

King Fahd University of Petroleum and Minerals

Department of Mathematics and Statistics

SYLLABUS

Semester I, 2018-2019 (181)

(Dr. Muhammad Yousuf)

Course #: Math 513
Title: Mathematical Methods for Engineers
Textbook: Advanced Engineering Mathematics with MatLab, Dean G. Duffy, 3rd Edition
Extra
References

- Beginning Partial Differential Equations, P. V. O’Neil.
- Advanced Engineering Mathematics by Zill and Wright.

Objective: 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.

Outcomes: By the end of this course, the student should be able to

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

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	The Laplace Equation
13-14	14	Linear Algebra
15		Catch up and Review

Grading Policy: Homework and Quizzes 15%, Two Midterms 25% each, Final 35%

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

Teaching Schedule

Day/Time	05:20-06:35	06:45-08:00	
Sunday(U)	Math 513-02 Room: 04-149	Math 513-03 Room: 04-149	
Tuesday(T)	Math 513-02 Room: 04-149	Math 513-0 Room: 04-149	

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