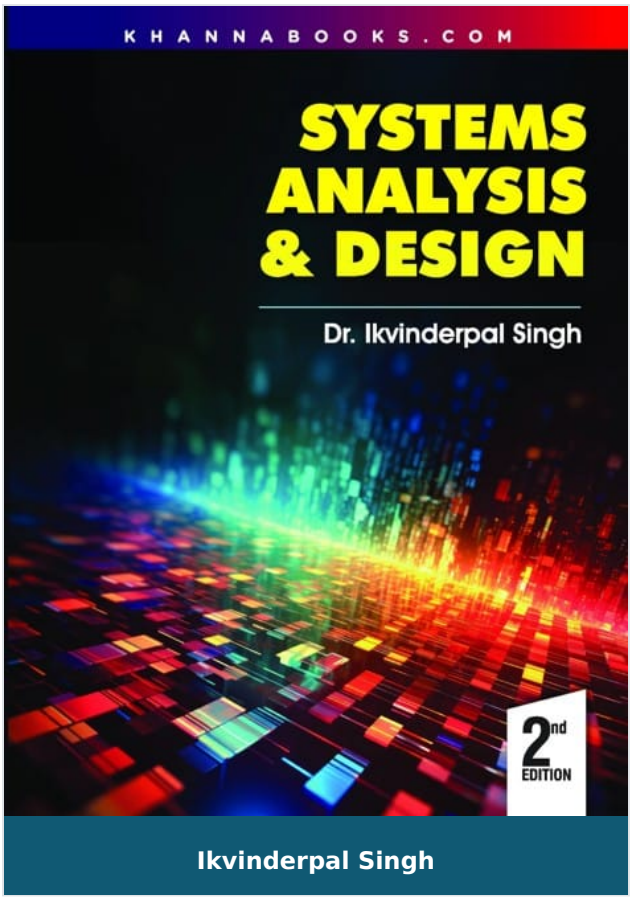


Ikvinderpal Singh

Systems Analysis and Design

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Systems analysis and design (SAD) in an exciting, active field in which analysts continually learn new techniques and approaches to develop systems more effectively and efficiently. However, there is a core set of skills that all analysts need to know no matter what approach or methodology is used. All information system projects move through the five phases of planning, analysis, design, implementation and maintenance; all projects require analysts to gather requirements, model the business needs, and create blueprints for how the system should be built; and all projects require an understanding of organizational behavior concepts like change management and team building. This book captures the dynamic aspects of the field by keeping students focused on doing SAD while presenting the core set of skills that we feel every systems analyst needs to know today and in the future. It also builds on our professional experience as systems analysts and on our experience in teaching SAD in the classroom.

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- Object-Oriented Design
- User-Interface Design
- Coding & Documentation
- System Testing
- System Testing Strategies
- System Quality
- System Maintenance & Supports Users

Author

Ikvinderpal Singh

Dr. Ikvinderpal Singh is an Assistant Professor at Trai Shatabdi Guru Gobind Singh Khalsa college Amritsar, bringing 17+ years of academic leadership and research experience to the field of computer science. A Gold Medalist in B.Sc. IT, with an MCA (Distinction) and a Ph.D. in Neural Networks and Image Processing, he is known for blending rigorous

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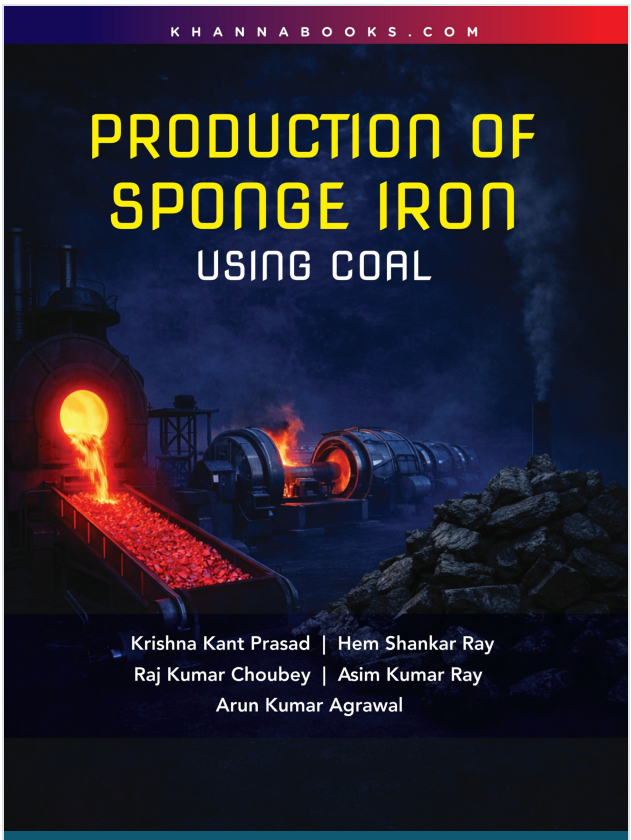
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Krishna Kant Prasad, Hem Shankar Ray, Raj Kumar Choubey, Asim Kumar Ray, Arun Kumar Agarwal

