King Fahd University of Petroleum and Minerals

Department of Mathematical Sciences

Syllabus Math 260

Semester 2, 2003-2004 (032)

(Coordinator: Dr. A. H. Bokhari)

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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	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 R^3 The Vector Space 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

Grading policy: <u>Test 1</u>: 20 %, <u>Test 2</u>: 20 %, <u>Quizzes</u>: 14 %, <u>H.W</u>: 6 %, <u>Final</u>: 40 %

KFUPM attendance policy will be enforced. DN grade for more than 9 unexcused absences

The final examination will be *comprehensive. Date* and *place* of the *Final* exam will be arranged by the *Registrar*.