

Modern Control Engineering By Katsuhiko Ogata 4th Fourth Edition

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Automatic Flight Control Systems - Donald McLean
1990

A treatment of automatic flight control systems (AFCS) for fixed wing and rotary wing aircraft. The text covers in detail the subject of stability and control theory. All the principal AFC modes are covered and the effects of atmospheric turbulence and structural flexibility are charted.

Control Tutorials for MATLAB and Simulink -
William C. Messner 1998

Designed to help learn how to use MATLAB and Simulink for the analysis and design of automatic control systems.

Control System Design - Graham Clifford Goodwin
2001

For both undergraduate and graduate courses in Control System Design. Using a "how to do it" approach with a strong emphasis on real-world design, this text provides comprehensive, single-

source coverage of the full spectrum of control system design. Each of the text's 8 parts covers an area in control--ranging from signals and systems (Bode Diagrams, Root Locus, etc.), to SISO control (including PID and Fundamental Design Trade-Offs) and MIMO systems (including Constraints, MPC, Decoupling, etc.).

Designing Linear Control Systems with MATLAB -
Katsuhiko Ogata 1994

Written as a companion volume to the author's Solving Control Engineering Problems with MATLAB, this indispensable guide illustrates the power of MATLAB as a tool for synthesizing control systems, emphasizing pole placement, and optimal systems design.

Solutions Manual, Modern Control Engineering, Fourth Edition - Katsuhiko Ogata 2002

Control System Applications - William S. Levine

2018-10-24

Control technology permeates every aspect of our lives. We rely on them to perform a wide variety of tasks without giving much thought to the origins of the technology or how it became such an important part of our lives. *Control System Applications* covers the uses of control systems, both in the common and in the uncommon areas of our lives. From the everyday to the unusual, it's all here. From process control to human-in-the-loop control, this book provides illustrations and examples of how these systems are applied. Each chapter contains an introduction to the application, a section defining terms and references, and a section on further readings that help you understand and use the techniques in your work environment. Highly readable and comprehensive, *Control System Applications* explores the uses of control systems. It illustrates the diversity of control

systems and provides examples of how the theory can be applied to specific practical problems. It contains information about aspects of control that are not fully captured by the theory, such as techniques for protecting against controller failure and the role of cost and complexity in specifying controller designs.

Optimal Control Theory - Donald E. Kirk

2012-04-26

Upper-level undergraduate text introduces aspects of optimal control theory: dynamic programming, Pontryagin's minimum principle, and numerical techniques for trajectory optimization. Numerous figures, tables. Solution guide available upon request. 1970 edition.

Modern Control Engineering - Katsuhiko Ogata

1990

Text for a first course in control systems, revised (1st ed. was 1970) to include new subjects such as

the pole placement approach to the design of control systems, design of observers, and computer simulation of control systems. For senior engineering students. Annotation copyright Book News, Inc.

Ingeniería de control moderna - Katsuhiko Ogata
2003

CONTENIDO: Introducción a los sistemas de control
- La transformada de Laplace - Modelado matemático de sistemas dinámicos - Modelado matemático de sistemas de fluidos y sistemas térmicos - Análisis de la respuesta transitoria y estacionaria - Análisis del lugar de las raíces - Diseño de sistemas de control mediante el método del lugar de las raíces - Análisis de la respuesta en frecuencia - Análisis de la respuesta transitoria y estacionaria - Controladores PID y sistemas de control con dos grados de libertad
- Análisis de sistemas de control en el espacio de estados - Diseño de sistemas de control en el espacio

de estados.

International Conference on Mechanism Science and Control Engineering (MSCE 2014) - 2014-09-02

The aim of MSCE 2014 is to provide a platform for researchers, engineers, and academicians, as well as industrial professionals, to present their research results and development activities in mechanism science and control engineering. It provides opportunities for the delegates to exchange new ideas and application experiences, to establish business or research relations and to find global partners for future collaboration. MSCE2014 is conducted to all the researchers, engineers, industrial professionals and academicians, who are broadly welcomed to present their latest research results, academic developments or theory practice. Topics of interest include but are not limited to Mechanism theory and Application, Mechanical control and Automation Engineering, Mechanical

Dynamics, Materials Processing and Control, Instruments and Vibration Control. It is of great pleasure to see the delegates exchanging ideas and establishing sound relationships on the conference.

