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Nota di contenuto	Cover -- Title -- Copyright -- Contents -- Preface -- 1 Introduction -- 1.1 Nonlinear Models -- 1.2 Nonlinear Phenomena -- 1.3 Overview of the Book -- 1.4 Exercises -- 2 Two-Dimensional Systems -- 2.1 Qualitative Behavior of Linear Systems -- 2.2 Qualitative Behavior Near Equilibrium Points -- 2.3 Multiple Equilibria -- 2.4 Limit Cycles -- 2.5 Numerical Construction of Phase Portraits -- 2.6 Exercises -- 3 Stability of Equilibrium Points -- 3.1 Basic Concepts -- 3.2 Linearization -- 3.3 Lyapunov's Method -- 3.4 The Invariance Principle -- 3.5 Exponential Stability -- 3.6 Region of Attraction -- 3.7 Converse Lyapunov Theorems -- 3.8 Exercises -- 4 Time-Varying and Perturbed Systems -- 4.1 Time-Varying Systems -- 4.2 Perturbed Systems -- 4.3 Boundedness and Ultimate Boundedness -- 4.4 Input-to-State Stability -- 4.5 Exercises -- 5 Passivity -- 5.1 Memoryless Functions -- 5.2 State Models -- 5.3 Positive Real Transfer Functions -- 5.4 Connection with Stability -- 5.5 Exercises -- 6 Input-Output Stability -- 6.1 L Stability -- 6.2 L Stability of State Models -- 6.3 L2 Gain -- 6.4 Exercises -- 7 Stability of Feedback Systems -- 7.1 Passivity Theorems -- 7.2 The Small-Gain Theorem -- 7.3 Absolute Stability -- 7.3.1 Circle Criterion -- 7.3.2 Popov Criterion -- 7.4 Exercises -- 8 Special Nonlinear Forms -- 8.1 Normal Form -- 8.2 Controller Form -- 8.3 Observer Form -- 8.4 Exercises -- 9 State Feedback Stabilization -- 9.1 Basic Concepts -- 9.2 Linearization -- 9.3 Feedback Linearization -- 9.4 Partial Feedback Linearization -- 9.5 Backstepping -- 9.6 Passivity-Based Control -- 9.7 Control Lyapunov Functions -- 9.8

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Sommario/riassunto

For a first course on nonlinear control that can be taught in one semester This book emerges from the award-winning book, Nonlinear Systems, but has a distinctly different mission and organization. While Nonlinear Systems was intended as a reference and a text on nonlinear system analysis and its application to control, this streamlined book is intended as a text for a first course on nonlinear control. In Nonlinear Control, author Hassan K. Khalil employs a writing style that is intended to make the book accessible to a wider audience without compromising the rigor of the presentation. Teaching and Learning Experience This program will provide a better teaching and learning experience-for you and your students. It will help: *Provide an Accessible Approach to Nonlinear Control: This streamlined book is intended as a text for a first course on nonlinear control that can be taught in one semester. *Support Learning: Over 250 end-of-chapter exercises give students plenty of opportunities to put theory into action.