Production of Sponge Iron Using COAL

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Product Description

Production of Sponge Iron Using COAL

Production of Sponge Iron using Coal: Rotary Kiln, Tunnel Kiln and using Gas from Coal is a definitive technical guide that explores India's global leadership in the coal-based direct reduction of iron ore. While international markets often rely on gas-based shaft processes, this book highlights how India has pioneered and perfected the use of rotary kilns to utilize abundant, high-ash non-coking coal-resources often dismissed by foreign experts as "muck". The text provides an exhaustive analysis of the thermodynamic, kinetic, and aerodynamic principles that govern the solid-state reduction of iron oxides.

The book serves as a vital bridge between theoretical research and industrial application, documenting decades of expertise from leading metallurgists. It broadens the traditional focus on rotary kilns to include emerging commercial successes in tunnel kiln technology and coal gasification-based shaft furnaces. Beyond technical specifications, the authors connect modern engineering with India's ancient metallurgical heritage, such as the storied Iron Pillar of Delhi. This work is an essential resource for metallurgical students, researchers, industry professionals, and entrepreneurs seeking to understand the economic and technical nuances of sustainable ironmaking in coal-rich regions.

Salient Features

- Rotary Kiln Dominance: Detailed analysis of the rotary kiln's primary role in India, covering its versatility in processing lump hematite and its unique operational strengths and weaknesses.
- Scientific Process Modeling: Comprehensive chapters on mathematical modeling, CFD analysis, and reaction kinetics that allow for precise control over heat transfer and solid movement.

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- Alternative Reduction Technologies: In-depth exploration of tunnel kilns as a viable solution for reducing magnetite and iron ore fines, filling a critical gap in traditional kiln operations.
- Coal Gasification Insights: Evaluation of the economic and technical feasibility of converting coal into reducing gas (CO and H) to supplement production in shaft furnaces.
- Resource Optimization: Strategies for utilizing high-ash Indian coal and recirculating char to enhance energy efficiency and reduce the environmental footprint of ironmaking.
- Practical Engineering Focus: Guidance on plant design, refractory management, and overcoming common industrial hurdles like accretion or "ring formation" inside kilns.
- Historical Contextualization: A unique addendum on India's ancient ironmaking legacy, offering a perspective on the longevity and evolution of sponge iron technology.
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- Addendum

Author

Krishna Kant Prasad

Dr. Krishna Kant Prasad (born on 24th January 1945 in Bhagalpur, Bihar), after completing B.Sc. Hons. (Chem.) from Bhagalpur University, he did his B.E., M.E. and Ph.D. in Metallurgical Engineering from the Indian Institute of Science, Bangalore. After brief teaching stints at the Banaras Hindu University and MR Engineering College, Jaipur he joined R&D Division of Tata Steel, Jamshedpur in 1972. He moved to RDCIS, SAIL, Ranchi in 1981 as in-charge of R&D activities in the Sponge Iron Pilot Plant Complex and since then he was actively involved in steering R&D activities both in Sponge Iron Making and Alternate Iron Making areas. He retired from SAIL, in January 2006. Thereafter, he served as a visiting professor in the Department of Metallurgical Engineering in IT (now IIT), BHU, Varanasi, for two and then joined NITK (National Institute of Technology Karnataka) in Surathkal, initially as the Ministry of Steel Chair Professor, and then in various capacities - all equivalent to a visiting professor - for seven and a half years. Dr. Prasad has guided four Ph.D. students. He has to his credit over 130 research papers, five registered copyrights and holds two patents on sponge iron making. He has authored four books entitled Sponge Iron Making in Rotary Kiln, Chemical and Metallurgical Thermodynamics, Advances in Rotary Kiln Sponge Iron Plant and Integrated Iron- and Steelmaking. He has also edited two books - "Trends in Beneficiation and Agglomeration of Iron Ore' and 'Steel Plant Technologies: An Overview. He is life member of the Indian Institute of Metals, Electrochemical Society of India and the Computer Society of India. E-mail: kkpmprnc@gmail.com. Professor