Modern Control Engineering - P.N.

Paraskevopoulos 2017-12-19

"Illustrates the analysis, behavior, and design of linear control systems using classical, modern, and advanced control techniques. Covers recent methods in system identification and optimal, digital, adaptive, robust, and fuzzy control, as well as stability, controllability, observability, pole placement, state observers, input-output decoupling, and model matching."

Matlab for Control Engineers - Katsuhiko Ogata

2008

For senior-level courses in Control Theory, offered by departments of Electrical & Computer Engineering or Mechanical & Aerospace

Engineering. Notable author Katsuhiko Ogata presents the only book available to discuss, in sufficient detail, the details of MATLAB(R) materials needed to solve many analysis and design problems associated with control systems. In this new text, Ogata complements a large number of examples with in-depth explanations, encouraging complete understanding of the MATLAB approach to solving problems. The book's flexible presentation makes it ideal for use as a stand-alone text for those wishing to expand their knowledge of MATLAB; it can also be used in conjunction with a wide range of currently available control textbooks

System Dynamics and Control with Bond Graph

Modeling - Javier Kypuros 2013-04-25

Written by a professor with extensive teaching experience, System Dynamics and Control with Bond Graph Modeling treats system dynamics from a bond graph perspective. Using an approach that

combines bond graph concepts and traditional approaches, the author presents an integrated approach to system dynamics and automatic controls. The textbook guides students from the process of modeling using bond graphs, through dynamic systems analysis in the time and frequency domains, to classical and state-space controller design methods. Each chapter contains worked examples, review exercises, problems that assess students' grasp of concepts, and open-ended "challenges" that bring in real-world engineering practices. It also includes innovative vodcasts and animated examples, to motivate student learners and introduce new learning technologies.

Finite Element Simulations with ANSYS

Workbench 19 - Huei-Huang Lee 2018-09

Finite Element Simulations with ANSYS

Workbench 19 is a comprehensive and easy to understand workbook. Printed in full color, it

utilizes rich graphics and step-by-step instructions to guide you through learning how to perform finite element simulations using ANSYS Workbench.

Twenty seven real world case studies are used throughout the book. Many of these case studies are industrial or research projects that you build from scratch. Prebuilt project files are available for download should you run into any problems.

Companion videos, that demonstrate exactly how to perform each tutorial, are also available. Relevant background knowledge is reviewed whenever necessary. To be efficient, the review is conceptual rather than mathematical. Key concepts are inserted whenever appropriate and summarized at the end of each chapter. Additional exercises or extension research problems are provided as homework at the end of each chapter. A learning approach emphasizing hands-on experiences is utilized though this entire book. A typical chapter consists of

six sections. The first two provide two step-by-step examples. The third section tries to complement the exercises by providing a more systematic view of the chapter subject. The following two sections provide more exercises. The final section provides review problems. Who this book is for This book is designed to be used mainly as a textbook for undergraduate and graduate students. It will work well in: a finite element simulation course taken before any theory-intensive courses an auxiliary tool used as a tutorial in parallel during a Finite Element Methods course an advanced, application oriented, course taken after a Finite Element Methods course

Modern Control Engineering - Katsuhiko Ogata
1970

This comprehensive treatment of the analysis and design of continuous-time control systems provides a "gradual" development of control theory and shows how to solve "all" computational problems

with MATLAB. It avoids highly mathematical arguments, and features an abundance of examples and worked problems throughout the book. Chapter topics include the Laplace transform; mathematical modeling of mechanical systems, electrical systems, fluid systems, and thermal systems; transient and steady-state-response analyses, root-locus analysis and control systems design by the root-locus method; frequency-response analysis and control systems design by the frequency-response; two-degrees-of-freedom control; state space analysis of control systems and design of control systems in state space. For control systems engineers.

