

Electrical Drives Gopal K Dubey

A comprehensive treatment of the subject of power electronics is provided in this book. It deals with the principles of operation of various thyristorised power controllers systematically, and explains the important basic concepts for a beginner. For advanced readers and practising engineers it covers many topics such as static reactive power compensation, power factor control, current source inverter, time-sharing inverter, multiphase chopper and harmonic control in PWM inverters.

This work was developed based on the author's experience of more than 10 years working in research and industry in the areas of electrical drives and industrial automation. Seeking the connection between theory and its applications, the author presents a detailed conceptual description with lots of figures and illustrative examples that harmonize the theoretical approach with the practice.

Composed of eleven chapters and three appendices, the book describes in a dynamic and didactic way the fundamental concepts related to the drives of electric machines. At the end of each chapter is a set of exercises to ease the fixation of the presented content.

High Voltage Engineering Has Been Written For The Undergraduate Students In Electrical Engineering Of Indian And Foreign Universities As Well As The Practising Engineers. It Deals In Mechanism Of Breakdown Of Insulating Materials, Generation And Measurement Of High A.C., D.C., Impulse Voltages And Currents. High Voltage Testing Of Some Of The Electrical Equipments E.G. Insulators, Cables, Transformers As Per Standard Specifications Has Been Explained. Various Methods Of Non Destructive Testing Which Yield Information Regarding Life Expectancy And The Long Term Stability Or Otherwise Of The Insulating Materials Have Been Discussed. The Book Takes A View Of Various Types Of Transients In Power System And Suggests Classical And More Modern Statistical Methods Of Co-Ordinating The Insulation Requirements Of The System.A Suitable Number Of Problems Have Been Solved To Help Understand The Theory. At The End, A Large Number Of Multiple Choice Questions Have Been Added To Help The Students To Test Themselves. A Few Photoplates Have Been Added At Suitable Locations In The Book To Give A Physical Feel Of Various Equipments In A Well Equipped High Voltage Laboratory.

Electric Drives

Concepts and Applications

Fundamentals of Electrical Drives

Power System Operation and Control

Electrical Machines and Drives

This book is part of a three-book series. Ned Mohan has been a leader in EES education and research for decades, as author of the best-selling text/reference Power Electronics. This book emphasizes applications of electric machines and drives that are essential for wind turbines and electric and hybrid-electric vehicles. The approach taken respects: A systems approach, where Electric Machines are covered in the context of the overall drives with applications that students can appreciate and get enthusiastic about; A fundamental and physics-based approach that not only teaches the analysis of electric machines and drives, but also prepares students for learning how to co course: Use of the space-vector-theory that is made easy to understand. They are introduced in this book in such a way that students can appreciate their physical basis; A unique way to describe induction machines that clearly shows how they go from the motoring-mode to the generating-mode, for example in wind and electric vehicle applications to be controlled for the most efficient operation.

Special Features:
· Power semiconductor devices are viewed from the physics, circuit, modeling and thermal viewpoints for a better understanding of the devices.
· AC-DC, DC-DC, DC-AC converters and magnetic devices are treated from both the conceptual and design perspectives.
· A separate chapter is included that addresses the analysis and regulation.
· A chapter is included to address the modeling methods to obtain dynamic models of power electronics systems. The method of bond graph is introduced for modeling power electronics systems.
· The design of discrete domain controllers in both classical and state space approach are included which addresses the needs of power systems and robust control design methods as applied to power electronics systems are addressed.
· Discrete numerical algorithms for digital implementation with respect to power electronics systems are addressed in a separate chapter.
· A separate chapter is devoted to the thermal aspects like heat sink sizing for power electronics systems.
· Design and designing for reliability with power electronics system examples is another unique feature of this book.
· The appendices include the following:
o Derivation of the area product for a saturable-core transformer.
o Representative list of commonly used core types and their physical parameters.
o Representative list of commonly used wire gauges.
o z-transforms of few time domain signals.
o List of specifications for the induction motor used for controller design.
o Description of all the object parameters for various electronic components from the reliability prediction viewpoint.
Pedagogy includes:
o 600+ illustrations and line diagrams.
o 480+ descriptive questions.
o 440+ objective questions.
o 50+ explanatory examples and solved problems.
Companion CD contains:
· Reliability prediction toolbox
· Bond graph simulation toolbox
· Several circuit and design examples
About The Book:
This book on power electronics spans a wide knowledge base such as power devices, drives, circuit topologies, magnetics, system modeling, control, digital processing, thermal and reliability aspects. The book has been broadly divided into two types of topics viz. (a) circuit-oriented aspects and (b) system-oriented aspects. The first seven chapters deal with circuit-oriented aspects of power electronics systems and the remaining chapters deal with system-oriented aspects like controls and design.