Hem Shankar Ray

Hem Shankar Ray (born on 19th June 1940, Jabalpur, Madhya Pradesh) unfortunately left for his heavenly abode on 28th April 2023 just as the preparation of the manuscript

started. Prof. H. S. Ray is widely regarded as one of the greatest minds of the Indian scientific community and a very well-known name in the field of Extractive Metallurgy. He obtained his B.Tech. (Hons.) in Metallurgical Engineering from the Indian Institute of Technology, Kharagpur (1962) and M.A.Sc. and Ph.D. degrees from the University of Toronto, Canada (1963, 67). He was with I.I.T. Kanpur from 1967-80 as Lecturer and Asst. Professor. In between he served as Manager/Senior Technologist - Research and Development, Pilkington Research Centre, Lathom, England (1977-1979). He then served as Professor of Metallurgical Engineering (1980-1990) and Dean of Students Affairs (1988-90) at the Indian Institute of Technology, Kharagpur. Prof. Ray served the Regional Research Laboratory, Bhubaneswar (now IMMTD) as Director from 1990-2000 (two terms). On retirement he served as an Emeritus Scientist at the Central Glass and Ceramic Research Institute, Calcutta. He holds several patents including 2 U.S. patents to his credit. His areas of interest included thermal analysis, kinetics, extractive metallurgy, energy and R&D administration. He guided about 40 Ph.D. students and 20 M.Tech. students for their thesis work. He has published about 500 papers in reviewed journals and conference proceedings and over 26 books. He also edited 15 Conference proceedings and written about 50 technical reports. He also wrote numerous other non-technical articles, editorials, etc. Prof. Ray received several awards in recognition of his work and these include the National Metallurgists Day Award, G.D. Birla Award and two Kamani Gold Medals of the Indian Institute of Metals. He received the Distinguished Alumni award from IIT Kharagpur, which, interestingly, he shared that year with the Google CEO, Sundar Pichai. He served several companies and R&D laboratories as consultant or member of Boards/Research Councils. He was associated with several Professional Bodies and served as President, Indian Institute of Mineral Engineers and Indian Thermal Analysis Society; also, as a Vice President of the Millennium Institute of Energy and Environment Management and was an Editor of a popular science magazine Everyman's Science. He also served in several other institutions in various capacities. He was deeply involved with professional bodies such as IIM (Indian Institute of Metals),

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Raj Kumar Choubey

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Metcon Power Consultant & Engineers, Kolkata, having global clients base including Tata Steel and Jindal Steel. Director - Bhagwati Power & Steel Limited, Raipur, CG. Director - RNT Medicare Private Limited, Kolkata. Partner - Premier Hygienic Services, Kolkata. He involved himself in innovation and setting up commercial plants based on self developed technology for: Manufacturing DRI (Sponge Iron) from Mill Scale, DRI through Tunnel Kiln Technology, Development of Metallic Saggers for reduction of Iron Ore, Process for reduction of Chromite Ore at lower temperature, Extraction of liquid fuel from waste plastic, Recycling of Steel Plant wastes Development of Binders for agglomeration Address: Metcon House, North Bazar, Post: Andal - 713321, District: Paschim Bardhman, West Bengal. Email: choubey@metconpower.in, Website: www.metconpower.in. Dr.

Asim Kumar Ray

Dr. Asim Kumar Ray was born at Calcutta in 1952. He graduated with Honours in Chemical Engineering from Jadavpur University in 1974. He did his Masters in Chemical Engineering from IIT Kanpur and Ph. D. in Metallurgical Engineering from IIT Kharagpur. After a brief stay of about one and a half year each at Indian Iron and Steel Company, Burnpur and Indian Oil Corporation, he joined Research & Development Centre for Iron & Steel (RDCIS), SAIL, Ranchi in 1978. After a long stay at RDCIS, SAIL, Ranchi, he assumed charge of General Manager (Quality) at Durgapur Steel Plant (DSP), SAIL in 2008. Dr Ray was instrumental in commissioning Sponge Iron Pilot Plant and associated Process Research Laboratory and carried out R & D activities related to Sponge Iron & other Alternate Iron Making processes, Steelmaking and Continuous Casting. He established Computational Laboratory at RDCIS and carried out mathematical and physical simulation of different metallurgical processes. He steered several projects on process improvement and product development in all SAIL plants. Under his leadership, DSP had received several awards on Quality including prestigious Golden Peacock Award on Quality -2010 of Institution of Directors (IOD). Dr. Ray retired from SAIL in December 2012. Presently, Dr. Ray is with M/s Lechler (India) Pvt. Ltd. Dr. Ray has co-authored the Book on "Rotary

