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

Math 260 – Syllabus

2014-2015 (143)
Instructor: Kassem Mustapha

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.

Grading Policy:

1. **Exam I**	**Material:** 1.1-3.3	**Date**: Tuesday, June 23, 2015	25%
2. **Exam II**	**Material:** 3.4-5.5	**Date**: Tuesday, July 28, 2015	25%
3. **Final Exam**	**Material:** Comprehensive	**Date**: Thursday, August 13, 2015	35%
		Time: 07:00 pm	
4. **Class Work**	**Class Activities:** Based on 4 quizzes (10 %), homework and attendance.		15%

Exam Questions: The questions of the common exams are based on the examples, homework problems, and the exercises of the textbook.

Missing Exam I or Exam 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.

Remark: **According to department policy, the passing grade is 50%.**

Attendance: Attendance is a University Requirement. A DN grade will be awarded to any student who accumulates eight unexcused absences.

Office hour: From 11:30 am – 01:00 pm during the weekdays

Office: Building 5, Room 203-5.

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

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Week	Date	Section	Topic	Suggested Homework
1	June 7-11	1.1	Differential Equations & Mathematical Models	2, 12, 22, 30, 36, 40
		1.2	Integrals as General & Particular Solution	4, 6, 15, 18
		1.4	Separable Equations & Applications	1, 10, 24, 27, 33
		1.5	Linear First-Order Equations	
2	June 14-18	1.5	Linear First-Order Equations (contd.)	4, 12, 24, 28, 32
		1.6	Substitution Methods & Exact Equations	2, 10, 22, 40, 60
		3.1	Introduction to Linear Systems	2, 22, 24, 26
		3.2	Matrices and Gaussian Elimination	4, 8, 14, 28
3	June 21-25	3.3	Reduced Row-Echelon Matrices	3, 10, 24, 35
		3.4	Matrix Operations	3, 10, 20, 24
		3.5	Inverse of Matrices	4, 12, 20, 28
		3.6	Determinants	2, 4, 12, 30, 40, 43
Exam I: Tuesday, 23 June. Material: 1.1—3.3				
4	June 28 - July 2	4.1	The Vector Space R^3	1, 6, 13, 16, 24, 26, 30
		4.2	The Vector Space R^n & Subspaces	3, 8, 16, 19
		4.3	Linear Combination & Independence of Vectors	1, 6, 12, 17, 26 3, 8, 13, 16, 22
		4.4	Bases & Dimension for Vector Spaces	
5	July 5-9	5.1	Second-Order Linear Equations	1, 11, 16, 19, 25, 28, 44
		5.2	General Solutions of Linear Equations	2, 8, 13, 24, 26
		5.3	Homogeneous Equations with Constant Coefficients	1, 4, 14, 22, 28, 33, 38
		5.5	Method of Undetermined Coefficients	4, 12, 26, 32, 36
July 12-23, Ramadan break				
\6	July 26-30	5.5	Method of Variation of Parameters	47, 52, 57, 60
		6.1	Introduction to Eigenvalues	2, 15, 24, 28, 36
		6.2	Diagonalization of Matrices	2, 14, 25, 28
		6.3	Applications involving Powers of Matrices	2, 10, 20, 26, 36
Exam II: Tuesday, 28 July. Material: 3.4—5.5				
7	August 2-6	7.1	First-Order Systems & Applications	2, 8, 13, 18, 21
		7.2	Matrices & Linear Systems	2, 4, 12, 16, 20, 25
		7.3	The Eigenvalue Method for Linear Systems	4, 9, 18, 24, 26
		7.5	Multiple Eigenvalue Solutions	
8	August 9-11	7.5	Multiple Eigenvalue Solutions (contd.) Review	4, 10, 16, 28, 30