An important new resource for the international utility market Over the past two decades, static reactive power compensators have evolved into a mature technology and become an integral part of modern electrical power systems. They are one of the key devices in flexible AC transmission systems (FACTS). Coordination of static compensators with FACTS devices promises not only tremendously enhanced power system controllability, but also the extension of power transfer capability of existing transmission corridors to near their thermal capacities, thus delaying or even curtailing the need to invest in new transmission facilities. Offering both an in-depth presentation of theoretical background and practical applications pertaining to these power compensators, Thyristor-Based FACTS Controllers for Electrical Transmission Systems fills the need for an appropriate text on this emerging technology. Replete with examples and case studies on control design and performance, the book provides an important resource for both students and engineers.

Fundamentals of Power Electronics

HVDC Power Transmission Systems

Electrical Machine Drives

A First Course on Electrical Drives

Cloud Computing

Fundamentals of Electrical DrivesCRC Press

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.

The Aim Of Revision Is Mainly To Acquaint The Students With The Recent Trends In The Development Of Electric Motors Used As Prime Movers In Electric Drive Systems.The Chapter On Introduction To Solid State Controlled Drives Has Been Expanded To Include Sections On Increasingly Used *Brushless Dcmotors And Switched-Reluctance Motors.A Separate Chapter On

Position Control Drive Motors, Namely,Stepper Motors Has Been Also Incorporated.The Drives Used In The Fast Growing Petroleum Industry Have Been Included In The Chapter On Industrialapplications.

Power Semiconductor Drives

Beginning ASP.NET 4

Fundamentals of Photovoltaic Modules and Their Applications

High Voltage Engineering

Power Electronics and Motor Drives

Variety is the spice of life, and knowing to prepare the different cuisines of the states, enhances the taste buds. This book contains many mouthwatering Indian dishes, their detailed recipes and their predominant role in Indian culture. The simple language and guidelines provide excellent introduction to theory and practices of the regional cooking procedures in Indian states. The book serves a platter of history of spices, their origin, the religious and medicinal impact of these spices, different cooking utensils and their usage, various methods of cooking and many finger-licking recipes. The text discusses the traditional and special delights of the four broad regions—East, West, North and South. The staple food and their occasion-oriented backdrop dominate all the descriptions. The recipes are simple, tested and standardized so that they can be easily adaptable by the students and professionals of college and food service organizations. Intended for undergraduate and postgraduate students of hotel management, this textbook will also be useful for the hoteliers and budding professional chefs.
KEY FEATURES : The book covers : Staple diet of the people of different religions, cultures and customs Varied usage of spices and composite masalas Different types of gravies used Innumerable dishes and their preparations Various domestic tips for kitchen management Guidelines on keeping the kitchen fresh and free of odours Complete Indian cuisine integrated in one compendium

Comprehensive and timely, Cloud Computing: Concepts and Technologies offers a thorough and detailed description of cloud computing concepts, architectures, and technologies, along with guidance on the best ways to understand and implement them. It covers the multi-core architectures, distributed and parallel computing models, virtualization, cloud developments, workload and Service-Level-Agreements (SLA) in cloud, workload management. Further, resource management issues in cloud with regard to resource provisioning, resource allocation, resource mapping and resource adaptation, ethical, non-ethical and security issues in cloud are followed by discussion of open challenges and future directions. This book gives students a comprehensive overview of the latest technologies and guidance on cloud computing, and is ideal for those studying the subject in specific modules or advanced courses. It is designed in twelve chapters followed by laboratory setups and experiments. Each chapter has multiple choice questions with answers, as well as review questions and critical thinking questions. The chapters are practically-focused, meaning that the information will also be relevant and useful for professionals wanting an overview of the topic.

This book provides an analysis of the steady-state operation of both AC and DC drive systems, permitting specification of suitable convectors and machines. It covers all major topics in control design and selection and includes the most recent methods of system analysis.

