

King Fahd University of Petroleum and Minerals
Department of Mathematics & Statistics
Math 513 - Term 182 - Syllabus
Dr. Kroumi Dhaker

Title Mathematical Methods for Engineers
Credit 4-0-4
Textbook Advanced Engineering Mathematics with MatLab, Dean G. Duffy, 3rd Edition (2014)

Description This course aims to introduce some necessary concepts of Engineering Mathematical Methods such as Fourier and Laplace transforms, Sturm-Liouville problems, basic PDE's, and some matrix theory.

Learning Outcomes Upon completion of this course, students should be able to understand:

- Obtain Fourier series representations of commonly used functions,
- Solve Sturm-Liouville Problems,
- Know basic properties of Laplace and Fourier Transforms and be able to find transforms of commonly used functions,
- Know basic linear partial differential equations (PDEs),
- Solve these PDEs using Fourier Series, Laplace, and Fourier Transforms,
- Understand and apply basic linear algebra.

Pacing Schedule

Week	Chapters	Material
1-2	4	Fourier Series
3-4	5	The Fourier Transform
5-6	6	The Laplace Transform
7-8	9	The Sturm-Liouville Problem
9-10	10	The Wave Equation
11	11	The Heat Equation
12	12	Laplace's Equation
13-14	14	Vector Calculus

Grading Policy Homework, Attendance and Assignments 20%, Midterm Exam 35%, Final 45% .

Missing Exam No makeup exam will be given under any circumstance. When a student misses Exam I or Exam II for a legitimate reason (such as medical emergencies), his grade for this exam will be determined based on an existing formula, which depends on his performance in the non-missed exam and in the final exam.

Attendance Attendance is a University Requirement. A DN grade will be awarded to any student who accumulates 9 unexcused absences

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Academic Integrity

All KFUPM policies regarding ethics apply to this course.

Suggested Homework Problems

Homework Assignments for each section will be assigned during the semester.

Plagiarism and Cheating:
(Please read carefully)

This course is composed of both individual as well as group assignments. It is important that your individual assignment be completed with your own efforts instead of copying it from your fellow student. KFUPM instructors follow “zero tolerance” approach with regard to cheating and plagiarism. During examinations (quizzes, major exams, lab reports) cheating or any attempt of cheating by use of illegal activities, techniques and forms of fraud will result in a grade of **F** in the course along with reporting the incident to the higher university administration.

Tips on how to Enhance your mathematical skills and Achieve Better grades:

1. First, consult your instructor immediately whenever you need help.
2. Take notes during classes and study your notes and textbook on the same day.
3. Do each homework assignment immediately.
4. Master the examples and homework problems of each section.
5. Try solving the recitation problems before coming to class.
6. When practicing some problems, Time yourself to finish your solution before reading answers. That is, adapt yourself to the exam environment.
7. Solve some of the review problems at the end of each chapter.
8. Last and most important, Study in the Library.

Teaching Schedule

Day	Time	Room
Monday	17:20-18:35	Building 6 Room 101
Wednesday	17:20-18:35	Building 6 Room 101