King Fahd University of Petroleum & Minerals

Department of Mathematics and Statistics

Syllabus

Semester I, 2016-2017 (161)

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Course #: **Math 513**
Title: Mathematical Methods for Engineers
Textbook: Advanced Engineering Mathematics with MatLab, Dean G. Duffy, 3rd Edition
References: O'Neil, Advanced Engineering Mathematics (any edition),
Advanced Engineering Mathematics by Zill and Wright.

Objectives:

This course is designed to introduce basic methods in Linear Algebra and Partial Differential Equations to students of engineering and science.

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

Obtain Fourier series representations of commonly used functions,
Solve Sturm Liouvilles 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.

Week	Chapters	Material	Homework
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: Classwork 15%, Two Major Exams 25% each, Final Exam 35%.