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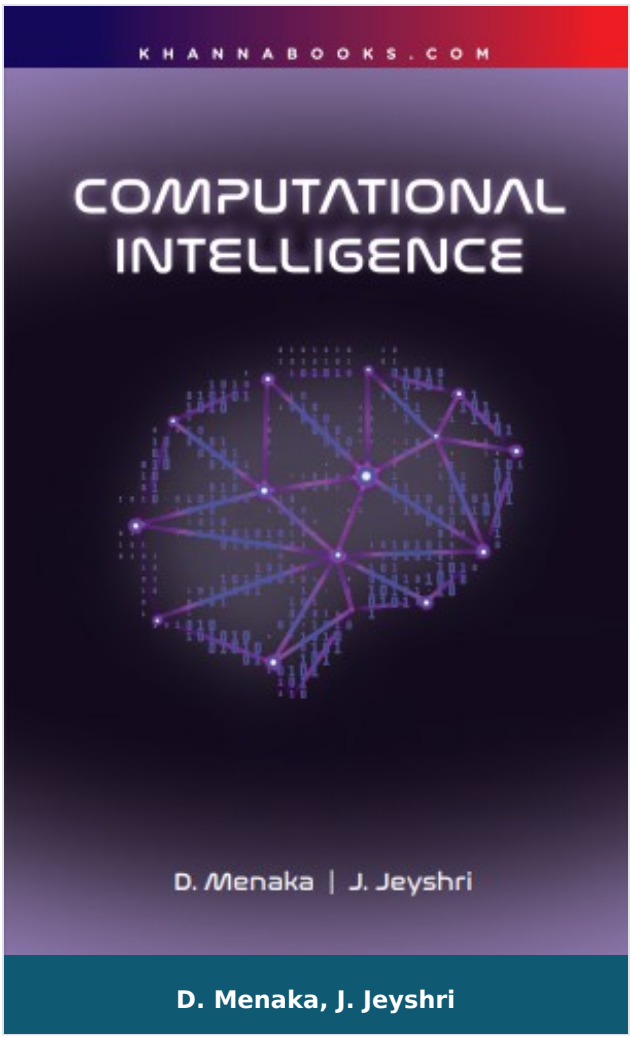
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D. Menaka, J. Jeyshri

Computational Intelligence

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Product Description

Computational Intelligence

Computational Intelligence serves as a comprehensive and insightful guide into a field that stands at the forefront of the rapidly evolving digital era, powering advancements from data analytics to autonomous systems. This book is dedicated to providing a structured yet accessible overview of Computational Intelligence (CI), a powerful paradigm that solves complex real-world problems by leveraging techniques inspired by natural intelligence. The core theme is the integration of diverse concepts, including artificial intelligence, machine learning, neural networks, evolutionary computing, and fuzzy logic.

The text offers a careful balance between theoretical depth and practical relevance, ensuring that complex methodologies are made clear and engaging for a wide audience, which includes students, educators, researchers, and professionals. Chapters cover fundamental principles, key algorithms, and recent advancements, empowering readers to not only understand but also implement intelligent computational models. To foster practical knowledge, the book integrates real-world case studies and examples that demonstrate the application of CI techniques across crucial domains such as healthcare, finance, robotics, and optimization. By focusing on algorithmic design and real-time applications, this academically rigorous work inspires innovation and provides the tools necessary to contribute effectively to the future of intelligent computing.

Salient Features:

- **Foundational AI Concepts**: Covers the principles of Artificial Intelligence, including its foundations, different types of AI, and the architecture and operation of various intelligent agents.

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- **Neural Networks & Deep Learning**: Details the structure of Artificial Neural Networks (ANNs), Single/Multi-Layer Perceptrons, and modern Deep Learning algorithms, covering both supervised and unsupervised learning.
- **Fuzzy Logic & Hybrid Systems**: Explores Fuzzy Logic, Fuzzy Set Theory, and Fuzzy Reasoning, culminating in advanced hybrid models like Neuro-Fuzzy and Cooperative Fuzzy Neural Networks (CFNN).
- **Evolutionary Algorithms**: Provides an introduction to Genetic Algorithms, detailing concepts like search space, reproduction, and selection methods essential for optimization problems.
- **Swarm Intelligence Techniques**: Dedicated coverage of optimization algorithms inspired by collective behavior, including Particle Swarm Optimization (PSO) and Ant Colony Optimization (ACO) variants.
- **Practical Search Strategies**: Explains key Problem-Solving Agents and algorithms, differentiating between Uninformed and Informed search strategies used for efficient goal-directed problem-solving.
- **Real-World Case Studies**: Integrates practical applications and case studies across vital sectors like healthcare, finance, robotics, and logistics, demonstrating the implementation of CI techniques.
- **Ethical & Future Trends**: Discusses the ethical considerations and challenges of AI, alongside future trends like Explainable AI (XAI) and Quantum AI, preparing readers for responsible deployment.

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- Fuzzy Systems
- Genetic Algorithms
- Swarm Intelligence

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Engineering Workshop Practice

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Product Description

“ Engineering Workshop Practice Manual” is a common paper for the first year Diploma course in Engineering & Technology. Syllabus of this book is strictly aligned as per model curriculum of AICTE and academic content is amalgamated with the concept of outcome based education.

