

King Fahd University of Petroleum and Minerals
 Department of Mathematical Sciences
Syllabus Math 260
Semester 2, 2003-2004 (032)
(Coordinator: Dr. A. H. Bokhari)

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 2001

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	Feb. 14 – 18	1.1 1.2	Differential Equations & Mathematical Models Integrals as General & Particular Solutions	2, 11, 20, 30, 32, 39 4, 6, 15, 18
2	Feb. 21– 25	1.4 1.5	Separable Equations & Applications Linear First-Order Equations	1, 10, 24, 27, 29
3	Feb. 28 – Mar 3	1.5 1.6	Linear First-Order Equations (contd.) Substitution Methods & Exact Equations	4, 12, 24, 28, 32 2, 10, 22, 40, 48
4	Mar. 6 – 10	3.1 3.2	Introduction to Linear Systems Matrices and Gaussian Elimination	2, 22, 24, 26 4, 8, 14, 28
5	Mar. 13 – 17	3.3 3.4	Reduced Row-Echelon Matrices Matrix Operations	3, 10, 24, 35 3, 10, 20, 24, 29, 34
6	Mar. 20 – 24	3.5 3.6	Inverse of Matrices Determinants	4, 12, 20, 28, 30 2, 4, 12, 30, 52
Saturday, March 20: Suggested date for major exam 1				
7	Mar. 27 – 31	4.1 4.2	The Vector Space \mathbb{R}^3 The Vector Space \mathbb{R}^n & Subspaces	1, 6, 13, 16, 24, 26, 30 3, 8, 16, 19, 28
8	Apr. 3 – 7	4.3 4.4	Linear Combination & Independence of Vectors Bases & Dimension for Vector Spaces	1, 6, 12, 17, 26 3, 8, 13, 16, 22
9	Apr. 10 – 14	5.1 5.2	Second-Order Linear Equations General Solutions of Linear Equations	1, 11, 16, 19, 25, 28 2, 8, 13, 24, 26
10	Apr. 17 – 21	5.3 5.5	Homogeneous Equations with Constant Coefficients Method of Undetermined Coefficients	1, 4, 14, 22, 28, 33, 38 4, 12, 26, 32
Saturday, April 17: Suggested date for major exam 2				
11	Apr. 24 – 28	5.5 6.1	Method of Variation of Parameters Introduction to Eigenvalues	47, 52, 57, 59 2, 15, 24, 28, 36
12	May 1 – 5	6.2 6.3	Diagonalization of Matrices Applications involving Powers of Matrices	2, 14, 25, 31 2, 10, 20, 26, 36
13	May 8 – 12	7.1 7.2	First-Order Systems & Applications Matrices & Linear Systems	2, 8, 13, 18, 21 2, 4, 12, 16, 20, 25
14	May 15 – 19	7.3 7.5	The Eigenvalue Method for Linear Systems Multiple Eigenvalue Solutions	4, 9, 18, 26, 39
15	May 22 – 26	7.5	Multiple Eigenvalue Solutions (contd.) Review	4, 10, 16, 28, 30
<p>The date and place of the final examination will be arranged by the Registrar. The final examination will be <i>comprehensive</i>.</p>				

- Instructors are requested to assign special home work to the students to be done using MATLAB.