

King Fahd University of Petroleum and Minerals  
Department of Mathematics & Statistics

**Syllabus Math 260**  
Semester I, 2009-2010 (091)  
Coordinator: Dr. Mohammad Samman

Course: Math 260 (Introduction to Differential Equations and Linear Algebra)

Text Book: Differential Equations and Linear Algebra, C. H. Edwards and D. E. Penny, Prentice Hall, Second Edition (2005).

Objectives: This course introduces elementary differential equations and linear algebra to students of Computer Science, Computer Engineering, System Engineering and Earth Sciences.

Week	Date	Section	Topic	Suggested Homework
1	Oct 3 - 7	1.1	Differential Equations & Mathematical Models	2, 12, 22, 30, 36, 40
		1.2	Integrals as General & Particular Solutions	4, 6, 15, 18
2	Oct 10-14	1.4	Separable Equations & Applications	1, 10, 24, 27, 33
		1.5	Linear First-Order Equations	
3	Oct 17-21	1.5	Linear First-Order Equations (contd.)	4, 12, 24, 28, 32
		1.6	Substitution Methods & Exact Equations	2, 10, 22, 40, 60
4	Oct 24-28	3.1	Introduction to Linear Systems	2, 22, 24, 26
		3.2	Matrices and Gaussian Elimination	4, 8, 14, 28
<b>Tuesday November 3, 2009: Suggested Time for Exam I</b>				
5	Oct 31-4 Nov	3.3	Reduced Row-Echelon Matrices	3, 10, 24, 35
		3.4	Matrix Operations	3, 10, 20, 24
6	Nov 7-11	3.5	Inverse of Matrices	4, 12, 20, 28
		3.6	Determinants	2, 4, 12, 30, 40, 43
7	Nov 14-18	4.1	The Vector Space $\mathbb{R}^3$	1, 6, 13, 16, 24, 26, 30
		4.2	The Vector Space $\mathbb{R}^n$ & Subspaces	3, 8, 16, 19
<b>Id al-Adha Vacation: November 19 – December 4</b>				
8	Dec 5- 9	4.3	Linear Combination & Independence of vectors	1, 6, 12, 17, 26
		4.4	Bases & Dimension for Vector Spaces	3, 8, 13, 16, 22
9	Dec 12- 16	5.1	Second-Order Linear Equations	1, 11, 16, 19, 25, 28, 44
		5.2	General Solutions of Linear Equations	2, 8, 13, 24, 26
<b>Tuesday December 22, 2009: Time for Exam II</b>				
10	Dec 19-23	5.3	Homogeneous Equations with Constant Coefficients.	1, 4, 14, 22, 28, 33, 38
		5.5	Method of Undetermined Coefficients	4, 12, 26, 32, 36
11	Dec 26-30	5.5	Method of Variation of Parameters	47, 52, 57, 60
		6.1	Introduction to Eigenvalues	2, 15, 24, 28, 36
12	Jan 2-6	6.2	Diagonalization of Matrices	2, 14, 25, 28
		6.3	Applications involving Powers of Matrices	2, 10, 20, 26, 36
13	Jan 9-13	7.1	First-Order Systems & Applications	2, 8, 13, 18, 21
		7.2	Matrices & Linear Systems	2, 4, 12, 16, 20, 25
14	Jan 16-20	7.3	The Eigenvalue Method for Linear Systems	4, 9, 18, 24, 26
		7.5	Multiple Eigenvalue Solutions	
15	Jan 23-27	7.5	Multiple Eigenvalue Solutions (contd.) Review	4, 10, 16, 28, 30