Course Description Form

1. Course Name:
Linear Algebra I

2. Course Code:
Math 212

3. Semester / Year:
First/ Second

4. Description Preparation Date:
23/3/2024

5. Available Attendance Forms:
Presence of theories

6. Number of Credit Hours (Total) / Number of Units (Total)
4 hours per week (theory)/ 4 units

7. Course administrator's name (mention all, if more than one name)
Name: Dr.Zainab Riyadh Shaker Email: zaianb.riyadh22@nahrainuniv.edu.iq

8. Course Objectives

Course Objectives	1. Study of linear systems and their solutions. 2. Study matrices and solve systems using matrices. 3. Vectors and its applications 4. Determinants and their applications

9. Teaching and Learning Strategies

Strategy	**A- Cognitive goals.** 1. Enable students to obtain knowledge and understanding of the basic principles of lin systems. 2. Enable students to obtain knowledge and understanding of the laws and properties matrices. 3. Enable students to gain knowledge and understanding of how laws are linked 4. Enable students to obtain knowledge of methods for deriving basic equations of lin systems. 5. Enable students to identify the most important applications of linear algebra such matrices and linear systems.. **B. The skills goals special to the course.** 1. The student will be able to use matrices to solve linear systems. 2. Using mathematical methods to understand the behavior of linear systems. **Teaching and Learning Methods** 1. Giving theoretical lectures. 2. Giving descriptive homework. 3. Direct questions to students to test their understanding of the topic. 4. Assigning students homework **Assessment methods** 1. Monthly exams and daily quizzes. 2. Programmed mid-term exams. 3. Homework's.

4. Direct oral questions.
C. Affective and value goals
  1. Enabling students to solve second   and third order DEs.
  2. Enabling students to solve problems related to the derivations of laws and
  their equations.
  3. Enabling students to solve mathematical problems using the simplest means.

D. General and rehabilitative transferred skills(other skills relevant to employability a
personal development)
1. The ability to self-research to solve mathematical problems.
2. Recognize vector space and its benefits and use in mathematics.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4		Linear Equations and Matrices		
2	4		Systems of Linear Equations		
3	4		Matrices		
4	4		Matrix Multiplication		
5	4		Algebraic Properties of Matrix Operations		
6	4		Special Types of matrices		
7	4		Solving Linear Systems		
8	4		Echelon Form of a Matrix		
9	4		Elementary Matrices; Finding $A^{(-1)}$		
10	4		Determinants		
11	4		Properties of Determinants		
12	4		Cofactor Expansion		
13	4		Inverse of a Matrix		
14	4		Other Applications of Determinants		
15	4		Vector space and its properties		

11.	Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

12.	Learning and Teaching Resources

Required textbooks (curricular books, if any)	Introduction to Linear Algebra and Application by Bernard Kolman
Main references (sources)	Introduction to Linear Algebra by Franz hohn
Recommended books and references (scientific journals, reports…)	Any website that specializes in the study of linear algebra
Electronic References, Websites	