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Mathematical Control Theory: An Introduction presents, in a mathematically precise manner, a unified introduction to deterministic control theory. With the exception of a few more advanced concepts required for the final part of the book, the presentation requires only a knowledge of basic facts from linear algebra, differential equations, and calculus.

In addition to classical concepts and ideas, the author covers the stabilization of nonlinear systems using topological methods, realization theory for nonlinear systems, impulsive control and positive systems, the control of rigid bodies, the stabilization of infinite dimensional systems, and the solution of minimum energy problems.

The book will be ideal for a beginning graduate course in mathematical control theory, or for self study by professionals needing a complete picture of the mathematical theory that underlies the applications of control theory.

"This book is designed as a graduate text on the mathematical theory of deterministic control. It covers a remarkable number of topics...The exposition is excellent, and the book is a joy to read. A novel one-semester course covering both linear and nonlinear systems could be given...The book is an excellent one for introducing a mathematician to control theory." \_ Bulletin of the AMS

"The book is very well written from a mathematical point of view of control theory. The author deserves much credit for bringing out such a book which is a useful and welcome addition to books on the mathematics of control theory." \_ Control Theory and Advance Technology

"At last! We did need an introductory textbook on control which can be read, understood, and enjoyed by anyone." \_ Gian-Carlo Rota, The Bulletin of Mathematics Books

Content Level » Research

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Keywords » control theory - dynamic programming - infinite dimensional linear systems - linear systems - mathematical control theory - nonlinear systems - observability - optimal control - realization theory - stability - systems theory

Related subjects » Birkhäuser Engineering - Birkhäuser Mathematics

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