King Fahd University of Petroleum and Minerals
Department of Mathematics & Statistics
SYLLABUS
Semester III: 2010-2011 **(103)**

Course #: MATH 202
Title: Elements of Differential Equations
Textbook: A First Course in Differential Equations by D.G. Zill, 9th Edition
Coordinator: **Dr. Izhar Ahmad**

Week	Date	Sec.	Topics	Suggested Homework
1	June 25-29	1.1	Definition and Terminology	Ex: 5, 17,23,30,32,33,37. Pgs 10-11
		1.2	Initial-Value Problems	Ex: 13, 21, 22, 27, 33. Pg 17
		2.2	Separable Variables	Ex: 9, 18, 20, 25, 28, 29,35, 48. Pgs 50-51
		2.3	Linear Equations	Ex: 5, 13, 16,18, 30,36. Pgs 60-61
2	July 02-06	2.4	Exact Equations	Ex: 6, 8, 17, 25, 27,33,42(a). Pgs 68-69
		2.5	Solutions by Substitutions	Ex: 5, 10,12, 21, 26, 30. Pgs 74-75
		3.1	Linear Models: Growth and Decay, Newton's Law of Cooling and Series Circuits.	Ex: : 3, 6, 8, 13, 15,20,21, 30, 32. Pgs 89-91
		4.1	Linear Equations: Basic Theory	
		4.1.1	Initial-Value and Boundary-Value Problems	Ex: 3, 6, 8, 13. Pgs 128-129
3	July 09-13	4.1.2	Homogeneous Equations	Ex: 17, 22,24,28 . Pg 129
		4.1.3	Non-homogeneous Equations	Ex: 33, 36, 38. Pgs 129-130
		4.2	Reduction of Order	Ex: 2, 4, 12, 15, 19. Pgs 132-133
		4.3	Homogeneous Linear Equations with Constant Coefficients	Ex:5, 12, 20, 30, 35. 40,50,51. Pgs 138-139
			First Exam: Wednesday, July 13, 2011 [1.1-4.1.3] (22%)	
4	July 16-20	4.5	Undetermined Coefficients – Annihilator Approach	Ex: 7,10, 13,22,24,32,48,64,69.Pgs 156-157
		4.6	Variation of Parameters	Ex: 6, 12, 13, 23, 25, 28. Pgs 161-162
		4.7	Cauchy-Euler Equation(*Both Methods*)	Ex: 5,12,16,20,32,37. Pg 168
5	July 23-27	6.1	Solutions About Ordinary Points	
		6.1.1	**Review of Power Series**	Ex: 2,10,12. Pg230
		6.1.2	Power series solution	Ex: 16,18,23,27, 30,32,34. Pg230
		6.2	Solutions about Singular Points	Ex: 4,9,,14,20,23,27,31. Pgs 239-240
6	July30- Aug 03	8.1	Preliminary Theory-Linear Systems (Appendix II for review)	Ex:5, 9,13,16,19,22,25. Pg 311
		8.2	Homogeneous Linear Systems	
		8.2.1	Distinct Real Eigenvalues	Ex: 2,7,10,13. Pg 324
		8.2.2	Repeated Eigenvalues	Ex: 21, 25, 28. Pg 325
			Second Exam: Sunday, July 31, 2011 [4.3-4.7] (22%)	
7	Aug 06-10	8.2.3	Complex Eigenvalues	Ex: 33, 34, 37,41, 45. Pgs 325-326
		8.3	Non-Homogeneous Linear Systems	Ex: 5,7,9. Pg 332
		8.3.2	Variation of Parameters	Ex: 11,12,18,23,32. Pgs 333-334
		8.4	Matrix Exponential	Ex:1,5,8,10,12. Pg 336
8	Aug 13-15		Pace Adjustment and Review	
			Final Exam: August 16, 2011 (Comprehensive) (36%)	

Remarks & Policies

Homework:

- Your course instructor will indicate the Homework every week. **He may assign you Homework out of textbook as well.**

- The students are strongly urged to solve much problems than the homework listed above.

Exams:

- The following dates for Major Exams I and II are:
- Exam I (88 points):   **Wednesday , July 13, 2011**
- Exam II (88 points):   **Sunday, July 31, 2011**

- The Final Exam (144 points) is Comprehensive.

- Any student **missing a major exam** with or without excuse **will not be given a Make-Up Exam**.

  However, a student missing an Exam with an official excuse from the "Deanship of Students Affairs" will be compensated according to the following policy.

  Exam Missed by the Student: Grade to be comensated:= ExM,   Ave of Exam: AveM

  Exam taken by Student: Grade obtained = ExT,   Ave of Exam: Ave T

  Final Exam: Grade obtained:= ExT   Ave of Exam: Ave F

$$ExM = AveM + [11(ExT-AveT)+18(ExT-AveF)]/29$$

Class Work (80 Points): 20%

It is based on quizzes, homework, or other class activities determined by the instructor. All quizzes must be of written type and not of multiple choice type.

Attendance:

- Attendance is compulsory. KFUPM policy with respect to attendance will be strictly enforced.
- Any student accumulating **9 unexcused absences** will be awarded DN Grade in the course.