KING FAHD UNIVERSITY of PETROLEUM & MINERALS
Department of Mathematics & Statistics

Course: MATH 260
Term: 153
Instructor: Dr. A. Laradji

Course Title: Introduction to Differential Equations and Linear Algebra

Textbook: Differential Equations and Linear Algebra, C.H. Edwards and D.E. Penny, Prentice Hall, Third Edition (2010)

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

Exam Questions: Are based on the examples, homework problems, and the exercises of the textbook.

Important Note: According to department policy, the passing grade is 50%.

Attendance: A DN grade will be awarded to any student who accumulates nine unexcused absences.

Academic Integrity: KFUPM policy regarding ethics apply to this course.

Week	Date	Section	Topic	Suggested Homework
1	July 11-14	1.1 1.2 1.4	Differential Equations & Mathematical Models Integrals as General & Particular Solutions Separable Equations & Applications	4, 8, 10, 26, 30, 34, 40 4, 6, 7, 16, 18 1, 10, 24, 27, 33
2	July 16-21	1.5 1.6 3.1 3.2	Linear First-Order Equations Substitution Methods & Exact Equations Introduction to Linear Systems Matrices and Gaussian Elimination	4, 10, 21, 26, 32 2, 8, 27, 40, 59 4, 13, 18, 23, 28 3, 10, 15, 28
3	July 24-28	3.3 3.4 3.5 3.6	Reduced Row-Echelon Matrices Matrix Operations Inverse of Matrices Determinants	4, 11, 25, 35 2, 9, 20, 25 6, 13, 18, 28 2, 4, 11, 32, 40, 46
Exam I: 28 July, Bldg. 57, 4:15-6:15 pm, Material: 1.1-3.3				
4	July 31- Aug 4	4.1 4.2 4.3 4.4	The Vector Space R^3 The Vector Space R^n & Subspaces Linear Combination & Independence of Vectors Bases & Dimension for Vector Spaces	1, 6, 13, 16, 24, 26, 30 3, 8, 16, 19 1, 6, 12, 17, 26 3, 8, 13, 16, 22
5	Aug 7- 11	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	1, 11, 16, 19, 25, 28, 44 2, 8, 13, 24, 26 1, 4, 14, 22, 28, 33, 38 4, 12, 26, 32, 36
6	Aug 14-18	5.5 6.1 6.2 6.3	Method of Variation of Parameters Introduction to Eigenvalues Diagonalization of Matrices Applications involving Powers of Matrices	47, 52, 57, 60 2, 15, 24, 28, 36 2, 14, 25, 28 2, 10, 20, 26, 36
Exam II: 16 August, 4:15-6:15 pm, Material: 3.4 – 5.5				
7	Aug 21-25	7.1 7.2 7.3 7.5	First-Order Systems & Applications Matrices & Linear Systems The Eigenvalue Method for Linear Systems Multiple Eigenvalue Solutions	2, 8, 13, 18, 21 2, 4, 12, 16, 20, 25 4, 9, 18, 24, 26
8	Aug 28-29	7.5	Multiple Eigenvalue Solutions (cont'd.) Review	4, 10, 16, 28, 30