Engineering Workshop Practice manual covers five units- First unit deals with the carpentry, second unit is about fitting , third unit focuses on welding, fourth units discusses about sheet metal working and the fifth unit deals with electrical house wiring . The manual comprises of total seventeen workshop practical from P1 to P17 and the same are arranged in hierarchical manner from simple to complex so that students should not only focus on completing the practical and getting the marks/ grades but will also be motivated to create useful products incorporating their creative and critical thinking as well.

Some salient features of the book:

1. Content of the manual aligned with the mapping of Course Outcomes, Programs Outcomes and practical outcomes.

2. Relevant theory has been included at the beginning of each practical.

3. The manual has been developed to ensure alignment with the Outcome Based Education philosophy and consisting of total seventeen workshop practical.

4. Unit wise practical are arranged in hierarchical manner from simple to complex.

5. Manual provides recent information and QR Code for E-resources etc.

6. Figures, photographs and table are inserted to improve clarity of the content.

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- Sheet Metal Working.
- Electrical House wiring.
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Author

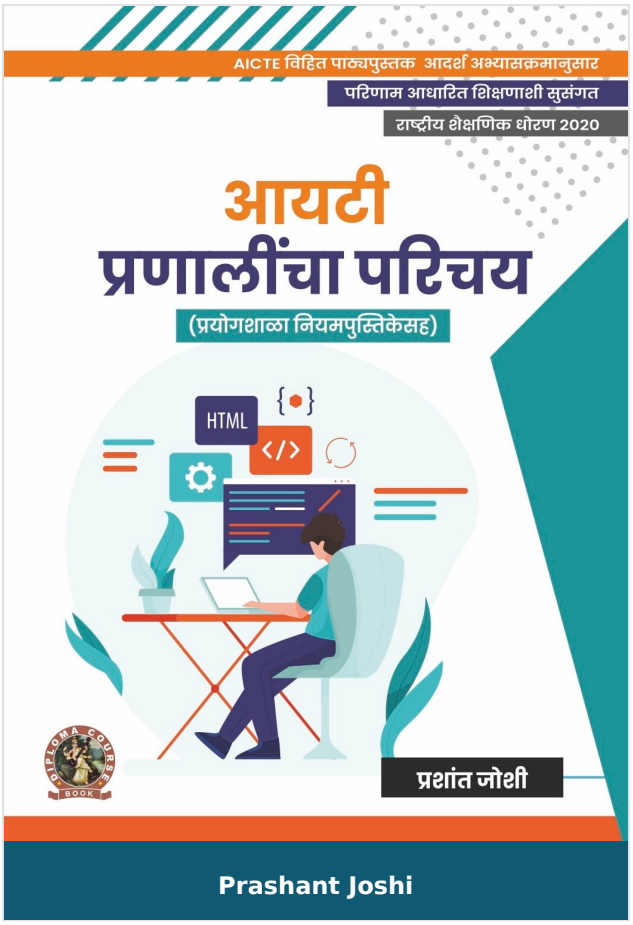
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Introduction to IT Systems (with Lab Manual)

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Product Description

“INTRODUCTION TO SYSTEMS” is a compulsory paper for the first year Diploma in Engineering & Technology. Syllabus of this book is strictly aligned as per model curriculum of AICTE, and academic content is amalgamated with the concept of outcome based education.

Book covers five units- Internet Skills and Computer Basics, Operating Systems, HTML and CSS, open Office Tools. And information Security Best Practices. Each topic in units is written in each and lucid manner. Every unit contains a set of exercise at the end of each unit to test student’s comprehension.

Some salient features of the book:

1. Content of the book aligned with the mapping of Course Outcomes, Programs Outcomes and unit Outcomes.

2. Practical are included with each unit for better understanding of the theoretical concepts.

3. Book Provides interesting facts and various activities pertaining to topic. QR Codes are used for additional E-resources, use of ICT, online code editors, online quiz etc.

4. Student and teacher centric subject materials included in balanced and chronological manner.

5. Figures, tables, source code for web programming, numerous examples and applications are included to improve clarity of the topics.

6. Objective questions, subjective questions and crossword exercise are given for practice of students after every chapter.

