



A. Ambikapathy

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Author

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A. Ambikapathy currently working as an assistant professor in " Galgotia Colege of Engineering and Technology " holds M. Tech degree. She has presented five papers in national level conferences. She worked under three different universities and having ten years of teaching experience.



A. Ambikapathy, A. B. Bhattacharya

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A. B. Bhattacharya

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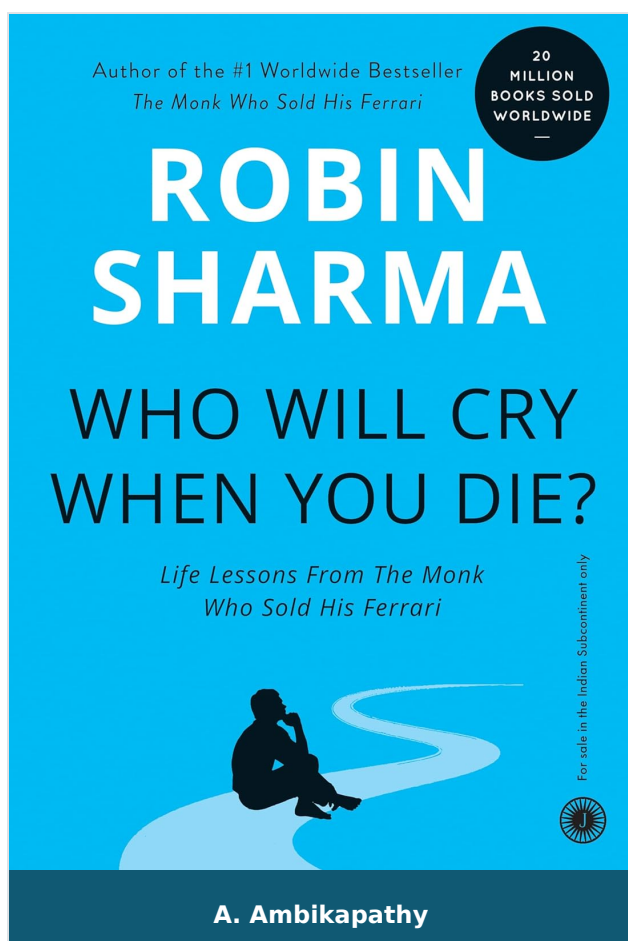
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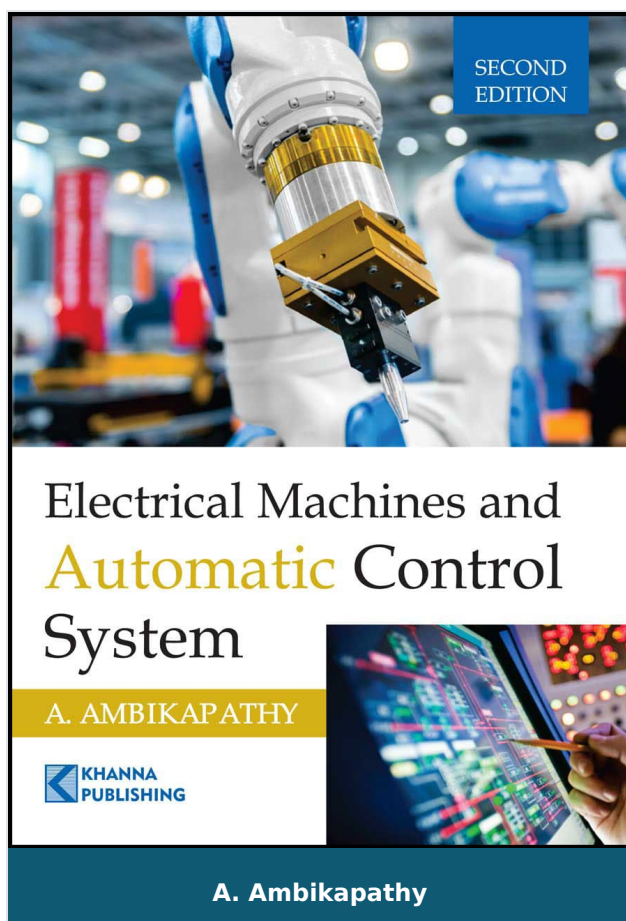
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Electrical Machines & Automatic Control System