Advanced Electrical Drives

Concepts and Technologies

POWER ELECTRONICS: ESSENTIALS & APPLICATIONS (With CD)

THE INDIAN CUISINE

Fundamentals and Advanced Modelling

Provides comprehensive coverage of the basic principles and methods of electric power conversion and the latest developments in the field This book constitutes a comprehensive overview of the modern power electronics. Various semiconductor power switches are described, complementary components and systems are presented, and power electronic converters that process power for a variety of applications are explained in detail. This third edition updates all chapters, including new concepts in modern power electronics. New to this edition is extended coverage of matrix converters, multilevel inverters, and applications of the Z-source in cascaded power converters. The book is accompanied by a website hosting an instructor ’s manual, a PowerPoint presentation, and a set of PSpice files for simulation of a variety of power electronic converters. Introduction to Modern Power Electronics, Third Edition: Discusses power conversion types: ac-to-dc, ac-to-ac, dc-to-dc, and dc-to-ac Reviews advanced control methods used in today ’ s power electronic converters Includes an extensive body of examples, exercises, computer assignments, and simulations Introduction to Modern Power Electronics, Third Edition is written for undergraduate and graduate engineering students interested in modern power electronics and renewable energy systems. The book can also serve as a reference tool for practicing electrical and industrial engineers.

Power Electronics and Motor Drives: Advances and Trends, Second Edition is the perfect resource to keep the electrical engineer up-to-speed on the latest advancements in technologies, equipment and applications. Carefully structured to include both traditional topics for entry-level and more advanced applications for the experienced engineer, this reference sheds light on the rapidly growing field of power electronic operations. New content covers converters, machine models and new control methods such as fuzzy logic and neural network control. This reference will help engineers further understand recent technologies and gain practical understanding with its inclusion of many industrial applications. Further supported by a glossary per chapter, this book gives engineers and researchers a critical reference to learn from real-world examples and make future decisions on power electronic technology and applications. Provides many practical examples of industrial applications Updates on the newest electronic topics with content added on fuzzy logic and neural networks Presents information from an expert with decades of research and industrial experience

Encouraged by the response to the first edition and to keep pace with recent developments, Fundamentals of Electrical Drives, Second Edition incorporates greater details on semi-conductor controlled drives, includes coverage of permanent magnet AC motor drives and switched reluctance motor drives, and highlights new trends in drive technology. Contents were chosen to satisfy the changing needs of the industry and provide the appropriate coverage of modern and conventional drives. With the large number of examples, problems, and solutions provided, Fundamentals of Electrical Drives, Second Edition will continue to be a useful reference for practicing engineers and for those preparing for Engineering Service Examinations.

Fundamental Basics and Practice

Analysis, Modeling, Control

Proceedings of ICECIT-2018

Solution Manual to Fundamentals of Electrical Drives

Theory & Performance Of Electrical Machines

This text fills a need for a textbook that presents the basic topics and fundamental concepts underlying electric machines, power electronics, and electric drives for electrical engineering students at the undergraduate level. Most existing books on electric drives concentrate either on converters and waveform analysis (ignoring mechanical load dynamics), or on motor characteristics (giving short shrift to analysis of converters and controllers). This book provides a complete overview of the subject, at the right level for EE students. The book takes readers through the analysis and design of a complete electric drives system, including coverage of mechanical loads, motors, converters, sensing, and controllers. In addition to serving as a text, this book serves as a useful and practical reference for professional electric drives engineers.

Fundamentals of Power Electronics, Third Edition, is an up-to-date and authoritative text and reference book on power electronics. This new edition retains the original objective and philosophy of focusing on the fundamental principles, models, and technical requirements needed for designing practical power electronic systems while adding a wealth of new material. Improved features of this new edition include: new material on switching loss mechanisms and their modeling; wide bandgap semiconductor devices; a more rigorous treatment of averaging; explanation of the Nyquist stability criterion; incorporation of the Tan and Middlebrook model for current programmed control; a new chapter on digital control of switching converters; major new chapters on advanced techniques of design-oriented analysis including feedback and extra-element theorems; average current control; new material on input filter design; new treatment of averaged switch modeling, simulation, and indirect power; and sampling effects in DCM, CPM, and digital control. Fundamentals of Power Electronics, Third Edition, is intended for use in introductory power electronics courses and related fields for both senior undergraduates and first-year graduate students interested in converter circuits and electronics, control systems, and magnetic and power systems. It will also be an invaluable reference for professionals working in power electronics, power conversion, and analog and digital electronics. Includes an increased number of end of chapter problems; Updated and reorganized, including three completely new chapters; Includes key principles and a rigorous treatment of topics.

