Math 204 Syllabus

Textbook : A First Course in Differential Equations, Ninth Edition, Author : Dennis G. Zill

Chapter Title	Section	Theoretical (Definitions & Theorem)	Exam.	Exer.
Ch1: Introduction to Differential Equations	1.1 Definitions and Terminology	Definition 1.1.1, Classification by Type, Classification by Order, Classification by Linearity, Definition 1.1.2, Interval of Solution, Explicit and Implicit Solutions, Definition 1.1.3. Families of Solutions, Systems of DEs, Remarks	1-4	2,5,10, 22,37
	1.2 Initial-Value Problems	Introduction, First and Second-order IVP, Existence & Uniqueness, Theorem 1.2.1, Interval of Existence/Uniqueness, Remarks	2-5	18,27
Ch2: First order Differential Equations	2.1 Solution curve without a solution	Direction fields, Autonomous first-order Des, Critical Points, Equilibrium Solutions, Attractors and Repellers	1-4	21
	2.2 Separable Equations	Definition 2.2.1, Losing a Solution Solutions Defined by Integrals, Remarks	1- 5	20,22,28
	2.3 Linear Equations	Definition 2.3.1, Method of Solution, Discontinuous Coefficients, Remarks	1-6	17, 35
	2.4 Exact Equations	Introduction, Definition 2.4.1, Theorem 2.4.1, An Integrating Factor, Remarks	1-4	38
	2.5 Solution by Substitutions	Homogenous Equations, Bernoulli's Equations, Reduction to Separation of Variables	1-3	13,15,29,30,35,
Ch3:Modeling with First-Order Differential Equations	3.1 Linear Models	Growth and Decay, Carbon Dating, Newton's Law of Cooling/Warming	1-4	

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	4.4 Undetermined Coefficients	Introduction, Particular Solution Using Undetermined Coefficients, Remarks	1-11	41
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	4.7 Cauchy- Euler Equation	7 Cauchy- Euler Equation, Method of Solution, Reduction to Constant Coefficients	1-5	24
	4.8 Solving System of DEs by Elimination	Solution by Elimination	1,2	9

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	7.2 Inverse Transform and Transform of Derivatives	Theorem 7.2.1, Theorem 7.2.2, Remarks	1-5	29
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	7.4 Operational Properties II	Theorem 7.4.1, Transform of Integrals, Theorem 7.4.2	1-4	21,23,31