Reconfigurable Computing: Architectures and Applications - Koen Bertels 2006-07-26

1 The International Workshop on Reconfigurable Computing (ARC) started in 2005 in Algarve, Portugal. The major motivation was to create an event where on-going research efforts as well as

more elaborated, interesting and hi- quality work on applied recon?gurable computing could be presented and d- cussed. Over the last couple of years recon?gurable computing has become a we- known and established research area producing interesting as well as important results in both general and embedded computing systems. It is also getting more and more interest from industry which is attracted by the (design and development) ?exibility as well as the performance improvements that can be expected from this technology. As recon?gurable computing has blurred the gap between software and hardware, some even speak of a radical new programming paradigm opening a new realm of unseen applications and opportunities. The logo of the ARC workshop is the Nonius, a measurement instrument used in the Portuguese period of discoveries that was invented by Pedro Nunes, a Portuguesemathematician. As the logo

suggests,the main motto of ARC is to help to navigate the world of recon?gurable computing. Driven by this motto, we hope ARC contributes to solid advances on recon?gurable computing. *Functional Manufacturing Technologies and Ceeusro II* - Long Chen 2011-01-20 Volume is indexed by Thomson Reuters CPCI-S (WoS). This work brings together peer-reviewed papers on innovations and practical suggestions with regard to engineering & technology; materials science and technology in manufacturing including artificial materials, forming, novel-material fabrication, green manufacturing, design and manufacturing of composite components, surface science and engineering, quality control of manufacturing systems, theoretical, simulation and experimental studies related to microstructures and residual stresses; manufacturing systems and technologies including manufacturing process

simulation, CIMS and manufacturing systems, vibration measuring and reliability analysis, finite element analysis and structure optimization, fault diagnosis and maintenance theory, intelligent mechatronics and robotics, elements, structures, mechanisms, and applications of micro and nano systems, compound machine tools, rapid prototyping, printing (e.g. embossing), complex mechanical-electro-liquid systems, PDM, ERP, CRM, FMS, PLM, logistics and supply chains, effect of the machining method or technique upon resultant material mechanical properties, RPM, and management.

Proceedings of the Multi-Conference 2011 -

Himanshu B. Soni 2011-06-06

The International Conference on Signals, Systems and Automation (ICSSA 2011) aims to spread awareness in the research and academic community regarding cutting-edge technological advancements

revolutionizing the world. The main emphasis of this conference is on dissemination of information, experience, and research results on the current topics of interest through in-depth discussions and participation of researchers from all over the world. The objective is to provide a platform to scientists, research scholars, and industrialists for interacting and exchanging ideas in a number of research areas. This will facilitate communication among researchers in different fields of Electronics and Communication Engineering. The International Conference on Intelligent System and Data Processing (ICISD 2011) is organized to address various issues that will foster the creation of intelligent solutions in the future. The primary goal of the conference is to bring together worldwide leading researchers, developers, practitioners, and educators interested in advancing the state of the art in computational intelligence and data processing for

exchanging knowledge that encompasses a broad range of disciplines among various distinct communities. Another goal is to promote scientific information interchange between researchers, developers, engineers, students, and practitioners working in India and abroad.

Design for Electrical and Computer Engineers - J Salt 2001-09-05

Addresses the important issues of documentation and testing. * A chapter on project management provides practical suggestions for organizing design teams, scheduling tasks, monitoring progress, and reporting status of design projects. * Explains both creative and linear thinking and relates the types of thinking to the productivity of the design engineers and novelty of the end design.

Finite Element Simulations with ANSYS

Workbench 2019 - Huei-Huang Lee 2019-07

Finite Element Simulations with ANSYS

Workbench 2019 is a comprehensive and easy to understand workbook. Printed in full color, it utilizes rich graphics and step-by-step instructions to guide you through learning how to perform finite element simulations using ANSYS Workbench. Twenty seven real world case studies are used throughout the book. Many of these case studies are industrial or research projects that you build from scratch. Prebuilt project files are available for download should you run into any problems. Companion videos, that demonstrate exactly how to perform each tutorial, are also available. Relevant background knowledge is reviewed whenever necessary. To be efficient, the review is conceptual rather than mathematical. Key concepts are inserted whenever appropriate and summarized at the end of each chapter. Additional exercises or extension research problems are provided as homework at the end of each chapter. A learning approach

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steps described in the book by allowing you to watch the exact steps the author uses to complete the exercises.