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Author

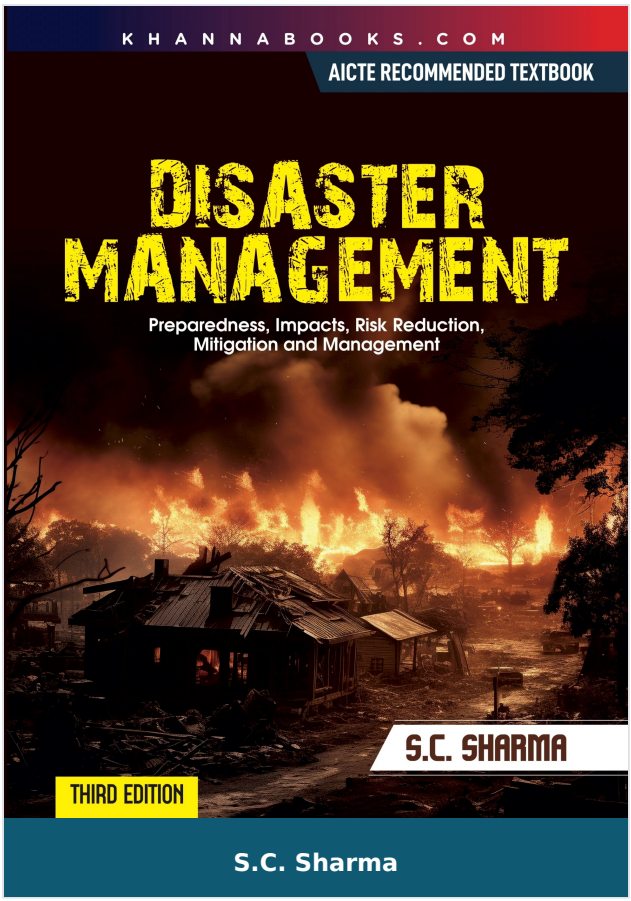
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S.C. Sharma

Disaster Management

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Product Description

This book on "Disaster Management" deals with different types of disasters, their basic concepts, impacts, preparedness, capacity building, prevention, mitigation, response relief, hazards, vulnerability, and disaster prone areas in India.

This books deals natural disaster like, earthquakes, floods, cyclones, avalanches, droughts, forest fires, volcanic eruptions, landslides, extreme temperature etc. and also man-made disaster like, industrial accidents, fires, refugee situation, chemical and industrial hazard, nuclear radiation, major power breakdown, desertification etc.

The book cover the syllabi of different Universities and model syllabus of AICTE.

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Author

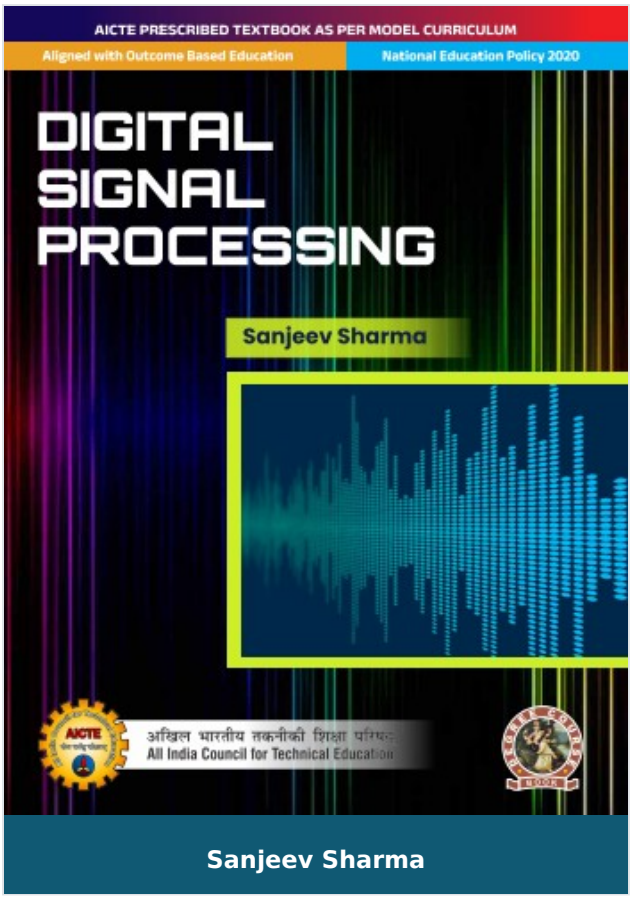
S.C. Sharma

S.C. Sharma after graduation in 1966 joined as lecturer in Mechanical Engineering. He had been associated for more than 4 decades in various fields including learning and management of projects in India and abroad in different capacities. While working Hydro power projects for more than 15 years he has actively associated with various environmental and rehabilitation & resettlement issues and successfully resolved various complicated issues. He has also worked as consultant for matters related to safety, environment and R & R. He has written about a dozen books on subjects related to engineering and management including management of projects.

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Digital Signal Processing

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Product Description

Digital Signal Processing

This book familiarizes students with different domains of electronics communication. The main purpose of this book is to help students and researchers understand the basics of signal processing concepts. The content is aligned with the model curriculum of AICTE and follows the concepts of outcome-based education as per the National Education Policy (NEP)2020.

