King Fahd University of Petroleum and Minerals
Department of Mathematics and Statistics
SYLLABUS
Semester II: **2013-2014(132)**
Coordinator: Dr. Khalid Al-Shammari

Course #: MATH 202
Title: Elements of Differential Equations
Textbook: A First Course in Differential Equations by D.G. Zill, 10th Edition

Week	Date	Sec.	Topics	Suggested Homework Problems
1	**Jan. 26-30**	1.1 1.2	Definitions and Terminology Initial-Value Problems	5, 13, 14, 18, 20, 22, 29, 32, 36, 38 2, 6, 13,19, 22, 24, 26, 30
2	**Feb. 2-6**	2.2 2.3	Separable Variables Linear Equations	6, 10, 12, 21, 26,30, 32,48 4, 12, 15, 18, 20, 22, 28, 30, 36
3	**Feb. 9-13**	2.4 2.5	Exact Equations Solutions by Substitutions	5, 8, 12, 20, 28, 30, 31, 34, 42(b), 43 2, 6, 8, 10, 12,16, 22, 25, 28, 29
4	**Feb. 16-20**	3.1 4.1	Linear Models: Growth and Decay, Newton's Law of Cooling Linear Equations: Basic Theory	4, 8, 10, 15, 16, 18, 20
5	**Feb. 23.27**	4.1.1 4.1.2	Initial-Value and Boundary-Value Problems Homogeneous Equations	2,4,6, 10, 12,13(c) , 14(d) 16, 22, 24,25, 28, 30
First Exam: Saturday, March 1 ,2014, 12.30 P.M. (B-54) Material: 1.1 – 3.1				
6	**Mar. 2-6**	4.1.3 4.2	Nonhomogeneous Equations Reduction of Order	31,34,36(b,c) 4,6,10,13,16,18,19
7	**Mar. 9-13**	4.3 4.5	Homogeneous Linear Equations with Constant Coefficients Undetermined Coefficients – Annihilator Approach	5, 8, 12, 14, 18, 22, 28, 32, 36, 42, 49, 50 2, 8,14, 20, 25, 28,32,34, 44, 48, 50, 61, 64, 68, 71
8	**Mar. 16-20**	4.6 4.7	Variation of Parameters Cauchy-Euler Equation (*Both Methods*)	2,6 11, 12, 18, 22, 24, 26, 28 1,6, 8, 12, 16, 18, 22, 24, 29, 32, 36, 38, 40
Midterm Vacation (March 23-27)				
9	**Mar. 30-Apr. 3**	6.1 6.2	Review of Power Series Solutions About Ordinary Points	2,3, 4, 8, 10, 12, 16 2,4,11,12,16,21,22
10	**Apr. 6-10**	6.3 *App II*	Solutions about Singular Points Matrices and Linear Systems (*review*)	1,4,8,12,14,16,19,24,30,32 12,18,22,23,26,30(d, g) , 36,40,44
11	**Apr. 13-17**	*App II* 8.1	The Eigenvalue Problem Preliminary Theory—Linear Systems	48, 49, 53, 54, 56, 59, 60, 61 3, 6, 8, 10, 14, 15, 16, 19, 22, 24, 26
Second Exam: Tuesday, April 15, 2014, 8.20 P.M. (B-54) Material: 4.1 – 6.2				
12	**Apr. 20-24**	8.2 8.2.1	Homogeneous Linear Systems Distinct Real Eigenvalues	 2, 7, 9, 10,14
13	**Apr. 27-May 1**	8.2.2 8.2.3	Repeated Eigenvalues Complex Eigenvalues	22, 24, 26, 27, 29, 30 34, 37, 38, 42, 46
14	**May. 4-8**	8.3 8.3.2	Nonhomogeneous Linear Systems Variation of Parameters	 12, 14, 15, 28, 30, 31
15	**May 11-15**	8.4	Matrix Exponential (No Laplace Transform)	2, 5, 6, 8, 9, 10, 12

Grading Policy:

- **Major Exam-I 25% (100 points)**
- **Major Exam-II 25% (100 points).**
- **Final Exam 35% (140 points) Comprehensive**
  (Final Exam will be a combination between written & MCQ types)
- **Class Work: 15% (60 points)** It is based on Quizzes (Minimum 4 quizzes), Homework & Attendance.

  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:

KFUPM attendance policy will be enforced. A **DN grade** will be awarded to any student who accumulates 9 unexcused absences.

Exam Questions:

The questions of the common exams are based on the examples, homework problems and the exercises of the textbook.

Missing one of the Two Common Major Exams-I or II:

No makeup exam will be given under any circumstance. When a student misses Exam-I or Exam-II for a legitimate reason (such as medical emergencies), his grade for this exam will be determined based on the existing formula which depends on his performance in the non-missing exam and in the final exam.

Academic Integrity:

All KFUPM policies regarding ethics apply to this course.