Power System Operation and Control - Sivanagaraju, S.

Power System Operation and Control is comprehensively designed for undergraduate and postgraduate courses in electrical engineering. This book aims to meet the requirements of electrical engineering students and is useful for practicing engineers.

Munson, Young and Okiishi's Fundamentals of Fluid Mechanics - Andrew L. Gerhart 2020-12-03

Fundamentals of Fluid Mechanics, 9th Edition offers comprehensive topical coverage, with varied examples and problems, application of the visual component of fluid mechanics, and a strong focus on effective learning. The authors have designed their presentation to enable the gradual development of

reader confidence in problem solving. Each important concept is introduced in easy-to-understand terms before more complicated examples are discussed. The 9th Edition includes new coverage of finite control volume analysis and compressible flow, as well as a selection of new problems. Continuing this important work's tradition of extensive real-world applications, each chapter includes The Wide World of Fluids case study boxes in each chapter. In addition, there are a wide variety of videos designed to enhance comprehension, support visualization skill building and engage students more deeply with the material and concepts.

**MODERN CONTROL ENGINEERING - D. ROY
CHOUDHURY 2005-01-01**

This book represents an attempt to organize and unify the diverse methods of analysis of feedback control systems and presents the fundamentals

explicitly and clearly. The scope of the text is such that it can be used for a two-semester course in control systems at the level of undergraduate students in any of the various branches of engineering (electrical, aeronautical, mechanical, and chemical). Emphasis is on the development of basic theory. The text is easy to follow and contains many examples to reinforce the understanding of the theory. Several software programs have been developed in MATLAB platform for better understanding of design of control systems. Many varied problems are included at the end of each chapter. The basic principles and fundamental concepts of feedback control systems, using the conventional frequency domain and time-domain approaches, are presented in a clearly accessible form in the first portion (chapters 1 through 10). The later portion (chapters 11 through 14) provides a thorough understanding of concepts such as state

space, controllability, and observability. Students are also acquainted with the techniques available for analysing discrete-data and nonlinear systems. The hallmark feature of this text is that it helps the reader gain a sound understanding of both modern and classical topics in control engineering.

Fundamentals of Electric Circuits - Charles K.

Alexander 2012-12-06

Alexander and Sadiku's fifth edition of Fundamentals of Electric Circuits continues in the spirit of its successful previous editions, with the objective of presenting circuit analysis in a manner that is clearer, more interesting, and easier to understand than other, more traditional texts. Students are introduced to the sound, six-step problem solving methodology in chapter one, and are consistently made to apply and practice these steps in practice problems and homework problems throughout the text. A balance of theory, worked

examples and extended examples, practice problems, and real-world applications, combined with over 468 new or changed homework problems for the fifth edition and robust media offerings, renders the fifth edition the most comprehensive and student-friendly approach to linear circuit analysis. This edition retains the Design a Problem feature which helps students develop their design skills by having the student develop the question as well as the solution. There are over 100 Design a Problem exercises integrated into the problem sets in the book.

Modern Control Design - Ashish Tewari 2002-04-03

In this book, Tewari emphasizes the physical principles and engineering applications of modern control system design. Instead of detailing the mathematical theory, MATLAB examples are used throughout.

Advanced Engineering Mathematics, 22e - Dass

H.K.

"Advanced Engineering Mathematics" is written for the students of all engineering disciplines. Topics such as Partial Differentiation, Differential Equations, Complex Numbers, Statistics, Probability, Fuzzy Sets and Linear Programming which are an important part of all major universities have been well-explained. Filled with examples and in-text exercises, the book successfully helps the student to practice and retain the understanding of otherwise difficult concepts.

