

Power Plant Engineering R K Rajput Text

This book opens with a brief introduction to renewable energy and the advantages of solar energy systems, an overview of concentrated solar power (CSP) system technologies and modeling, and the application of artificial neural network (ANN) technologies in various solar field systems. Later chapters cover data and operation methods of central tower receiver power plants (CTRPP), important models of ANN techniques used in solar energy fields, accurate methods for modeling CTRPP, the economics of solar energy systems, the CSP impacts on the penetration level of photovoltaic (PV) systems, and a look at the reliability of systems using case studies on PV systems and hybrid PV and CSP systems. Provides an introduction to renewable energy and the advantages of solar energy systems Outlines methods for modeling central tower receiver power plants Includes case studies on photovoltaic (PV) and hybrid PV and concentrated solar power systems

Taking a big-picture approach, Piping and Pipeline Engineering: Design, Construction, Maintenance, Integrity, and Repair elucidates the fundamental steps to any successful piping and pipeline engineering project, whether it is routine maintenance or a new multi-million dollar project. The author explores the qualitative details, calculations, and t

This textbook presents a modern approach for undergraduate (and graduate) Engineering students. Starting with Generators, it continues with Thermodynamics, Power Stations, Transportation, etc. While the material has been made easy-to-understand, there is emphasis on depth-of-knowledge and engineering principles. The chapter breakdown is as follows: 1. Forms and Sources of Energy 2. AC Generator 3. AC Generators in Parallel 4. DC Generator 5. Hydroelectric Power 6. Thermodynamic Processes 7. Carnot Cycle and Second Law of Thermodynamics 8. Reciprocating Engines 9. Gas Turbines 10. Steam Turbines 11. Solar Energy 12. Wind Turbines 13. Battery Technology 14. Electric and Hydroelectric Vehicles 15. Hydrocarbon Exploration 16. Saving Energy 17. Saving the Environment

Now in its third edition, this single resource covers all aspects of the utilization of geothermal energy for power generation using fundamental scientific and engineering principles. Its practical emphasis is enhanced by the use of case studies from real plants that increase the reader's understanding of geothermal energy conversion and provide a unique compilation of hard-to-obtain data and experience. Important new chapters cover Hot Dry Rock, Enhanced Geothermal Systems, and Deep Hydrothermal Systems. New, international case studies provide practical, hands-on knowledge. Provides coverage of all aspects of the utilization of geothermal energy for power generation from fundamental scientific and engineering principles International case studies from real plants provide a unique compilation of hard-to-obtain data and experience Includes pivotal updates on advances in Hot Dry Rock, Enhanced Geothermal Systems, and Deep Hydrothermal Systems

The fourth edition of the book is richer in contents presenting updated information on the fundamental aspects of various processes related to thermal power plants. The major thrust in the book is given on the hands-on procedure to deal with the normal and emergency situations during plant operation. Beginning from the fundamentals, the book, explores the vast concepts of boilers, steam turbines

and other auxiliary systems. Following a simple text format and easy-to-grasp language, the book explicates various real-life situation-related topics involving operation, commissioning, maintenance, electrical and instrumentation of a power plant. **NEW TO THE FOURTH EDITION** • The text now incorporates a new chapter on Environmental and Safety Aspects of Thermal Power Plants. • New sections on Softener, Water Treatment of Supercritical Boiler, Wet Mode and Dry Mode Operation of Supercritical Boiler, Electromatic Pressure Relief Valve, Pressure Reducing and Desuperheating (PRDS) System, Orsat Apparatus, and Safety Interlocks and Auto Control Logics in Boiler have been added in related chapters. • Several sections have been updated to provide the reader with the latest information. • A new appendix on Important Information on Power Generation has been incorporated into the text. Dealing with all the latest coverage, the book is written to address the requirements of the undergraduate students of power plant engineering. Besides this, the text would also cater to the needs of those candidates who are preparing for Boiler Operation Engineers (BOE) Examination and the undergraduate/postgraduate students who are pursuing courses in various power training institutes. The book will also be of immense use to the students of postgraduate diploma course in thermal power plant engineering. **KEY FEATURES** • Covers almost all the functional areas of thermal power plants in its systematically arranged topics. • Incorporates more than 500 self-test questions in chapter-end exercises to test the student's grasp of the fundamental concepts and BOE Examination preparation. • Involves numerous well-labelled diagrams throughout the book leading to easy learning. • Provides several solved numerical problems that generally arise during the functioning of thermal power plants.

