

Department of Mathematical Sciences, KFUPM

Math 513 Syllabus (191)

Dr. Faisal. A. Fairag

Course Title:	Mathematical Methods for Engineers
Textbook:	Advanced Engineering Mathematics with Matlab, Dean G. Duffy, 3ed Ed, 2011.
Course Description:	Laplace transforms including the convolution theorem, error and gamma functions. The method of Frobenius for series solutions to differential equations. Fourier series, Fourier-Bessel series and boundary value problems, Sturm-Liouville theory. Partial differential equations: separation of variable and Laplace transform and Fourier integrals methods. The heat equation. Laplace equation, and wave equation. Eigenvalue problems for matrices, diagonalization.

W	Date	Chapter	Topics	Notes
1	01-05 Sep	4	Chapter 4: Fourier Series	
2	08-12 Sep			
3	15-19 Sep	5	Chapter 5 The Fourier Transform	
4	22-26 Sep			23 Sep is National Day
5	29-03 Oct	6	Chapter 6 The Laplace Transform	2 Oct (E1)
6	06-10 Oct			
7	13-17 Oct	9	Chapter 9 The Sturm-Liouville Problem	
8	20-24 Oct			
9	27-31 Oct	10	Chapter 10 The Wave Equation	30 Oct (E2)
10	03-07 Nov			
11	10-14 Nov	11	Chapter 11 The Heat Equation	
12	17-21 Nov			
13	24-28 Nov	12	Chapter 12 Laplace's Equation	27 Nov (Project submission)
14	01-05 Dec			
15	08-12 Dec	15	Chapter 14 Linear Algebra	
16	15 Dec			Normal Monday Classes

Exam-1	15
Exam-2	15
Final Exam	30
Project	10
HW	30