Presently there is no single publication available which covers the topics related to photovoltaic (PV) or photovoltaic thermal (PV/T) technologies, thermal modelling, CO2 mitigation and carbon trading. This book disseminates the current knowledge in the fundamentals of solar energy, photovoltaic (PV) or photovoltaic thermal (PV/T) technologies, energy security and climate change and is aimed at undergraduate and postgraduate students and professionals. The main emphasis of the book is on the design, construction, performance and application of PV and PV/T from the electricity and thermal standpoint. Hot topics covered in the book include: energy security of a nation, climate change, CO2 mitigation and carbon credit earned by using PV or PV/T technologies (Carbon Trading). This information will prove helpful in filling the gap between the researchers and professionals working on the application of photovoltaic and global climate change. It also covers economic, cost effective and sustainable aspects of photovoltaic technologies. The book gives a detailed history of the new technological developments in PV/T systems worldwide with system photographs and references and elaborates on the fundamentals of hybrid systems and their performances with thermal modelling. Energy and exergy analysis, techno-economic analysis and carbon trading are key chapters for research professionals. The book also includes important case studies to aid understanding of the subject for all readers.

Thyristorised Power Controllers

Fundamentals of Electric Drives

Analysis of Electric Machinery and Drive Systems
Fundamentals of Industrial Drives

This book aims to offer a thorough study and reference textbook on electrical machines and drives. The basic idea is to start from the pure electromagnetic principles to derive the equivalent circuits and steady-state equations of the most common electrical machines (in the first parts). Although the book mainly concentrates on rotating field machines, the first two chapters are devoted to transformers and DC commutator machines. The chapter on transformers is included as an introduction to induction and synchronous machines, their electromagnetics and equivalent circuits. Chapters three and four offer an in-depth study of induction and synchronous machines, respectively. Starting from their electromagnetics, steady-state equations and equivalent circuits are derived, from which their basic properties can be deduced. The second part discusses the main power-electronic supplies for electrical drives, for example rectifiers, choppers, cycloconverters and inverters. Much attention is paid to PWM techniques for inverters and the resulting harmonic content in the output waveform. In the third part, electrical drives are discussed, combining the traditional (rotating field and DC commutator) electrical machines treated in the first part and the power electronics of part two. Field orientation of induction and synchronous machines are discussed in detail, as well as direct torque control. In addition, also switched reluctance machines and stepping motors are discussed in the last chapters. Finally, part 4 is devoted to the dynamics of traditional electrical machines. Also for the dynamics of induction and synchronous machine drives, the electromagnetics are used as the starting point to derive the dynamic models. Throughout part 4, much attention is paid to the derivation of analytical models. But, of course, the basic dynamic properties and probable causes of instability of induction and synchronous machine drives are discussed in detail as well, with the derived models for stability in the small as starting point. In addition to the study of the stability in the small, a chapter is devoted to large-scale dynamics as well (e.g. sudden short-circuit of synchronous machines). The textbook is used as the course text for the Bachelor's and Master's programme in electrical and mechanical engineering at the Faculty of Engineering and Architecture of Ghent University. Parts 1 and 2 are taught in the basic course 'Fundamentals of Electric Drives' in the third bachelor. Part 3 is used for the course 'Controlled Electrical Drives' in the first master, while Part 4 is used in the specialised master on electrical energy.

A study of power semiconductor controlled drives that contain dc, induction and synchronous motors. Discusses the dynamics of motor and load systems; open and closed-loop drives; and thyristor, power transistor, and GTO converters. Also reviews arc drives, brushless and commutatorless dc drives, and rectifier controlled dc drives. Annotation copyrighted by Book News, Inc., Portland, OR

This book provides a comprehensive introduction to the fundamental concepts of electric drives and is eminently suited as a textbook for B.E./B.Tech., AMIE and diploma courses in electrical engineering. It can also be used most effectively by all those preparing for GATE and UPSC competitive examinations, as well as by practising engineers. The topics, which range from principles and techniques to industrial applications,

include characteristic features of drives, methods of braking and speed control, electromagnetic and solid state control of motors, motor ratings, transients in drive systems, and operation of stepper motors.

