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

Course #: MATH 202
Title: Elements of Differential Equations
Textbook: A First Course in Differential Equations by D.G. Zill, 8th Edition
Lecturer info: Office: **5-409** Phone: **2674** E-mail: **msamman@kfupm.edu.sa**
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Office hours: 12:00 – 12:50 pm SMW & 08:00 – 08:50 am S (Or by appointment)

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

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.

Important Dates:

Normal Wednesday Classes	Thursday, March 5, 2009
Last day for dropping course(s) without permanent record	Tuesday, March 10, 2009
Exam I	Tuesday, March 31, 2009
Last day for dropping course(s) with grade of "W" thru Internet	Sunday, April 12, 2009
Exam II	Tuesday, May 12, 2009
Last day for withdrawal from **all courses** with grade "W" thru the University Registrar Office	Sunday, May 10, 2009
Last day for withdrawal from all courses with grade of WP/WF thru the University Registrar Office	Tuesday, June 08, 2009
Final Exam	Saturday, June 20 7:00 pm

Grading policy:

Homework	3 % submitting + 5 % pop quizzes out of the HW
Quizzes	6 %
Matlab	3 %
Attendance	3 % 0.5 point will be deducted for each absence
Exam I	22 %
Exam II	22 %
Final Exam (Comprehensive)	36 %

Attendance: A DN grade will be awarded to any student who accumulates 11 unexcused absences.

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