

<<机械控制工程基础>>

图书基本信息

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前言

Control Engineering has been recognized as a primary technology and promises to be the most exciting of all the technologies. Its field of application is extremely wide, overlapping practically every other technology. Hence it is important to allow the new technology to have much influence in determining the discipline and body of knowledge to be incorporated in an undergraduate course. As China has been a member of WTO, more and more foreign entrepreneurs built up branches in China, which means more chances for those graduates who have specialized skill and ability of perfect foreign languages application. To meet the challenge, bilingual teaching becomes one of the most popular modes to train professionals who would be competent in the future. The teaching materials for the general technology has been carefully planned and compiled for the undergraduate students. This book presents the readers with the fundamentals for analysis and design of automatic (or, closed loop) control theories and control systems. It is not an original piece of work, but a deliberate organization of the standard technology into such a form as to be of maximum use to the students. The fundamentals include differential Equations, transfer functions, signal flow graphs, time response, frequency response, s-plane, and state variable methods, fundamental theory of discrete control etc. It is intended that the book, and the course as well, will serve as a bridge between the elementary and highly specialized works. It is especially worthwhile to emphasize the concepts of control theories and the methods used in control engineering.

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内容概要

Control Engineering has been recognized as one of the most important primary technology. It is significant to allow the technology to have much more influence in determining the discipline and body of knowledge to be incorporated in an undergraduate course. To meet the challenge in the 21st century, bilingual teaching becomes one of the most popular modes to train professionals who would be competent in the future. The teaching materials for the general technology has been carefully planned and compiled for the undergraduate students in accordance with the requirements of the obligated course and of bilingual teaching mode. There are 8 chapters in this book : Introduction to Control Systems, Building Appropriate Mathematical Models for a Control System, Time Response Analysis of Control Systems, Frequency Response Analysis of Control Systems, Stability Analysis of Control Systems, Steady-state Errors of Control Systems, Compensation Techniques, and Digital Control. It covers the fundamentals of control engineering, including differential equations, transfer functions, signal flow graphs, time response, frequency response, s-plane, and state variable methods, fundamental theory of discrete control etc.. Drill Problems are appended to the end of each chapter for the students to practice. This book can be used as textbook or reading material for the course of control theory as well as the course of English in automation. It also can be employed as reference for the teachers and students in the universities or in the colleges, technicians who major in mechanical engineering, control engineering or automation.

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