SPECIAL ELECTRICAL MACHINES

ELECTRIC DRIVES

Thyristor-Based FACTS Controllers for Electrical Transmission Systems

Power Semiconductor Controlled Drives

Power Electronics

Emerging technology of VSC–HVDC links is described in detail Presents new developments such as application of hybrid active filters, capacitor commuted converters, double and triple tuned filters etc. Several examples and case studies are included to illustrate concepts. This book provides a unique approach to derive model-based torque controllers for all types of Lorentz force machines, i.e. DC, synchronous and induction machines. The rotating transformer model forms the basis for the generalized modeling approach of rotating field machines, which leads to the development of universal field-oriented control algorithms. Contrary to this, direct torque control algorithms, using observer-based methods, are developed for switched reluctance machines. Tutorials are included at the end of each chapter, and the reader is encouraged to execute these tutorials in order to gain familiarity with the dynamic behavior of drive systems. This updated edition uses PLECS® simulation and vector processing tools that were specifically adopted for the purpose of these hands-on tutorials. Hence, Advanced Electrical Drives encourages “learning by doing” and the experienced drive specialist may find the simulation tools useful to design high-performance torque controllers. Although it is a powerful reference in its own right, when used in conjunction with the companion texts Fundamentals of Electrical Drives and Applied Control of Electrical Drives, this book provides a uniquely comprehensive reference set that takes readers all the way from understanding the basics of how electrical drives work, to deep familiarity with advanced features and models, to a mastery of applying the concepts to actual hardware in practice. Teaches readers to perform insightful analysis of AC electrical machines and drives; Introduces new modeling methods and modern control techniques for switched reluctance drives; Updated to use PLECS® simulation tools for modeling electrical drives, including new and more experimental results; Numerous tutorials at end of each chapter to learn by doing, step-by-step; Includes extra material featuring “build and play” lab modules, for lectures and self-study.

The definitive programming guide to ASP.NET, by popular author and Microsoft MVP Imar Spaanjaars Updated for ASP.NET 4, this introductory book retains its helpful examples and step-by-step format from the previous version and keeps the style of offering code examples written in both C# and Visual Basic. Beloved author and Microsoft ASP.NET MVP walks you through ASP.NET, Microsoft's technology for building dynamically generated Web pages from database content. You'll discover many improvements that ASP.NET 4 offers over the previous version, such as the ASP.NET MVC framework, Ajax improvements, jQuery support, and more. You'll gradually build a Web site example that takes you through the processes of building basic ASP.NET Web pages, adding features with pre-built server controls, designing consistent pages, displaying data, and more. Popular author and Microsoft ASP.NET MVP Imar Spaanjaars updates you on the latest updates to ASP.NET 4, Microsoft's technology for building dynamic Web pages from database content Shows you how the 4 version differs from ASP.NET 3.5 and reviews its new features, including the ASP.NET MVC framework, various Ajax improvements, jQuery support, and more Spaanjaars's distinct writing style puts you at ease with learning ASP.NET 4.

Electrical Power Systems Quality

Advances and Trends

Introduction to Modern Power Electronics

Electric Machines and Drives

in C# and VB

This book covers the complete syllabi prescribed for undergraduate courses in electrical, electronics, mechanical and instrumentation engineering offered by various Indian universities. The objective of this text is to provide thorough knowledge in the emerging field of special electrical machines. It discusses the stepper motor, switched reluctance motor, permanent magnet dc and ac motors, brushless dc motors, single phase special electric motors, servomotors, linear electric machines and permanent magnet axial flux machines. Key Features □ Chapter on permanent magnet axial flux machines (not available in other Indian authors' books) □ Numerous worked-out examples □ Based on classroom tested materials □ Simplified mathematical analysis Besides undergraduate students, the book will also be useful to the postgraduate students specialising in drives and control, power electronics, control systems and mechatronics.

"Institute of Electrical and Electronics Engineers."

The purpose of this book is to familiarize the reader with all aspects of electrical drives. It contains a comprehensive user-friendly introductory text.

Emerging Trends in Electrical, Communications, and Information Technologies

Utilisation of Electrical Power

This book includes original, peer-reviewed research from the 3rd International Conference on Emerging Trends in Electrical, Communication and Information Technologies (ICECIT 2018), held at Srinivasa Ramanujan Institute of Technology, Ananthapuramu, Andhra Pradesh, India in December 2018. It covers the latest research trends and developments in the areas of Electrical Engineering, Electronic and Communication Engineering, and Computer Science and Information.

* Basic power quality strategies and methods to protect electronic systems * Nearly twice the size of the last edition--new chapters on distributed generation and benchmarking--over 200 pages of new material

Suitable for undergraduate and postgraduate courses in electrical drives, this book covers topics on: Dynamics and control of electrical drives; Selection of motor power rating; DC, induction and synchronous motor drives; Stepper motor and switched reluctance motor drives; Permanent magnet ac and brushless dc motor drives; and more.