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%.