

1. Record Nr.	UNINA9910143312703321
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Titolo	Control of continuous linear systems // Kaddour Najim
Pubbl/distr/stampa	London : , : ISTE, , [2006]
ISBN	0-470-39451-X 1-282-68412-4 9786612684128 1-280-51058-7 9786610510580 1-84704-462-X 0-470-61234-7 1-84704-562-6
Descrizione fisica	1 online resource (350 pages)
Collana	ISTE ; ; v.96
Disciplina	629.8/32 629.832
Soggetti	Linear systems - Automatic control - Mathematics Linear control systems Calculus, Operational Electronic books.
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references (p. [345]-348) and index.
Nota di contenuto	Control of Continuous Linear Systems; Contents; Introduction; Chapter 1. On Process Modeling; 1.1. Introduction; 1.2. Model classification; 1.2.1. Heat and mass balances; 1.2.2. Mechanical systems; 1.2.3. Electrical systems; 1.3. Linearization; Chapter 2. Laplace Transforms and Block Diagrams; 2.1. The Laplace transform; 2.2. Transfer functions; 2.3. Laplace transform calculations; 2.4. Differential and integral equations; 2.5. Block diagrams; 2.6. Feedback systems; Chapter 3. Analysis; 3.1. Introduction; 3.2. Step responses; 3.3. System identification; 3.4. Frequency response Chapter 4. Stability and the Root Locus4.1. Stability; 4.1.1. The Routh-Hurwitz criterion; 4.1.2. Revers's criterion; 4.2. The root locus; Chapter 5. Regulation and PID Regulators; 5.1. Introduction; 5.2. Direct design;

5.3. PID tuning; Appendices; A. On Theoretical Aspects; A.1. The Dirac impulse; A.1.1. Residence time; A.2. The unit step; A.3. The Routh-Hurwitz criterion; A.4. The Nyquist criterion; A.5. The root locus; A.6. Computation of integrals of the form J_2 ; A.7. On non-linear systems; Bibliography; Index

Sommario/riassunto

This book contains more than 150 problems and solutions on the control of linear continuous systems. The main definitions and theoretical tools are summarized at the beginning of each chapter, after which the reader is guided through the problems and how to solve them. The author provides coverage of the ideas behind the developments of the main PID tuning techniques, as well as presenting the proof of the Routh-Hurwitz stability criterion and giving some new results dealing with the design of root locus.
