

**King Fahd University of Petroleum and Minerals**  
**Department of Mathematical Sciences**  
**SYLLABUS**  
**Semester II, 2006-2007 (062)**  
**(Instructor: Dr. A. Umar)**

<b>Course #:</b>	<b>Math 301</b>
<b>Title:</b>	Methods of Applied Mathematics
<b>Textbook:</b>	Advanced Engineering Mathematics by Zill and Cullen (Second Edition, 1999).

<b>Wk</b>	<b>Date</b>	<b>Sec.</b>	<b>Section Title</b>	<b>Homework</b>
1	Feb 17-21	9.1 9.5 9.7	Vector Functions The Directional Derivative Divergence and Curl	4,12,20,26,28,41 4,8,10,14,22,30 4,14,24,28
2	Feb 24-28	9.8 9.9	Line Integrals Line Integrals Independent of the Path	6,10,16,30 6,15,18,24,28
3	Mar 03-07	9.12 9.13	Green's Theorem Surface Integrals	3,6,18,25 3,10,26,33
4	Mar 10-14	9.14 9.16	Stokes' Theorem Divergence Theorem	3,6,14,17 2,4,11
5	Mar 17-21	4.1 4.2	Definition of the Laplace transform Inverse Transform, Transforms of Derivatives	4,6,18,25,30,38,40(a) 5,12,16,19,35,37
6	Mar 24-28	4.3 4.4 4.5	Translation Theorems Additional Properties Dirac Delta Function	8,13,20,24,38,47,66 6,16,19(c),23,34,45 4,8,12
7	Mar 31-Apr 04	12.1 12.2	Orthogonal Functions Fourier Series	6,12,16,18 4,6,16,20
8	Apr 07-11	12.3 12.4	Fourier Cosine and Sine Series Complex Fourier Series	4,6,14,16,26,38 2,4,6,11
9	Apr 16-18	12.5	Sturm-Liouville Theorem	2,4,6,12
<b>Midterm Vacation: Thu-Sun, April 12-15</b>				
10	Apr 21-25	12.6	Bessel and Legendre Series	2,4,6,8,15,20
11	Apr 28-May 02	13.1 13.3	Separable Partial Differential Equation Heat Equation	1,8,13,16,20,26,28 2,3,6,8,9
12	May 05 - 09	13.4 13.5	Wave Equation Laplace's Equation	2,4,6,8,10,16 1,4,7,10,14
13	May 12-16	14.2 14.3	Problems in Polar and Cylindrical Coordinates Problems in Spherical Coordinates	3,4,9,10 1,5,11,12
14	May 19-23	15.2	Applications of the Laplace Transform	2,4,8,10,14,28
15	May 26-30 + <b>June 02</b>	15.3 15.4	Fourier Integral Theorem, Fourier Transforms	1,5,10,18 2,6,10,12,16

Last day of classes: Sunday, June 03, 2007.

CAS assignments are to be assigned by the instructor.

KFUPM attendance policy will be enforced. **DN grade for 9 or more unexcused absences.**

Final examination shall be comprehensive.