King Fahd University of Petroleum and Minerals
Department of Mathematics & Statistics

Syllabus Math 260

Semester II, 2011 (102)
Coordinator: Jaafar AlMutawa

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, 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.

Week	Date	Section	Topic	Suggested Homework
1	Feb 12-16	1.1 1.2	Differential Equations & Mathematical Models Integrals as General & Particular Solutions	2, 12, 22, 30, 36, 40 4, 6, 15, 18
2	Feb 19-23	1.4 1.5	Separable Equations & Applications Linear First-Order Equations	1, 10, 24, 27, 33
3	Feb 26-Mar2	1.5 1.6	Linear First-Order Equations (contd.) Substitution Methods & Exact Equations	4, 12, 24, 28, 32 2, 10, 22, 40, 60
4	Mar 5-9	3.1 3.2	Introduction to Linear Systems Matrices and Gaussian Elimination	2, 22, 24, 26 4, 8, 14, 28
5	Mar 12-16	3.3 3.4	Reduced Row-Echelon Matrices Matrix Operations	3, 10, 24, 35 3, 10, 20, 24
6	Mar 19-23	3.5 3.6	Inverse of Matrices Determinants	4, 12, 20, 28 2, 4, 12, 30, 40, 43
Major Exam I (Sections 1.1-3.3): Thursday (24/03/2011) (From 1:00 pm to 3:00 pm).				
7	Mar 26-30	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
8	Apr 2-Apr6	4.3 4.4	Linear Combination & Independence of Vectors Bases & Dimension for Vector Spaces	1, 6, 12, 17, 26 3, 8, 13, 16, 22
Midterm Vacation: April 9-April 13, 2011				
9	Ap 16-20	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	Apr 23-27	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
Major Exam II (Sections 3.4-5.3): Tuesday (26/04/2011) (from 7:00 pm to 9:00 pm).				
11	Apr 30-May 4	5.5 6.1	Method of Variation of Parameters Introduction to Eigenvalues	47, 52, 57, 60 2, 15, 24, 28, 36
12	May 7-11	6.2 6.3	Diagonalization of Matrices Applications involving Powers of Matrices	2, 14, 25, 28 2, 10, 20, 26, 36
13	May 14-18	7.1 7.2	First-Order Systems & Applications Matrices & Linear Systems	2, 8, 13, 18, 21 2, 4, 12, 16, 20, 25
14	Ma 21-25	7.3 7.5	The Eigenvalue Method for Linear Systems Multiple Eigenvalue Solutions	4, 9, 18, 24, 26
15	May28-June 1	7.5	Multiple Eigenvalue Solutions (contd.) Review	4, 10, 16, 28, 30

- The Dates of Exam I and Exam II are fixed by the College of Sciences to avoid any conflicts with other exams.
- MATLAB will be used whenever possible.
- KFUPM attendance policy will be enforced. A DN grade will be awarded to any student who accumulates 9 unexcused absences.
- Major exams are common.
- **Class Work Average.** The average (x out of 60) of the Class Work of the sections taught by the same instructor should be in the interval [36, 45].
- **Exam Questions**: The questions of the common exams are based on the examples, homework problems and the exercises of the textbook.

- **Missing one of the Two Common Major Exams I or II:** No makeup exam will be given under any circumstance. When a student misses Exam I or Exam II for a legitimate reason (such as medical emergencies), his grade for this exam will be determined based on the existing formula which depends on his performance in the non-missing exam and in the final exam.
- **Academic Integrity**: All KFUPM policies regarding ethics apply to this course.

Exams and Distribution of Marks:

- Major Exam I (25%) (Sections 1.1-3.3): Thursday (24/03/2011) (from 1:00 pm to 3:00 pm). Half of the questions will be written and half will be multiple choice.
- Major Exam II (25%) (Sections 3.4-5.3): Tuesday (26/04/2011) (from 7:00 pm to 9:00 pm). Half of the questions will be written and half will be multiple choice.
- Final Exam (35%) (Comprehensive): Sunday, June 12, 2011 (from 7:30 am to 10:30 am). One third is written and two third of the questions is multiple choice.
- Quizzes+Homework (15%): At least three quizzes.