

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	Al-Ayen university, Iraq/College of Engineering
2. University Department/Centre	Department of Petroleum Engineering
3. Course title/code	Engineering mathematics (GE308)
4. Modes of Attendance offered	In a present way
5. Semester/Year	2024-2023
6. Number of hours tuition (total)	3 h/week
7. Date of production/revision of this specification	1/11/2023

8. Aims of the course

The course aims to study differential equations and methods of solving them for first- and second-order differential equations, as well as higher-order equations, and to apply these solutions to practical problems so that the student can prepare appropriate equations to solve the problems he faces at work, in addition to studying special equations such as Laplace equations and the Tyler series. Enabling the student to study different numerical methods to solve scientific and practical problems in the external reality facing the student in the present and future.

9. Course outcomes and teaching, learning and evaluation methods

A- Cognitive objectives

1. Ordinary differential equations and their applications
- 2- Study of special functions
- 3- Study numerical methods and how to use them

B. The skills goals special to the course.

- 1 – The ability to solve differential equations.
- 2 - The ability to understand problems and how to use appropriate equations to solve them

Teaching and Learning Methods

- 1- Giving lectures.
- 2- Daily tests.
- 3- Discussions.
- 4- Homework assignments.

Assessment methods

- 1- Daily duties.
- 2- Exams.

C. Affective and value goals

- 1- The student's ability to understand the material
- 2- Quick wit in finding appropriate answers to questions
- 3- Finding scientific solutions to the problems facing it

D. General and rehabilitative transferred skills (other skills relevant to employability and personal development)

- 1- Developing the student's mind in how to find appropriate solutions to problems present at the work site
- 2- Gaining fitness and skill in dealing with existing problems
- 3- The possibility of teaching the technical staff working on the site.

10. Course Structure

week	hours	ILOs	Unit/module or topic title	Teaching method	Assessment method
1,2	6	That student understands lesson	Ordinary differential equations	theoretical	Homework, exam.
3,4	6	That student understands lesson	Application of first and second order	theoretical	Homework, exam.
5	3	That student understands lesson	Partial differential equations	theoretical	Homework, exam.
6,7	6	That student understands lesson	Equation solve Laplace, Legendre & Bessel function	theoretical	Homework, exam.
8	3	That student understands lesson	Fourier series	Theoretical	Homework, exam.
9	3	That student understands lesson	Taylor series	theoretical	Homework, exam.
10,11,12	9	That student understands lesson	Numerical method	theoretical	Homework, exam.

11. Infrastructure

1. Books Required reading:	Engineering mathematics
2. Main references (sources)	Educational encyclopedia in understanding engineering mathematics. Higher engineering mathematics.
3. Recommended books and references (scientific journals, reports...).	Educational encyclopedia in understanding engineering mathematics. Foundations of mathematics and basic engineering concepts. Advanced engineering mathematics.
4. Electronic references, Internet	https://ar.m.wikipedia.org https://www.noor-book.com

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12. The development of the curriculum plan
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