

King Fahd University of Petroleum and Minerals
Department of Mathematics and Statistics

SYLLABUS

Semester I: 2007-2008 (071) (Dr. A. MIMOUNI)

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

W	Date	Sec.	Topics	Homework	CAS
1	Sep. 8-12	1.1	Definition and Terminology	4, 7, 8, 9, 10, 13, 16, 20, 27, 28, 30	(55)
		1.2	Initial-Value Problems	2, 12, 20, 22, 27	--
2	Sep. 15-19	2.1	Solution Curves (<i>light coverage</i>)	1, 21, 24	(5,7)
		2.2	Separable Variables	8, 14, 20, 22, 23, 27, 45	(ex 4)
3	Sep. 22-26	2.3	Linear Equations	5, 13, 16, 18, 30, 37	(5,9)
		2.4	Exact Equations	2, 5, 8, 15, 25, 27, 29, 31, 42(a), 43, 44	--
4	Sep. 29-Oct.3	2.5	Solutions by Substitutions	4, 6, 10, 13, 18, 21, 26, 30	--
		1.3	Mathematical Models (<i>reading</i>): Growth and Decay, Newton's Law of Cooling and Mixtures	See Sec. # 3.1	--
		3.1	Linear Models	3, 6, 13, 14, 15, 19, 20, 21, 23	--
Id al-Fitr Vacation: Thursday October 04- Friday, October 19, 2007					
5	Oct.20-24	4.1	Linear Equations: Basic Theory		
		4.1.1	Initial-Value and Boundary-Value Problems	3, 10, 12, 13	--
		4.1.2	Homogeneous Equations	15, 21, 23, 28	--
6	Oct 27-31	4.1.3	Nonhomogeneous Equations	33, 36, 37(b,e)	--
		4.2	Reduction of Order	1, 3, 12, 14, 19	--
Major Exam I: Wednesday, October 31, 2007					
7	Nov.3-7	4.3	Homogeneous Linear Equations with Constant Coefficients	4, 9, 12, 15, 20, 34, 40, 49, 50, 51	(57)
		4.5	Undetermined Coefficients – Annihilator Approach	8, 13, 22, 24, 34, 41, 48, 64, 67, 73	--
8	Nov.10-14	4.6	Variation of Parameters	6, 11, 13, 24, 25, 28	--
		4.7	Cauchy-Euler Equation (<i>Both Methods</i>)	3, 5, 10, 11, 14, 16, 19, 31, 34, 37, 39	(44)
9	Nov.17-21	6.1	Solutions About Ordinary Points		
		6.1.1	Review of Power Series	1, 10, 11	--
		6.1.2	Power Series Solutions	15, 17, 20, 22, 32	--
10	Nov. 24-28	6.2	Solutions about Singular Points	3, 10, 13, 14, 19, 20, 27	(ex 5)
11	Dec.01-05	<i>App II</i>	Matrices and Linear Systems (<i>review</i>)	14, 15, 19, 23, 27, 29, 31, 33, 39, 43	--
			The Eigenvalue Problem	47, 49, 52, 53, 55	--
Major Exam II: Wednesday, December 05, 2007					
12	Dec.08- 12	8.1	Preliminary Theory	4, 5, 8, 14, 15, 17, 23, 25	--
		8.2	Homogeneous Linear Systems		
Id al-Adha Vacation: Thursday, December 13- Friday, December 28, 2007					
13	Dec. 29- Jan.02	8.2.1	Distinct Real Eigenvalues	3, 7, 10, 13	(ex 2)
		8.2.2	Repeated Eigenvalues	19, 21, 23, 25, 2	--
14	Jan.05-09	8.2.3	Complex Eigenvalues	33, 34, 36, 39, 41, 45	
		8.3	Nonhomogeneous Linear Systems		
15	Jan.12-16	8.3.2	Variation of Parameters	11, 12, 23, 32	35(a, b)
		8.4	Matrix Exponential	1, 5, 9, 2, 6, 4, 8	(27(a))

