

King Fahd University of Petroleum and Minerals

Department of Mathematical Sciences

Syllabus Math 260

Semester: Summer Session 2005-2006 (053)

(Instructor: Dr. N.-e. M. Tatar)

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	June 24 – 28	1.1 1.2 1.4 1.5	Differential Equations & Mathematical Models Integrals as General & Particular Solutions Separable Equations & Applications Linear First-Order Equations	6, 11, 15, 24, 30, 36, 48 5, 22, 27, 41, 44 13,17,31,37,44,51,62,65 11, 22, 28, 31, 41
2	July 1 – 5	1.6 3.1 3.2	Substitution Methods & Exact Equations Introduction to Linear Systems Matrices and Gaussian Elimination	12, 29, 37, 50, 56, 59 10, 19, 24, 30, 32, 34 17, 27, 28
3	July 8 – 12	3.3 3.4 3.5 3.6	Reduced Row-Echelon Matrices Matrix Operations Inverse of Matrices Determinants	11, 16, 32, 35 16, 31, 32, 35, 43 5, 16, 25, 33, 39 18, 31, 34, 52, 53, 58
Wednesday, July 12: Date for major exam 1				
4	July 15 – 19	4.1 4.2 4.3 4.4	The Vector Space \mathbb{R}^3 The Vector Space \mathbb{R}^n & Subspaces Linear Combination & Independence of Vectors Bases & Dimension for Vector Spaces	7, 13, 16, 23, 28, 32, 36 4, 9, 10, 17, 19, 28, 31 4, 14, 19, 25, 27, 35 4, 9, 14, 20, 31, 32
5	July 22 - July 26	5.1 5.2 5.3 5.5	Second-Order Linear Equations General Solutions of Linear Equations Homogeneous Equations with Constant Coefficients Method of Undetermined Coefficients	7,14,19,26, 29,40, 48,54 5,11,20,21,36,40,43,44 7, 12, 24, 31, 36, 40, 56 9, 13, 16
6	July29 – Aug. 2	5.5 6.1 6.2 6.3	Method of Variation of Parameters Introduction to Eigenvalues Diagonalization of Matrices Applications involving Powers of Matrices	28, 35, 50 14, 22, 31, 36 5, 16, 28, 37 4, 7, 12
Wednesday, August 02: Date for major exam 2				
7	Aug. 5 – 9	7.1 7.2 7.3	First-Order Systems & Applications Matrices & Linear Systems The Eigenvalue Method for Linear Systems	3, 6, 18, 22 9, 15, 21, 32 11, 18, 25, 38
8	Aug. 12 – 14	7.5	Multiple Eigenvalue Solutions	6, 16, 27, 29
The date and place of the final examination will be arranged by the Registrar. The final examination will be <i>comprehensive</i>.				