

King Fahd University of Petroleum and Minerals  
Department of Mathematical Sciences

**Syllabus Math 260**

**Second Edition (2005)**

Semester 1, 2007-2008 (071)

(Coordinator: Dr. Kassem Mustapha)

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 8-12	1.1	Differential Equations & Mathematical Models	2, 12, 22, 30, 36, 40
		1.2	Integrals as General & Particular Solutions	4, 6, 15, 18
2	Sept. 15-19	1.4	Separable Equations & Applications	1, 10, 24, 27, 33
		1.5	Linear First-Order Equations	
<b>Sunday, September 23, 2007: National Holiday</b>				
3	Sept 22-26	1.5	Linear First-Order Equations (contd.)	4, 12, 24, 28, 32
		1.6	Substitution Methods & Exact Equations	2, 10, 22, 40, 60
4	Sep.29-Oct.03	3.1	Introduction to Linear Systems	2, 22, 24, 26
		3.2	Matrices and Gaussian Elimination	4, 8, 14, 28
<b>Thursday, October 4 to Friday, October 19, 2007: Id al-Fitr Vacation</b>				
5	Oct 20-24	3.3	Reduced Row-Echelon Matrices	3, 10, 24, 35
		3.4	Matrix Operations	3, 10, 20, 24
6	Oct27-31	3.5	Inverse of Matrices	4, 12, 20, 28
		3.6	Determinants	2, 4, 12, 30, 40, 43
<b>Wednesday, October 31, 2007: Suggested Time for Exam I</b>				
7	Nov. 3-7	4.1	The Vector Space $\mathbb{R}^3$	1, 6, 13, 16, 24, 26, 30
		4.2	The Vector Space $\mathbb{R}^n$ & Subspaces	3, 8, 16, 19
8	Nov. 10-14	4.3	Linear Combination & Independence of Vectors	1, 6, 12, 17, 26
		4.4	Bases & Dimension for Vector Spaces	3, 8, 13, 16, 22
9	Nov. 17-21	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
10	Nov 24-28	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
11	Dec 01-05	5.5	Method of Variation of Parameters	47, 52, 57, 60
		6.1	Introduction to Eigenvalues	2, 15, 24, 28, 36
<b>Wednesday, December 05, 2007: Suggested Time for Exam II</b>				
12	Dec 8-12	6.2	Diagonalization of Matrices	2, 14, 25, 28
		6.3	Applications involving Powers of Matrices	2, 10, 20, 26, 36
<b>Thursday, December 13 to Friday, December 28, 2007: Id al-Adha Vacation</b>				
13	Dec. 29-Jan. 2	7.1	First-Order Systems & Applications	2, 8, 13, 18, 21
		7.2	Matrices & Linear Systems	2, 4, 12, 16, 20, 25
14	Jan. 05-9	7.3	The Eigenvalue Method for Linear Systems	4, 9, 18, 24, 26
		7.5	Multiple Eigenvalue Solutions	
15	Jan.12-16	7.5	Multiple Eigenvalue Solutions (contd.) Review	4, 10, 16, 28, 30

- 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 in the period between 19 and 29 of January, 2008. The Final Exam is comprehensive.
- MATLAB will be used whenever possible.
- Grading Policy: Homework 3%, Attendance 3%, Quizzes 4%, Majors I and II 50%, Final 40%
- Office Hours: S-M-W, 10:00-10:50 Instructor's Name: Dr. Kassem Mustapha  
Office: 322 Building 5, Email: [kassem@kfupm.edu.sa](mailto:kassem@kfupm.edu.sa)
- **Note**: KFUPM attendance policy will be enforced. DN grade for 9 and more unexcused absences. Any student who comes after 10 minutes from the beginning of the class without excuse will be marked "L" and each two "L" will be counted as one absence.