

**King Fahd University of Petroleum and Minerals**  
**Department of Mathematics and Statistics**  
**SYLLABUS**  
**Semester I: 2013-2014(131)**  
Coordinator: Dr. Muhammad Islam Mustafa

**Course #:** MATH 301  
**Title:** Methods of Applied Mathematics  
**Textbook:** Advanced Engineering Mathematics by Zill and Wright (Fifth Edition)

Week	Date	Sec.	Topics	Suggested Homework Problems
1	Sept 1 - 5	9.1 9.5 9.7	Vector Functions The Directional Derivative Curl and Divergence	1,12,16,17,21,26,33, 41 2,7,9,14,17,21,23,32,29 2,6,10,14,17,22,27
2	Sept 8 - 12	9.8 9.9	Line Integrals Independence of the Path	2,6,8,11,16,19,24,28,33 1,10,15,18,21,26
3	Sept 15 - 19	9.12 9.13	Green's Theorem Surface Integrals	2,4,6,9,18,23,25 2,5,10,13,18,22,25,33
4	Sept 22 - 26	9.14 9.16	Stokes' Theorem Divergence Theorem	1,3,6,8,13,17 2,4,7,11,14
5	Sept 29 - Oct 3	4.1 4.2	Definition of the Laplace transform Inverse Transform, Transforms of Derivatives	1,5,14,26,30,37,43 2,10,19,22,24,32,35
<b>Major Exam I : Saturday, October 5, 2013, 12:30PM - 14:30PM</b>				
6	Oct 6 - 9	4.3 4.4	Translation Theorems Additional Operational Properties	2,8,13,20,24,31,37,48,55,63 1,10,16,22,27,31,38,46
<b>Eid Al-Adha Vacation: October 10 - 20, 2013</b>				
7	Oct 21 - 24	4.5 12.1	The Dirac Delta Function Orthogonal Functions	1,4,8,12 2,6,11,13
8	Oct 27 - 31	12.2 12.3	Fourier Series Fourier Cosine and Sine Series	1,6,12,17,20 1,8,12,16,25,35,38
9	Nov 3 - 7	12.5	Sturm-Liouville Theorem	2,4,6,12
10	Nov 10 - 14	12.6	Bessel and Legendre Series	2,4,6,8,15,20
11	Nov 17 - 21	13.1 13.3	Separable Partial Differential Equations Heat Equation	2,8,12,16,22,26,27 2,3,6
12	Nov 24 - 28	13.4 13.5	Wave Equation Laplace's Equation	1,6,9,16,23 2,4,7,10,14
<b>Major Exam II : Wednesday, November 27, 2013, 08:00PM - 10:00PM</b>				
13	Dec 1 - 5	14.2 14.3	Problems in Cylindrical Coordinates Problems in Spherical Coordinates	2,4,9,12 2,5,11,12
14	Dec 8 - 12	15.2	Applications of the Laplace Transform	2,4, 10,14,18,24
15	Dec 15 - 19	15.3	Fourier Integral	1,4,10
16	Dec 22 - 24	15.4	Fourier Transforms	1,6,10,12,16
<b>Final Exam : Monday, January 6, 2014, 07:00PM</b>				

**Grading Policy:**

Exam I	25%
Exam II	25%
Final Exam	35%
Class work	15%

**Attendance:**

- Attendance is compulsory. KFUPM policy with respect to attendance will be strictly enforced.
- Any student accumulating **9 unexcused absences** will be awarded DN Grade in the course.