King Fahd University of Petroleum and Minerals
Department of Mathematics and Statistics
SYLLABUS
Semester II: 2008-2009**(082)**

Course #: MATH 202
Title: Elements of Differential Equations
Textbook: A First Course in Differential Equations by D.G. Zill, 8th Edition

Week	Date	Sec.	Topics	Homework
1	Feb. 28- March 4	1.1 1.2	Definition and Terminology Initial-Value Problems	4, 7, 8, 9, 10, 13, 16, 20, 27, 28, 30 2, 12, 20, 22, 27
2	March. 07-11	2.2 2.3	Separable Variables Linear Equations	8, 14, 20, 22, 23, 27, 45 5, 13, 16, 18, 30, 37
3	March. 14-18	2.4 2.5	Exact Equations Solutions by Substitutions	2, 5, 8, 15, 25, 27, 29, 31, 42(a), 43, 44 4, 6, 10, 13, 18, 21, 26, 30
4	March. 21-25	3.1 4.1 4.1.1	Linear Models: Newton's Law of Cooling and Series Circuits Linear Equations: Basic Theory Initial-Value and Boundary-Value Problems	13, 14, 15, 27, 29, 31 3, 10, 12, 13
5	March. 28- April 1	4.1.2 4.1.3	Homogeneous Equations Nonhomogeneous Equations	15, 21, 23, 28 33, 36, 37(b,e)
First Exam, Tuesday March 31, 2009 [1.1-4.1.2] (22%)				
6	April 04-08	4.2 4.3	Reduction of Order Homogeneous Linear Equations with Constant Coefficients	1, 3, 12, 14, 19 4, 9, 12, 15, 20, 34, 40, 49, 50, 51
7	April 11-15	4.5 4.6	Undetermined Coefficients – Annihilator Approach Variation of Parameters	8, 13, 22, 24, 34, 41, 48, 64, 67, 73 6, 11, 13, 24, 25, 28
8	April 18-22	 4.7	Cont' Cauchy-Euler Equation(*Both Methods*)	 3, 5, 10, 11, 14, 16, 19, 31, 34, 37, 39
Midterm Vacation: Thursday - Friday, April 23-May 01, 2009				
9	May 02-06	6.1 6.1.1 6.1.2	Solutions About Ordinary Points Review of Power Series Power Series Solution	 1, 10, 11 15, 17, 20, 22, 32
10	May 09-13	6.2	Solutions about Singular Points	3, 10, 13, 14, 19, 20
	Second Exam, Tuesday May 12, 2009 [4.1-6.1] (22%)			
11	May 16-20	*App II*	Matrices and Linear Systems (*review*) The Eigenvalue Problem	14, 15, 19, 23, 27, 29, 31, 33, 39, 43 47, 49, 52, 53, 55
12	May 23-27	8.1 8.2	Preliminary Theory Homogeneous Linear Systems	4, 5, 8, 14, 15, 17, 23, 25
13	May 30-June 03	8.2.1 8.2.2 8.2.3	Distinct Real Eigenvalues Repeated Eigenvalues Complex Eigenvalues	3, 7, 10, 13 19, 21, 23, 25, 27 33, 34, 36, 39, 41, 45
14	June 06-June 10	8.3 8.3.2 8.4	Nonhomogeneous Linear Systems Variation of Parameters Matrix Exponential	 11, 12, 23, 32 1, 5, 9, 2, 6, 4, 8
15	June 13-June 16	--	Pace Adjustment Review	

- For remarks about Homework Problems and exams, see the following page.

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The Syllabus (Cont'd): Remarks

Homework:

- The selected homework problems indicate the levels of the breadth and the depth of coverage. To acquire proficiency on solution methods, the students are strongly urged to solve much more problems than indicated in the syllabus.
- In Sec. 8.4, problems 1, 5 and 9 refer to the same matrix. The same is true for problems 2 and 6 and problems 4 and 8. The matrix e^{At} is to be computed by the definition given in (3). The material on *Laplace Transform* in page 362 is, of course, *omitted*.

Review Material: In the introduction of each section in the textbook, *review material*, if any, is indicated. The **student** must do all reviews. He should make a plan, based on the Syllabus, for all the reviews required for the course.

Exams:

- The following dates for Major Exams I and II are set by the College of Sciences to avoid conflicts with other exams:
  - Exam I: Tuesday, March 31, 2009.
  - Exam II: Tuesday, May 12, 2009.
- The date, time and the place of the Final Exam will be announced by the Registrar.
- The Final Exam (36%) is Comprehensive.

Attendance:

- Attendance is compulsory. KFUPM policy with respect to attendance will be strictly enforced.
- Thursday, March 5, 2009 is a Normal Wednesday Classes.

******Best Wishes for a Pleasant Semester******