Nonlinear Control Systems - Alberto Isidori

2013-04-17

The purpose of this book is to present a self-contained description of the fundamentals of the theory of nonlinear control systems, with special emphasis on the differential geometric approach. The book is intended as a graduate text as well as a reference to scientists and engineers involved in

the analysis and design of feedback systems. The first version of this book was written in 1983, while I was teaching at the Department of Systems Science and Mathematics at Washington University in St. Louis. This new edition integrates my subsequent teaching experience gained at the University of Illinois in Urbana-Champaign in 1987, at the Carl-Cranz Gesellschaft in Oberpfaffenhofen in 1987, at the University of California in Berkeley in 1988. In addition to a major rearrangement of the last two Chapters of the first version, this new edition incorporates two additional Chapters at a more elementary level and an exposition of some relevant research findings which have occurred since 1985.

Process Control - B. Wayne Bequette 2003

Master process control hands on, through practical examples and MATLAB(R) simulations This is the first complete introduction to process control that

fully integrates software tools--enabling professionals and students to master critical techniques hands on, through computer simulations based on the popular MATLAB environment. *Process Control: Modeling, Design, and Simulation* teaches the field's most important techniques, behaviors, and control problems through practical examples, supplemented by extensive exercises--with detailed derivations, relevant software files, and additional techniques available on a companion Web site. Coverage includes: Fundamentals of process control and instrumentation, including objectives, variables, and block diagrams Methodologies for developing dynamic models of chemical processes Dynamic behavior of linear systems: state space models, transfer function-based models, and more Feedback control; proportional, integral, and derivative (PID) controllers; and closed-loop stability analysis Frequency response

analysis techniques for evaluating the robustness of control systems Improving control loop performance: internal model control (IMC), automatic tuning, gain scheduling, and enhancements to improve disturbance rejection Split-range, selective, and override strategies for switching among inputs or outputs Control loop interactions and multivariable controllers An introduction to model predictive control (MPC) Bequette walks step by step through the development of control instrumentation diagrams for an entire chemical process, reviewing common control strategies for individual unit operations, then discussing strategies for integrated systems. The book also includes 16 learning modules demonstrating how to use MATLAB and SIMULINK to solve several key control problems, ranging from robustness analyses to biochemical reactors, biomedical problems to multivariable

control.

Modern Control Engineering - Katsuhiko Ogata
2010

Mathematical modeling of control systems.

Mathematical modeling of mechanical systems and electrical systems. Mathematical modeling of fluid systems and thermal systems.

Exploring Arduino - Jeremy Blum 2019-10-24

The bestselling beginner Arduino guide, updated with new projects! Exploring Arduino makes electrical engineering and embedded software accessible. Learn step by step everything you need to know about electrical engineering, programming, and human-computer interaction through a series of increasingly complex projects. Arduino guru Jeremy Blum walks you through each build, providing code snippets and schematics that will remain useful for future projects. Projects are accompanied by downloadable source code, tips

and tricks, and video tutorials to help you master Arduino. You'll gain the skills you need to develop your own microcontroller projects! This new 2nd edition has been updated to cover the rapidly-expanding Arduino ecosystem, and includes new full-color graphics for easier reference. Servo motors and stepper motors are covered in richer detail, and you'll find more excerpts about technical details behind the topics covered in the book. Wireless connectivity and the Internet-of-Things are now more prominently featured in the advanced projects to reflect Arduino's growing capabilities. You'll learn how Arduino compares to its competition, and how to determine which board is right for your project. If you're ready to start creating, this book is your ultimate guide! Get up to date on the evolving Arduino hardware, software, and capabilities Build projects that interface with other devices—wirelessly! Learn the basics of

electrical engineering and programming Access downloadable materials and source code for every project Whether you're a first-timer just starting out in electronics, or a pro looking to mock-up more complex builds, Arduino is a fantastic tool for building a variety of devices. This book offers a comprehensive tour of the hardware itself, plus in-depth introduction to the various peripherals, tools, and techniques used to turn your little Arduino device into something useful, artistic, and educational. Exploring Arduino is your roadmap to adventure—start your journey today!

