

Soni Gupta And Bhatnagar Power System

The book covers all the aspects of Transmission and Distribution for undergraduate course. The various aspects of transmission and distribution systems, FACTS, sag calculations, parameters and performance of transmission lines, insulators, cables, substations and grounding systems are explained in the book with the help of comprehensive approach. The book starts with the discussion of basics of power system. It includes comparison of material required for overhead and underground systems. Various types of d.c. and a.c. distribution systems, EHVAC, HVDC and FACTS devices is also included in the book. The book explains the sag calculation under different conditions and sag template. In depth analysis of transmission line parameters is also included in the book. The book also covers the performance analysis of short, medium and long transmission lines along with circle diagram and methods of voltage control. The details of corona effect are explained in support. The book incorporates the discussion of types of insulators, string efficiency, methods of improving string efficiency, single and three core cables, grading of cables, heating and testing of cables. The chapter on substations includes the explanation of various types of substations, substation equipment's and key diagrams. The book also covers the various types of grounding systems, grounding grids and resistance of grounding systems. The book uses plain and lucid language to explain each topic. The book

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provides the logical method of explaining the various complicated topics and stepwise methods to make the understanding easy. Each chapter is well supported with necessary illustrations, self-explanatory diagrams and large number of solved problems. The book explains the philosophy of the subject which makes the understanding of the concepts very clear and makes the subject more interesting. This comprehensive text offers a detailed treatment of modelling of components and sub-systems for studying the transient and dynamic stability of large-scale power systems. Beginning with an overview of basic concepts of stability of simple systems, the book is devoted to in-depth coverage of modelling of synchronous machine and its excitation systems and speed governing controllers. Apart from covering the modelling aspects, methods of interfacing component models for the analysis of small-signal stability of power systems are presented in an easy-to-understand manner. The book also offers a study of simulation of transient stability of power systems as well as electromagnetic transients involving synchronous machines. Practical data pertaining to power systems, numerical examples and derivations are interspersed throughout the text to give students practice in applying key concepts. This text serves as a well-knit introduction to Power System Dynamics and is suitable for a one-semester course for the senior-level undergraduate students of electrical engineering and postgraduate students specializing in Power Systems. Contents: contents Preface 1. ONCE OVER LIGHTLY 2. POWER SYSTEM STABILITY—ELEMENTARY ANALYSIS 3.

SYNCHRONOUS MACHINE MODELLING FOR POWER SYSTEM DYNAMICS 4.
MODELLING OF OTHER COMPONENTS FOR DYNAMIC ANALYSIS 5. OVERVIEW
OF NUMERICAL METHODS 6. SMALL-SIGNAL STABILITY ANALYSIS OF POWER
SYSTEMS 7. TRANSIENT STABILITY ANALYSIS OF POWER SYSTEMS 8.
SUBSYNCHRONOUS AND TORSIONAL OSCILLATIONS 9. ENHANCEMENT AND
COUNTERMEASURES Index

It is gratifying to note that the book has very widespread acceptance by faculty and students throughout the country. In the revised edition some new topics have been added. Additional solved examples have also been added. The data of transmission system in India has been updated.

The knowledge of switchgear and apparatus protection plays an important role in the power system. The book is structured to cover the key aspects of the course Switchgear & Protection for undergraduate students. The book starts with the discussion of basics of protective relaying. The book includes comprehensive coverage of faults and analysis of symmetrical and unsymmetrical faults. The book explains the protection against overvoltage, lightning arresters and power system earthing. The book covers the characteristics of various types of relays such as electromagnetic relays, induction type relays, directional relays, differential relays, thermal relays, frequency relays and negative sequence relays. The detailed discussion of distance relays and static relays is also included in the book. The book also covers the various

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possible faults and methods of protection of transformers, generators, motors, busbars and transmission lines. The book further explains the theory of circuit interruption and various arc interruption methods. Finally, the book incorporates various types of circuit breakers, circuit breaker ratings and testing of circuit breakers. The book uses plain and lucid language to explain each topic. The book provides the logical method of explaining the various complicated topics and stepwise methods to make the understanding easy. Each chapter is well supported with necessary illustrations and self-explanatory diagrams. The book explains the philosophy of the subject which makes the understanding of the concepts very clear and makes the subject more interesting.

This book is a comprehensive work covering all the relevant aspects of electrical distribution engineering essential for a practising engineer. The contents, culled from scattered sources like technical books, codes, pamphlets, manufacturers' specifications, and handbooks of State Electricity Boards, Electrical Inspectorates, Bureau of Standards, etc.....

