

King Fahd University of Petroleum and Minerals

Department of Mathematics & Statistics

SYLLABUS

Semester III: 2011-2012 (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 09-13	1.1 1.2 2.2 2.3	Definition and Terminology Initial-Value Problems Separable Variables Linear Equations	Ex: 4, 8,17,23,30,32,34,37. Pgs 10-11 Ex: 2,13, 21, 22, 27, 33. Pg 17 Ex: 8,14, 20, 25, 28, 29,35, 48. Pgs 50-51 Ex: 5, 13, 16,18, 30,36. Pgs 60-61
2	June 16-20	2.4 2.5 3.1 4.1 4.1.1	Exact Equations Solutions by Substitutions Linear Models: Growth and Decay, Newton's Law of Cooling and Series Circuits. Linear Equations: Basic Theory Initial-Value and Boundary-Value Problems	Ex: 2,6, 8, 17, 25, 27,33,42(a). Pgs 68-69 Ex: 4, 10,12, 21, 26, 30. Pgs 74-75 Ex: : 3, 6, 8, 13, 15,20,21, 30, 32. Pgs 89-91 Ex: 3, 6, 8, 13. Pgs 128-129
3	June 23-27	4.1.2 4.1.3 4.2 4.3	Homogeneous Equations Non-homogeneous Equations Reduction of Order Homogeneous Linear Equations with Constant Coefficients	Ex: 17, 22,24,28 . Pg 129 Ex: 33, 36, 38. Pgs 129-130 Ex: 2, 4, 12, 15, 19. Pgs 132-133 Ex:5, 12, 20, 30, 35, 40,50,51. Pgs 138-139
			First Exam: Tuesday, June 26, 2012, 7.00PM-9.00PM [1.1-4.1.1] (25%)	7.00PM-9.00PM B#54
4	June 30-July 4	4.5 4.6 4.7	Undetermined Coefficients – Annihilator Approach Variation of Parameters Cauchy-Euler Equation(Both Methods)	Ex: 8,10,13,22,24,32,48,64,69.Pgs 156-157 Ex: 6, 12, 13, 23, 25, 28. Pgs 161-162 Ex: 5,12,16,20,32,37. Pg 168
5	July 07-11	6.1 6.1.1 6.1.2 6.2	Solutions About Ordinary Points Review of Power Series Power series solution Solutions about Singular Points	Ex: 2,10,12. Pg230 Ex: 16,18,23,27, 30,32,34. Pg230 Ex: 4,9,,14,20,23,27,31. Pgs 239-240
6	July 14- 18	8.1 8.2 8.2.1 8.2.2	Preliminary Theory-Linear Systems (Appendix II for review) Homogeneous Linear Systems Distinct Real Eigenvalues Repeated Eigenvalues	Ex:5, 9,13,16,19,22,25. Pg 311 Ex: 2,7,10,13. Pg 324 Ex: 21, 25, 28. Pg 325
			Second Exam: Tuesday, July 17, 2012 [4.1.2-6.1.2] (25%)	7.00PM-9.00PM, B#54
7	July 21-25	8.2.3 8.3 8.3.2 8.4	Complex Eigenvalues Non-Homogeneous Linear Systems Variation of Parameters Matrix Exponential	Ex: 33, 34, 37,41, 45. Pgs 325-326 Ex: 5,7,9. Pg 332 Ex: 11,12,18,23,32. Pgs 333-334 Ex: 4, 5,8,10,12. 16 Pg 336
8	July 28-31		Pace Adjustment and Review	
			Final Exam: August 1 , 2012, 8.30AM (Comprehensive) (35%)	

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 (100 points): **Tuesday , June 26, 2012**
 - Exam II (100 points): **Tuesday, July 17, 2012**
- The Final Exam (140 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

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

Class Work (60 Points): 15%

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.

Class Work Average: The average (x out of 60) of the Class Work of the sections taught by the same instructor should be in the interval [36, 45].

Attendance:

- Attendance is compulsory. KFUPM policy with respect to attendance will be strictly enforced.
- Any student accumulating **7 unexcused absences** will be awarded DN Grade in the course.