

King Fahd University of Petroleum and Minerals

Department of Mathematical Sciences

Syllabus Math 260

Second Edition (2005)

Semester 1, 2005-2006 (051)

(Coordinator: Dr. A. Shawky Ibrahim)

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	Sept 10-14	1.1 1.2	Differential Equations & Mathematical Models Integrals as General & Particular Solutions	2, 11, 20, 30, 32, 39 4, 6, 15, 18
2	Sept. 17-21	1.4 1.5	Separable Equations & Applications Linear First-Order Equations	1, 10, 24, 27, 33
Saturday, September 24, 2005: National Holiday				
3	Sept 25-28	1.5 1.6	Linear First-Order Equations (contd.) Substitution Methods & Exact Equations	4, 12, 24, 28, 32 2, 10, 22, 40, 60
4	Oct. 01-05	3.1 3.2	Introduction to Linear Systems Matrices and Gaussian Elimination	2, 22, 24, 26 4, 8, 14, 28
5	Oct 8-12	3.3 3.4	Reduced Row-Echelon Matrices Matrix Operations	3, 10, 24, 35 3, 10, 20, 24
Saturday, October 15, 2005: Suggested Time for Exam I				
6	Oct 15-19	3.5 3.6	Inverse of Matrices Determinants	4, 12, 20, 28 2, 4, 12, 30, 40, 43
7	Oct 22-26	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
Thursday, October 27 to Friday, November 11, 2005: Id al-Fitr Vacation				
8	Nov. 12-16	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	Nov. 19-23	5.1 5.2	Second-Order Linear Equations General Solutions of Linear Equations	1, 11, 16, 19, 25, 28, 44 2, 8, 13, 24, 26
10	Nov 26-30	5.3 5.5	Homogeneous Equations with Constant Coefficients Method of Undetermined Coefficients	1, 4, 14, 22, 28, 33, 38 4, 12, 26, 32, 36
Saturday, December 03, 2005: Suggested Time for Exam II				
11	Dec 03-07	5.5 6.1	Method of Variation of Parameters Introduction to Eigenvalues	47, 52, 57, 60 2, 15, 24, 28, 36
12	Dec 10-14	6.2 6.3	Diagonalization of Matrices Applications involving Powers of Matrices	2, 14, 25, 28 2, 10, 20, 26, 36
13	Dec. 17-21	7.1 7.2	First-Order Systems & Applications Matrices & Linear Systems	2, 8, 13, 18, 21 2, 4, 12, 16, 20, 25
14	Dec 24-28	7.3 7.5	The Eigenvalue Method for Linear Systems Multiple Eigenvalue Solutions	4, 9, 18, 24, 26
15	Dec 31-Jan 04	7.5	Multiple Eigenvalue Solutions (contd.) Review	4, 10, 16, 28, 30
Thursday, January 5, 2005 to Friday, January 20, 2006: Id al-Adha Vacation				

Saturday, January 21, 2006: Review (Last Class)
Final Examinations Period from 22 to 31 of January, 2006

- The Dates of Exam I and Exam II are suggested by the College of Sciences to avoid any conflicts with other exams.
- The date of the final exam will be announced by the Registrar. The Final Exam is comprehensive.
- KFUPM policy with regard to attendance will be enforced.
- MATLAB will be used whenever possible.