)

First semester exam 15% (sixth week)	
Second semester exam 15% (week fourteen)	
Pursuit score 40%	
Final exam 60%	
Final grade 100%	
12.Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Mathematics for Machine Learning author M. P. Deisenroth, A. A. Faisal and C. S. Ong
Main references (sources)	Mathematical Handbook of Formulas and Table
Recommended books and references (scientific journals, reports...)	1300 Math Formulas
Electronic References, Websites	**https://mathblog.com/mathematics-books/**

Theoretical subject teacher
M. M. Mustafa Nadhim Salim

Chairman of the scientific committee
Dr. Abdalkader Absh Sbak

Head of the Department
Dr. Amar Yunis Kashmoula