



Control Systems, 1/e

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About the Book

Control Systems is studied in the Electrical, Mechanical, Electronics, Chemical, Automobile and Aero Engineering disciplines. The basic principle stems from the feedback control. Systems which need to be controlled are varied and depend on the plant components and their transfer functions. There are several methods to design and analysis control systems.

In this book, the current theoretical background needed for the development of control systems is provided. Apart from the standard methods using Bode, Nyquist and root locus plots, state space techniques are also in use. Discrete time control has assumed more importance with the advent of digital signals. Fuzzy logic is also used in designing controllers, since Edward Mamdani (1971) developed this pioneering control of a steam engine using this technique.

Most books on control systems do not deal with the associated components of a system. In this book, two chapters are devoted to the mostly used components in various control systems. Process control uses pneumatic controllers which are included in the book.

Present university courses resort to the software known as Matlab™ (Mathworks Inc.) and even go to prescribe the same for the simulation of control problems using it. Therefore, several theoretical methods are not only illustrated with fully worked out examples, but also provided with Matlab based programmes for practice. This facilitates a quicker understanding of the principles with the excellent graphics this package supports. Needless to say that this volume will satisfy its readers, be they teachers, students or engineers in industry.

Salient Features

Salient Features:

- ▶ Describes different models for both continuous time control and discrete-time control, as well as components involving non-linearity.
- ▶ Explains the fuzzy logic control with methods and examples in a dedicated chapter.
- ▶ Includes more than 100 worked out problems.
- ▶ MATLAB treatment of topics is given in every chapter.
- ▶ Rich end-of-chapter exercise problems with answer key gives ample practice opportunity.

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