Salient Features:

- The content of the book is aligned with the mapping of Course Outcomes, Program Outcomes, And Unit Outcomes.
- At the beginning of each unit, learning outcomes are listed to help students understand what is expected of them after completing the unit.
- The book provides lots of recent information, QR codes for resources, projects, and more.
- Figures, tables, and software screenshots are included to enhance the clarity of the topics.
- Many solved examples are included in each chapter to improve the numerical solving
- Skills not students.
- Exercises are provided for student practice after every chapter.
- Applications of digital signal processing are included.

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- DFT: Discrete Fourier Transform
- FFT: Fast Fourier Transform
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- Multidate Digital Signal Processing
- Application of Digital Signal Processing
- Bibliography and Suggested Reading
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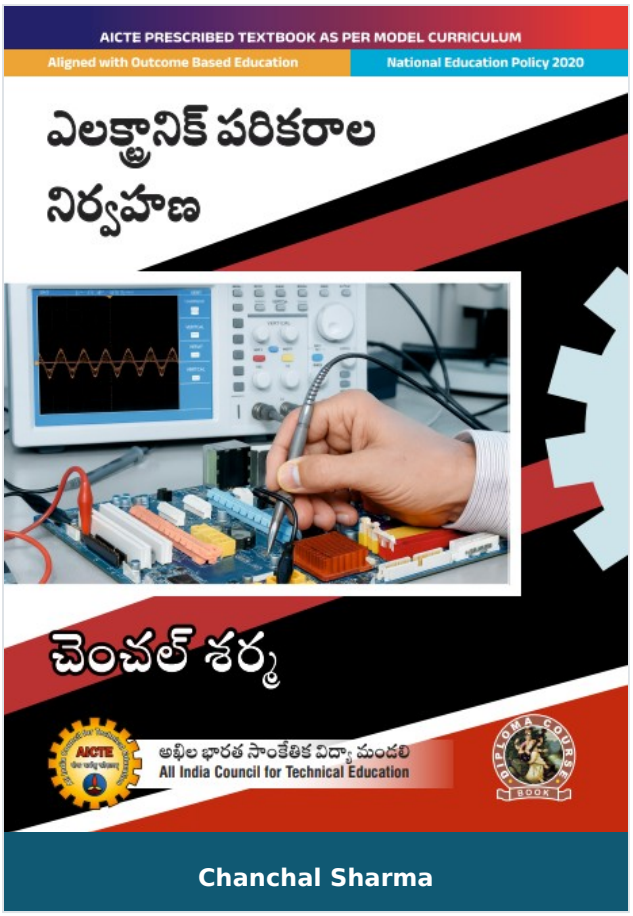
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Electronic Equipment Maintenance

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Author

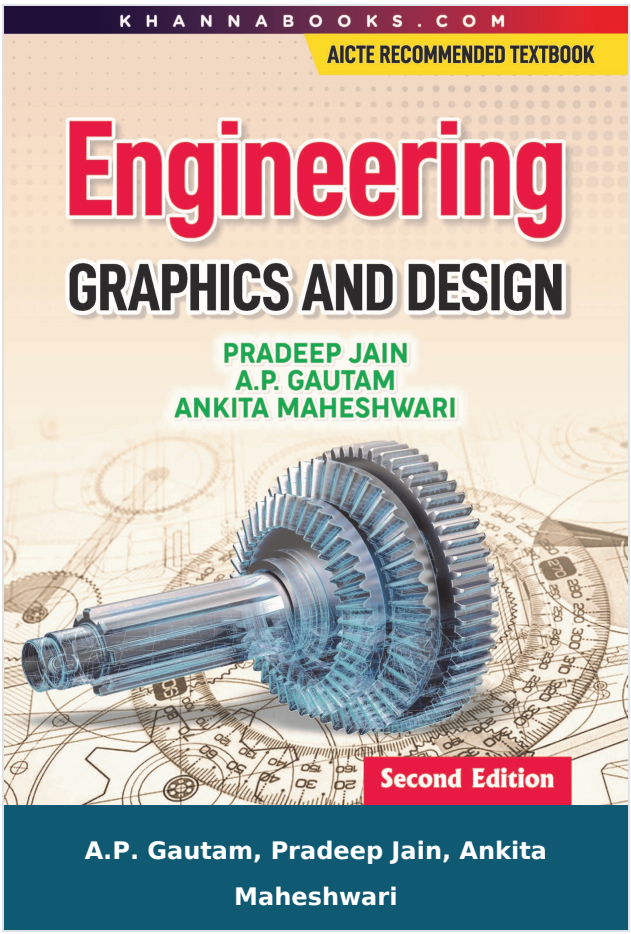
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Engineering Graphics and Design

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Product Description

This book covers complete syllabus of Engineering Graphics and Design along with AUTOCAD catering requirements of B.Tech. in Engineering

The book is in easy to understand, simple English.