This book is intended to meet the requirements of the fresh engineers on the field to endow them with indispensable information, technical know-how to work in the power plant industries and its associated plants. The book provides a thorough understanding and the operating principles to solve the elementary and the difficult problems faced by the modern young engineers while working in the industries. This book is written on the

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basis of 'hands-on' experience, sound and in-depth knowledge gained by the authors during their experiences faced while working in this field. The problem generally occurs in the power plants during operation and maintenance. It has been explained in a lucid language.

This hallmark text on Power System Engineering provides the readers a comprehensive account of all key concepts in the field. The book includes latest technology developments and talks about some crucial areas of Power system, such as Transmission & Distribution, Analysis & Stability, and Protection & Switchgear. With its rich content, it caters to the requirements of students, instructors, and professionals. Power System Optimization is intended to introduce the methods of multi-objective optimization in integrated electric power system operation, covering economic, environmental, security and risk aspects as well. Evolutionary algorithms which mimic natural evolutionary principles to constitute random search and optimization procedures are appended in this new edition to solve generation scheduling problems. Written in a student-friendly style, the book provides simple and understandable basic computational concepts and algorithms used in generation scheduling so that the readers can develop their own programs in any high-level programming language. This clear, logical overview of generation scheduling in electric power systems permits both students and power engineers to understand and apply optimization on a dependable basis. The book is particularly easy-to-use with sound and consistent terminology and

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perspective throughout. This edition presents systematic coverage of local and global optimization techniques such as binary- and real-coded genetic algorithms, evolutionary algorithms, particle swarm optimization and differential evolutionary algorithms. The economic dispatch problem presented, considers higher-order nonlinearities and discontinuities in input–output characteristics in fossil fuel burning plants due to valve-point loading, ramp-rate limits and prohibited operating zones. Search optimization techniques presented are those which participate efficiently in decision making to solve the multiobjective optimization problems. Stochastic optimal generation scheduling is also updated in the new edition. Generalized Z-bus distribution factors (GZBDF) are presented to compute the active and reactive power flow on transmission lines. The interactive decision making methodology based on fuzzy set theory, in order to determine the optimal generation allocation to committed generating units, is also discussed. This book is intended to meet the needs of a diverse range of groups interested in the application of optimization techniques to power system operation. It requires only an elementary knowledge of numerical techniques and matrix operation to understand most of the topics. It is designed to serve as a textbook for postgraduate electrical engineering students, as well as a reference for faculty, researchers, and power engineers interested in the use of optimization as a tool for reliable and secure economic operation of power systems. Key Features The book discusses : Load flow techniques and economic dispatch—both classical and rigorous Economic dispatch

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considering valve-point loading, ramp-rate limits and prohibited operating zones Real coded genetic algorithms for economic dispatch Evolutionary programming for economic dispatch Particle swarm optimization for economic dispatch Differential evolutionary algorithm for economic dispatch Stochastic multiobjective thermal power dispatch with security Generalized Z-bus distribution factors to compute line flow Stochastic multiobjective hydrothermal generation scheduling Multiobjective thermal power dispatch using artificial neural networks Fuzzy multiobjective generation scheduling Multiobjective generation scheduling by searching weight pattern Electrical Power Generation - Conventional and Renewable is comprehensive textbook meant for B.Tech (Electrical Engineering), B.Tech (Electrical and Electronics), M Tech(Electrical Engineering) and M Tech(Mechanical Engineering) students. This book is also useful for students preparing for GATE, AMIE, UPSC(Engineering Services) and IIE Exams. The book covers complete syllabus prescribed by various universities, Institutes and NIT's etc. It contains large number of solved numerical problems, flowcharts, diagrams for easy comprehension. Various pedagogical features such as learning objectives, chapter summary, list of formulae, multiple choice questions, numerical questions and short answer type questions are provided for practice and understanding. It covers syllabus for subjects viz. power station practice, renewable energy resources, energy technology and electrical power generation.

A Course in Electrical Power System Engineering Tata McGraw-Hill Education

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Contributed papers presented at the conference held at Central Mechanical Engineering Research Institute, Durgapur.

This book constitutes the refereed proceedings of the International Conference on Advances in Information Technology and Mobile Communication, AIM 2011, held at Nagpur, India, in April 2011. The 31 revised full papers presented together with 27 short papers and 34 poster papers were carefully reviewed and selected from 313 submissions. The papers cover all current issues in theory, practices, and applications of Information Technology, Computer and Mobile Communication Technology and related topics.

