King Fahd University of Petroleum and Minerals
Department of Mathematical Sciences
SYLLABUS
2005-2006 (Term 051)

Course #:	Math 302
Title:	Engineering Mathematics
Textbook:	Advanced Engineering Mathematics by P. O'Neil, 5th edition (2003).
Objectives:	This course is designed to expose electrical and other engineering students to some basic ideas and notions of applied mathematics including linear algebra and complex numbers.
Catalogue Description	Vector analysis including vector fields, gradient, divergence, curl, line and surface integrals, Gauss' and Stokes' theorems. Introduction to complex variables, vector spaces and subspaces. Linear independence, basis and dimension, solution of linear equations, orthogonality, eigenvalues and eigenvectors.

Grading Policy: 3 Quizes+ Attendance: 10%, 3 majors: 60%, Final: 30%

KFUPM attendance policy will be enforced.

Major 1: Monday October 10, 2005

Major 2: Monday, Nov. 28, 2005

Major 3: Monday, Jan. 02, 2006

Final Exam: January 22-31, 2006

Tuesday, October 25, 2005: Last day for dropping courses with "W" (Thru Internet)

Wednesday November 30, 2005: Last day for dropping courses with "W" (Thru Regist. Office)

Wednesday December 28, 2005 withdrawal from all courses with grade of "WP/WF" (Thru Regist. Office)

Wk	Date	Sec.	Material	Homework
1	Sept.10-14	5.4 5.5	The Vector Space R^n Linear Dependence and Independence	5,8,16,17,19,21 6,14,17,24,26
2	Sept.17-21	6.5 6.7	Solution of homogeneous Systems of Linear Equations Non-homogeneous Systems of Linear Equations	3,17,18,20 9,13,15
3	Sept.25-28	8.1 8.2	Eigenvalues and Eigenvectors Diagonalization	6,16,21,23,26 6,7,18
4	Oct.1-5	8.3 11.1	Orthogonal and Symmetric Matrices Vector Functions of one Variable	6,12,14 6,10,12,16,18
5	Oct.8-12	11.4 11.5	The Gradient Field Divergence and Curl	6,10,14,20,22,28 4,6,10,12,19
6	Oct.15-19	12.1 12.2	Line Integrals Green's Theorem	6,12,20,22,27,29 2,4,12,14,17
7	Oct.22-26	12.3 12.4	Independence of Path and Potential Theory Surface Integrals	4,8,12,18,20 4,8,10,16
***	***	***	Eid Al-Fitr Vacation	***
8	Nov.12-16	12.7 12.8	Divergence Theorem of Gauss The integral theorem of Stokes	6,8,10,12,14,16 4,6,14,22
9	Nov.19-23	20.1 20.2	Complex Number (Polar Form) Loci and Sets of Points in the Complex Plane	2,10,22,28,34 1,2,6,7,16,31,36,37
10	Nov.26-30	21.1	Complex Functions, Limits and Continuity Derivatives (Definition, Properties, Cauchy-Riemann Equations)	 2,3,4,5,6,12
11	Dec.3-7	21.2 21.3 21.4	Power Series The Exponential and Trigonometric Functions The Complex Logarithm	3,9,11 2,4,6,8,11,15,19,23 3,4,6,8
12	Dec.10-14	21.5 22.1 22.2	Powers Curves in the plane (Quick Review) Integration of Complex Function	2,6,10,14,20,23,24 1,3,7,9 2,5,8,20,24
13	Dec.17-21	22.3 22.4	The Cauchy Integral Theorem Consequences of Cauchy's Theorem	3,5,12,17 4,8,15
14	Dec.24-28	23.2 24.1	Laurent Series (Definitions and Examples) Singularities The Residue Theorem	1,3,7,12 3,6,10,16,18,19 1,3,5,9,16,24,25
15	Dec.31-Jan.4	24.3.5	Evaluation of Real Integrals Review	29,31,33,41.
***	***	***	Eid Al- Adha Vacation	***
16	Jan.21	*	Last Day of Classes	***