

**King Fahd University of Petroleum and Minerals**  
**Department of Mathematics and Statistics**  
**SYLLABUS**  
**Semester I: 2014-2015 (141)**  
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	Aug 31 - Sept 4	9.1 9.5	Vector Functions The Directional Derivative	1,12,16,17,21,26,33, 41 2,7,9,14,17,21,23,32,29
2	Sept 7 - 11	9.7 9.8	Curl and Divergence Line Integrals	2,6,10,14,17,22,27 2,6,8,11,16,19,24,28,33
3	Sept 14 - 18	9.9 9.12	Independence of the Path Green's Theorem	1,10,15,18,21,26 2,4,6,9,18,23,25
4	Sept 21 - 25	9.13 9.14	Surface Integrals Stokes' Theorem	2,5,10,13,18,22,25,33 1,3,6,8,13,17
<b>Eid Al-Adha Vacation: September 28 – October 9, 2014</b>				
5	Oct 12 - 16	9.16 4.1	Divergence Theorem Definition of the Laplace transform	2,4,7,11,14 1,5,14,26,30,37,43
<b>Major Exam I: Wednesday, October 22, 2014, 5:45PM – 7:45PM</b>				
6	Oct 19 - 23	4.2 4.3	Inverse Transform, Transforms of Derivatives Translation Theorems	2,10,19,22,24,32,35 2,8,13,20,24,31,37,48,55,63
7	Oct 26 -30	4.4 4.5	Additional Operational Properties The Dirac Delta Function	1,10,16,22,27,31,38,46 1,4,8,12
8	Nov 2-6	12.1 12.2	Orthogonal Functions Fourier Series	2,6,11,13 1,6,12,17,20
9	Nov 9 - 13	12.3	Fourier Cosine and Sine Series	1,8,12,16,25,35,38
10	Nov 16 - 20	12.5	Sturm-Liouville Theorem	2,4,6,12
11	Nov 23-27	12.6 13.1	Bessel and Legendre Series Separable Partial Differential Equations	2,4,6,8,15,20 2,8,12,16,22,26,27
<b>Major Exam II : Wednesday, November 26, 2014, 5:45PM – 7:45PM</b>				
12	Nov 30- Dec 4	13.3 13.4	Heat Equation Wave Equation	2,3,6 1,6,9,16,23
13	Dec 7 - 11	13.5 14.2	Laplace's Equation Problems in Cylindrical Coordinates	2,4,7,10,14 2,4,9,12
14	Dec 14 - 18	14.3 15.2	Problems in Spherical Coordinates Applications of the Laplace Transform	2,5,11,12 2,4, 10,14,18,24
15	Dec 21 - 28	15.3 15.4	Fourier Integral Fourier Transforms	1,4,10 1,6,10,12,16
<b>Final Exam : Tuesday, December 30, 2014, 08:00AM</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.