This book focuses on various aspects related to air pollution, including major sources of air pollution, measurement techniques, modeling studies and solution approaches to control. The book also presents case studies on measuring air pollution in major urban areas, such as Delhi, India. The book examines vehicles as a source of air pollution and addresses the quantitative analysis of engine exhaust emissions. Subsequent chapters discuss particulate matter from engines and coal-fired power plants as a major pollutant, as well as emission control techniques using various after treatment systems. The book's final chapter considers future perspectives and a way forward for sustainable development. It also discusses several emission control techniques that will gain relevance in the future, when stricter emission norms will be enforced for international combustion (IC) engines as well as power plants. Given its breadth of

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coverage, the book will benefit a wide variety of readers, including researchers, professionals, and policymakers.

This accessible text, now in its Second Edition, continues to provide a comprehensive coverage of electric power generation, transmission and distribution, including the operation and management of different systems in these areas. It gives an overview of the basic principles of electrical engineering and load characteristics and provides exhaustive system-level description of several power plants, such as thermal, electric, nuclear and gas power plants. The book fully explores the basic theory and also covers emerging concepts and technologies. The conventional topics of transmission subsystem including HVDC transmission are also discussed, along with an introduction to new technologies in power transmission and control such as Flexible AC Transmission Systems (FACTS). Numerous solved examples, inter-spersed throughout, illustrate the concepts discussed. What is New to This Edition : Provides two new chapters on Diesel Engine Power Plants and Power System Restructuring to make the students aware of the changes taking place in the power system industry. Includes more solved and unsolved problems in each chapter to enhance the problem solving skills of the students. Primarily designed as a text for the undergraduate students of electrical engineering, the book should also be of great value to power system engineers.

This Book Is Written For Use As A Textbook For The Engineering Students Of All

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Disciplines At The First Year Level Of The B.Tech. Programme. The Text Material Will Also Be Useful For Electrical Engineering Students At Their Second Year And Third Year Levels. It Contains Four Parts, Namely, Electrical Circuit Theory, Electromagnetism And Electrical Machines, Electrical Measuring Instruments, And Lastly The Introduction To Power Systems. This Book Also Contains A Good Number Of Solved And Unsolved Numerical Problems. At The End Of Each Chapter References Are Included For Those Interested In Pursuing A Detailed Study. The new edition of POWER SYSTEM ANALYSIS AND DESIGN provides students with an introduction to the basic concepts of power systems along with tools to aid them in applying these skills to real world situations. Physical concepts are highlighted while also giving necessary attention to mathematical techniques. Both theory and modeling are developed from simple beginnings so that they can be readily extended to new and complex situations. The authors incorporate new tools and material to aid students with design issues and reflect recent trends in the field. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version. This hallmark text on "Power System Engineering" has been revised extensively to bring in several new topics and update the contents with the latest technological developments. The book now covers the complete undergraduate

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syllabus of Power System Engineering course. All topics are supported with examples employing two/three/four bus structures. Key features Enlarged and revised chapter 1 on introduction to Power System Analysis New chapters on Voltage Stability Underground Cables Insulators for Overhead Lines Mechanical Design of Transmission Lines Neutral Grounding Corona High Voltage DC (HVDC) Transmisson New Topics on Maintenance scheduling (Chapter 7) AGC of restructured power (Chapter 8) Power Transformer (Chapter 4) Midline Boosters (Chapter 5) New Appendices on Appendix on MATLab and SIMULINK ? programs for power system analysis Appendix on Power Quality Pedagogy : Solved Examples: 110 Practice Problems: 170 Objective Type Questions: 221 This hallmark text on Power System Engineering has been revised extensively to bring in several new topics and update the contents with the latest technological developments. The book now covers the complete undergraduate syllabus of Power System Engineering course. All topics are supported with examples employing two/three/four bus structures.

Generation of Electrical Energy is written primarily for the undergraduate students of electrical engineering while also covering the syllabus of AMIE and act as a refresher for the professionals in the field. The subject itself is now rejuvenated with important new developments. With this in view, the book covers

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conventional topics like load curves, steam generation, hydro-generation parallel operation as well as new topics like new sources of energy generation, hydrothermal coordination, static reserve reliability evaluation among others.

Study, with reference to Himachal Pradesh, Punjab, and Haryana.

The subject of power systems has assumed considerable importance in recent years and growing demand for a compact work has resulted in this book. A new chapter has been added on Neutral Grounding.

Suitable for undergraduate and graduate students, this book discusses constants of overhead transmission lines and their performance, and gives a treatment of design of electrical and mechanical transmission lines. This book includes chapters on power system operation and analysis, which are used to illustrate the problems in designing.

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