A wide range of issues related to analysis of gas turbines and their engineering applications are considered in the book. Analytical and experimental methods are employed to identify failures and quantify operating conditions and efficiency of gas turbines. Gas turbine engine defect diagnostic and condition monitoring systems, operating conditions of open gas turbines, reduction of jet mixing noise, recovery of exhaust heat from gas turbines, appropriate materials and coatings, ultra micro gas turbines and applications of gas turbines are discussed. The open exchange of scientific results and ideas will hopefully lead to improved reliability of gas turbines.

This book is in communicable language which exposes the subject in a lucid manner. Theory is explained in a very simple language. Lots of illustrative examples are incorporated to enable the students to thoroughly master the subject. I am sure, they should be better equipped to face RTU examination with confidence.

* Useful to engineers in any industry * Extensive references provided throughout
* Comprehensive range of topics covered * Written with practical situations in mind
A plant engineer is responsible for a wide range of industrial activities, and may work in any industry. The breadth of knowledge required by such

research in this engineering area. The proceedings cover all the key topics in reliability, maintainability and safety engineering, providing an in-depth presentation of theory and practice. The proceedings have been selected for coverage in: . OCo Index to Scientific & Technical Proceedings- (ISTP- / ISI Proceedings). OCo Index to Scientific & Technical Proceedings (ISTP CDRom version / ISI Proceedings). OCo CC Proceedings OCo Engineering & Physical Sciences."

This book has been specially tailored for the student of WBSCTE. It covers a wide spectrum of power generation techniques. Generating power is a complex affair. Thus, special care has been taken to present the subject matter in this book so that the students are able to comprehend this complex subject easily.

KEY FEATURES

- Exhaustive coverage in accordance with the updated syllabus of WBSCTE
- Equal emphasis on theoretical concepts and practical applications
- Discusses latest topics in the areas of conventional and non-conventional power plants
- Discusses economics of power generation like determination of cost of power generation, plant capacity factor and plant use factor
- Every chapter has a Summary, Review questions, Solved examples and MCQs

This Book Can Be Used As A Text Book For The Under Graduate As Well As Post Graduate Curriculum Of Different Universities And Engineering Institutions. Working Personnel, Engaged In Designing, Installing And Analyzing Of Different Renewable Energy Systems, Can Make Good Use Of This Book In Course Of Their Scheduled Activities. It Provides A Clear And Detailed Exposition Of Basic Principles Of Operation, Their Material Science Aspects And The Design Steps. Particular Care Has Been Taken In Elaborating The Concepts Of Hybrid Energy Systems, Integrated Energy Systems And The Critical Role Of Renewable Energy In Preserving Today'S Environment. References At The End Of Each Chapter Have Been Taken From Publications In Different Reputed Journals, Recent Proceedings Of National And International Conferences And Recent Web Sites Along With Ireda And Teri Reports.

This book highlights the design of a new type of solar chimney that has lower height and bigger diameter, and discusses its applications. The bigger diameter chimneys are introduced showing cold inflow phenomena that significantly reduced the performance of solar chimney. The cold inflow-free operation of solar chimneys restores the draft losses and enhances the performance of the solar chimneys. Numerical and experimental investigation results will be presented to highlight the performance of cold inflow-free solar chimney performance. In addition, this book covers the important basic design parameters that affect the design of solar chimney for different applications, mainly, solar chimney-assisted ventilation for passive cooling and power generation system.

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 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.

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