It provides step-by-step solutions to problems along with suitable example and proper drawings. Using AutoCAD and Solid Work. All chapter make learning easy with unique features such as Summary, Solved examples and Practice Problems.

Chapters have been organized to present data in concise format with suitable tables, diagrams, drawings and illustration.

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- Chapter-11: Soild Modelling
- Exercise
- Summary

Author

A.P. Gautam

A.P. Gautam AP Gautam has more than five year of experience in teaching and industry. He is also providing solutions in engineering design. Presently he is working in HI Tech Institute of Engineering Technology.

Pradeep Jain

Pradeep Jain has 15 years of experience in teaching and industry in CAD/CAM. presently he is working as an associate professor in the Department of Mechanical Engineering, Ajay Kumar Garg Engineering College, Ghaziabad. He is providing training and

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consultancy in CAD/ CAM field.

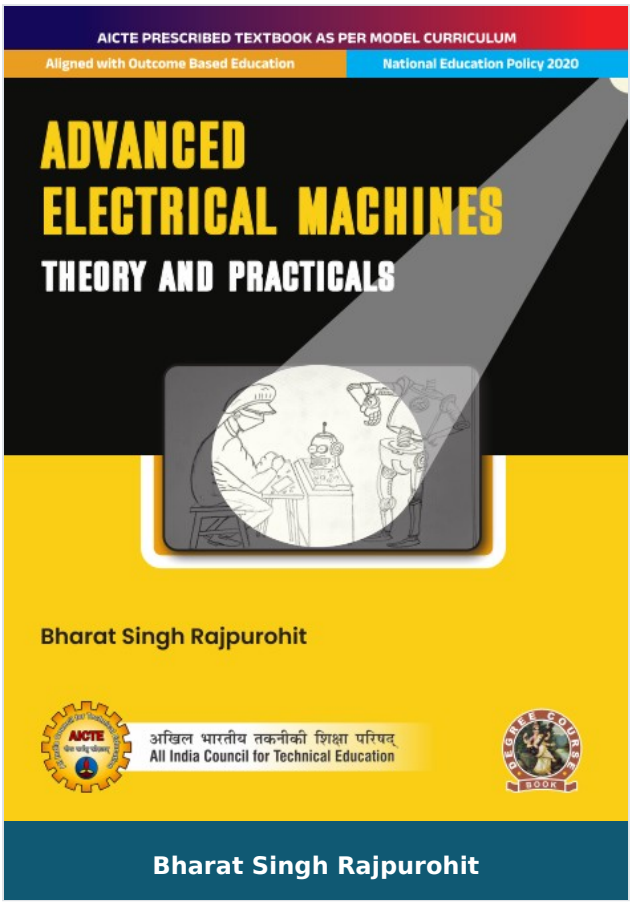
Ankita Maheshwari

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Advanced Electrical Machines: Theory and Practicals

Author :	Bharat Singh Rajpurohit
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Product Description

Advanced Electrical Machines: Theory and Practicals

“Advanced Electrical Machines: Theory and Practical’s” is a course that equips engineering students with a comprehensive understanding of advanced concepts in AC electrical machines, enabling them to analyze, design, and evaluate machine performance. This textbook offers a well-structured, student friendly introduction to AC machines, specifically tailored for fourth semester undergraduate students of core engineering branches. Drawing upon the AICTE’s revised model curriculum, the material presents a balanced integration of theory and practical applications. It covers key topics such as the fundamentals of AC machine windings, the behavior of pulsating and revolving magnetic fields, the operational characteristics of induction and synchronous machines, and single-phase motor theory. Emphasis is placed on understanding the underlying electromagnetic principles, performance characteristics, and modern methods for control and testing. Book will help students in building a strong foundation and to gain both analytical and practical competencies. By the end of this course, students will be able to understand, analyze, and characterize the AC machines.

Salient Features:

- Content of the book aligned with the mapping of Course Outcomes, Program Outcomes, and Unit Outcomes.
- At the beginning of each unit learning outcomes are listed to make the student understand what is expected of him/her after completing that unit.
- The book provides a lot of recent information, interesting facts, references for further reading, simulation codes, etc.
- Student and teacher-centric subject materials included in the book in a balanced and chronological manner.

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- Figures, tables, and output waveforms are included to improve the clarity of the topics.
- Apart from essential information a ‘Know More’ section is also provided in each unit to extend the learning beyond the syllabus.
- At the end of each chapter, short questions, objective questions, and long answer exercises are given for the students to practice.
- Problems including numerical examples are solved with systematic steps provided.

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