Control System Engineering - Norman S. Nise
1998-01-15

The Second Edition of Control Systems Engineering provides a clear and thorough introduction to controls. Designed to motivate readers' understanding, the text emphasizes the practical application of systems engineering to the design and

analysis of feedback systems. In a rich pedagogical style, Nise motivates readers by applying control systems theory and concepts to real-world problems. The text's updated content teaches readers to build control systems that can support today's advanced technology.

Self-Excited Vibration - Wenjing Ding 2013-01-20

Based on a systematic understanding of its theoretical foundations, “Self-Excited Vibration: Theory, Paradigms, and Research Methods” offers a method for analyzing any type of self-excited vibration (SEV). After summarizing the research results of various SEV phenomenon, including chatter, shimmy, rotor whirl, flutter, gallop, and SEV of man-made control systems, the author constructs a general constitutive mechanism of SEV, as well as a common research program and detailed analysis technique. All of these will help the reader independently analyze any new SEV phenomena.

Prof. Wenjing Ding was the Director of the Dynamics and Vibration Division of the Engineering Mechanics Department of Tsinghua University, China.

System Dynamics - Katsuhiko Ogata 2013-07-24

For junior-level courses in System Dynamics, offered in Mechanical Engineering and Aerospace Engineering departments. This text presents students with the basic theory and practice of system dynamics. It introduces the modeling of dynamic systems and response analysis of these systems, with an introduction to the analysis and design of control systems.

Modern Control Theory - Zdzislaw Bubnicki
2005-12-06

Well-written, practice-oriented textbook, and compact textbook Presents the contemporary state of the art of control theory and its applications Introduces traditional problems that are useful in

the automatic control of technical processes, plus presents current issues of control Explains methods can be easily applied for the determination of the decision algorithms in computer control and management systems

Engineering Design - George E. Dieter 2008-05-01

Second International Conference on Power Electronics, Machines, and Drives (PEMD 2004) -
2004

Feedback Control Problems - Dean K. Frederick
2000

This book is a supplement for any standard control systems text. It serves to reinforce the learning process for those who are studying introductory aspects of control systems. The authors accomplish this by teaching the use of MATLAB® and its CONTROL SYSTEM TOOLBOX to rapidly solve a

wide range of numerical problems. This book also provides the user with opportunities to apply techniques of linear system analysis, which forms the basis for the analysis and design of feedback control systems. This approach frees the user from the laborious calculations required to solve meaningful problems, thus allowing him or her to concentrate on interpreting the analysis and design results. Topical coverage includes both classical control design method and state-space models and design methods. Some specific topics covered are root-locus plots, frequency-response analysis, system performance, proportional-integral-derivative control, and frequency-response design. This updated printing revises the book and code examples (available for downloading from the Brooks/Cole Web site) to MATLAB® V5.

Automatic Control Systems - Benjamin C. Kuo 1995
Real-world applications--Integrates real-world

analysis and design applications throughout the text. Examples include: the sun-seeker system, the liquid-level control, dc-motor control, and space-vehicle payload control. * Examples and problems-- Includes an abundance of illustrative examples and problems. * Marginal notes throughout the text highlight important points.

Digital Control System Analysis and Design - Charles L. Phillips 1990

Modern Control: State-Space Analysis and Design Methods - Arie Nakhmani 2020-05-01

Publisher's Note: Products purchased from Third Party sellers are not guaranteed by the publisher for quality, authenticity, or access to any online entitlements included with the product. Apply a state-space approach to modern control system analysis and design Written by an expert in the field, this concise textbook offers hands-on coverage

of modern control system engineering. *Modern Control: State-Space Analysis and Design Methods* features start-to-finish design projects as well as online snippets of MATLAB code with simulations. The essential mathematics are presented along with fully worked-out examples in gradually increasing degrees of difficulty. Readers will receive “just-in-time” math background from a comprehensive appendix and get step-by-step descriptions of the

latest analysis and design techniques. Coverage includes:

- An introduction to control systems
- State-space representations
- Pole placement via state feedback
- State estimators (observers)
- Non-minimal canonical forms
- Linearization
- Lyapunov stability
- Linear quadratic regulators (LQR)
- Symmetric root locus (SRL)
- Kalman filter
- Linear quadratic gaussian control (LQG)