

Math 202 Syllabus (143)

Coordinator Dr. Bader Al Humaidi

Course Title: Elements of Differential Equations

Textbook: A First Course in Differential Equations by D.G. Zill, 10th Ed.

Course Description: First order and first degree equations. The homogeneous differential equations with constant coefficients. The methods of undetermined coefficients, reduction of order, and variation of parameters. The Cauchy-Euler equation. Series solutions. Systems of linear differential equations. Applications.

Wk	Date	Sec.	Material	Homework
1	June 07-11	1.1	Definitions and Terminology	5, 13, 14, 18, 20, 22, 29, 32, 36, 38
		1.2	Initial Value Problems	2, 6, 13,19, 22, 24, 26, 30
		2.2	Separable Variables	6, 10, 12, 21, 26,30, 32,48
		2.3	Linear Equations	4, 12, 15, 18, 20, 22, 28, 30, 36
2	June 14-18	2.4	Exact Equations	5, 8, 12, 20, 28, 30, 31, 34, 42(b), 43
		2.5	Solutions by Substitutions	2, 6, 8, 10, 12,16, 22, 25, 28, 29
		3.1	Linear Models	4, 8, 10, 15, 16, 18, 20
		4.1.1	Initial and Boundary Value Problems	2,4,6, 10, 12,13(c) , 14(d)
3	June 21-25	4.1.2	Homogeneous Equations	16, 22, 24,25, 28, 30
		4.1.3	Nonhomogeneous Equations	31,34,36(b,c)
		4.2	Reduction of Order	4,6,10,13,16,18,19
		Exam I: Wednesday, Jun 24, Material: (1.1 – 4.1.2), (10:pm- 12:00 pm), Location :BLD 54		
4	June 28-July 2	4.3	Homogeneous Linear Equations with Constant Coefficients	5, 8, 12, 14, 18, 22, 28, 32, 36, 42, 49, 50
		4.5	Undetermined Coefficients--Annihilator Approach	2, 8,14, 20, 25, 28,32,34, 44, 48, 50, 61, 64, 68, 71
		4.6	Variation of Parameters	2,6 11, 12, 18, 22, 24, 26, 28
		4.7	Cauchy-Euler Equation (both methods)	1,6, 8, 12, 16, 18, 22, 24, 29, 32, 36, 38, 40
5	July 5-9	6.1	Review of Power Series	2,3, 4, 8, 10, 12, 16
		6.2	Solutions about Ordinary Points	2,4,11,12,16,21,22
		6.3	Solutions about Singular Points	1,4,8,12,14,16,19,24,30,32
July 12-23		Ramadhan Break		
6	July 26-30	A.II.2	Matrices and Linear Systems (review)	12,18,22,23,26,30(d, g) , 36,40,44
		A.II.3	Eigenvalue Problem	48, 49, 53, 54, 56, 59, 60, 61
		8.1	Preliminary Theory-Linear Systems	3, 6, 8, 10, 14, 15, 16, 19, 22, 24, 26
		8.2	Homogeneous Linear Systems	NA
		Exam II: Wednesday, July 29, Material: (4.1.2 – A.II.3), (7:00 -9:00 PM), Location: BLD 54		
7	August 02-06	8.2.1	Distinct Real Eigenvalues	2, 7, 9, 10,14
		8.2.2	Repeated Eigenvalues	22, 24, 26, 27, 29, 30
		8.2.3	Complex Eigenvalues	34, 37, 38, 42, 46
		8.3	Variation of Parameters	12, 14, 15, 28, 30, 31
8	August 9-11	8.4	Matrix Exponential (No Laplace Trans.)	2, 5, 6, 8, 9, 10, 12
			Review	
Final Exam : Thursday , August 13, 2015, 7:00 PM. Material : Comprehensive.				

Exam Questions:

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

Missing Exam I or Exam 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 that depends on his performance in the non-missed exam and in the final exam.

Attendance:

Attendance is a University Requirement. A DN grade will be awarded to any student who accumulates 8 unexcused absences. Only official excuses are accepted.

Academic Integrity: All KFUPM policies regarding ethics apply to this course.

Remark

- According to department policy, the passing grade is 50%.

Grading Policy:

1. **Exam I: 25%**
2. **Exam II: 25%**
3. **Final Exam 35%**
4. **Classwork: 15%**

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