Course Description Form

1. Course Name:
Engineering Analysis
2. Course Code:
CE317
3. Semester / Year:
Semester
4. Description Preparation Date:
23/9/2024
5. Available Attendance Forms:
In person
6. Number of Credit Hours (Total) / Number of Units (Total)
No. of hours 5/ No. of units 2
7. Course administrator's name (mention all, if more than one name)
Name: Asst.Lect. Sally Mowafaq Email: sallay.muwafaq@uowa.edu.iq

8. Course Objectives	
Course Objectives	- The study of engineering analysis aims to achieve the objectives related to the design and implementation of infrastructure in an effective and sustainable manner. -The course aims to introduce students to differential equations and their solution methods and how they are implemented in various engineering applications. -Students must have knowledge of solving matrices and methods of applying them in engineering as they help in analyzing systems and solving complex problems. -Enabling students to solve linear equations and simultaneous equations.

9. Teaching and Learning Strategies	
Strategy	The student acquires the skill of solving differential equations in addition to distinguishing the formulas of equations, knowledge of engineering applications and their analysis and implementation using differential equations as well as other mathematical and analytical methods. Preparing students to become engineers capable of analyzing and interpreting problems and then providing effective solutions that contribute to the development of various engineering systems.

10. Course Structure

Week	Hours	Required Learning	Unit or subject	Learni	Evaluation method

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		Outcomes	name	ng metho d	
15	5	1. Students will be able to understand the basic principles of mathematical and engineering analysis including matrices calculations and differential integrals. 2.Students will learn about methods of solving differential equations and their engineering applications. 3. Students will calculate matrices and their field of application. 4. Students will learn about applying numerical methods to solve algebraic and differential equations. 5.Solve partial differential equation problems with finite values numerically.	•First order ordinary differential equations. • Linear differential equations with constant coefficients. • Matrices and their applications. • Simultaneous differential equations. • Numerical solutions of ordinary differential equations. • Finite differences. • Interpolation. • Numerical differentiation • Numerical integration and computer application . • Fourier series. • Finite value partial differential equations. • Numerical solution of partial differential equations.	In person	Exams Home works Class works

11. Course Evaluation

Mid. course exam = 30%
Quiz = 5%
Class and home works = 3%
Daily attendance = 2%
Final exam = 60%

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	....
Main references (sources)	Advanced Engineering Mathematics (9th edition, 2006) - kreyszig
Recommended books and references (scientific journals, reports…)	Ordinary Differential Equations: An Elementary Textbook Students of Engineering, Mathematics, and the sciences edition, 1985)- Tenenbaum and pollard.
Electronic References, Websites	https://www.uomustansiriyah.edu.iq/lectures.php?id_dept=148&id_college=5&level=3

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