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Product Description

A textbook on "Electrical machines and Automatic control System" has been written for the undergraduate students of mechanical department. The material of this book is very useful to the students for understating the concepts as well as from examination point of view. A number of examples are solved in detailed manner in every unit so that the students can practice more on numerical part. Every unit contains exercise problems with answers which help the students to prepare for their exams. The content of this book is explained in a simple language so that understating will be much easy. I will be thankful to the students and teachers who pinpoint the errors and suggestions for the improvement of the book.

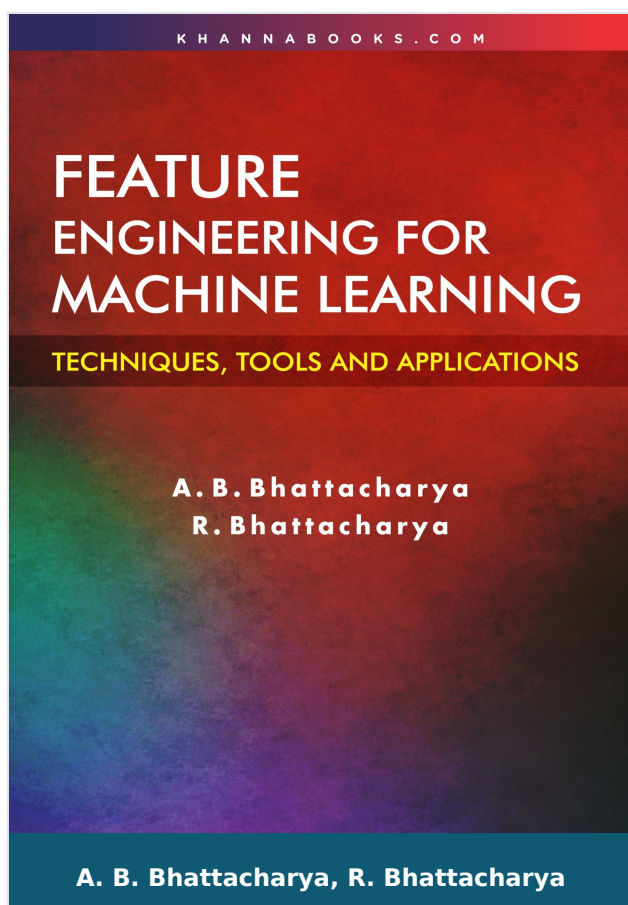
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- Single Phase Transformer
- Three Phase Induction Motor
- Control System
- Time Response Analysis
- Root Locus Technique

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Feature Engineering for Machine Learning (Techniques, Tools and Applications)

Author : A. B. Bhattacharya, R. Bhattacharya

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Product Description

Feature Engineering for Machine Learning (Techniques, Tools and Applications)

Feature engineering is where machine learning success is truly built.

Algorithms get the spotlight, but the real competitive edge lies in how you shape your data. Feature Engineering for Machine Learning is your practical, no-nonsense guide to transforming raw data into powerful signals that unlock model performance, reliability, and insight.

Whether you're a data scientist, ML engineer, analyst, or student, this book takes you beyond theory into the craft of creating features that matter. You'll learn how to identify meaningful patterns, design robust transformations, handle messy real-world data, and systematically improve model outcomes.

Key Features

Through clear explanations, real examples, and actionable techniques, you'll discover how to:

- Turn raw data into predictive features
- Apply domain knowledge to engineer smarter signals
- Handle categorical, temporal, and high-dimensional data
- Avoid common pitfalls that sabotage model performance
- Build scalable, reproducible feature pipelines

Feature engineering isn't just a step in the workflow, it's the foundation of great machine learning. Master it, and you don't just build models... you build better decisions.

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- Preface
- Acknowledgement
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- BASIC FEATURE PREPROCESSING
- FEATURE ENGINEERING TECHNIQUES
- FEATURE EXTRACTION VS. FEATURE SELECTION
- ADVANCED TOPICS AND CASE STUDIES

Author

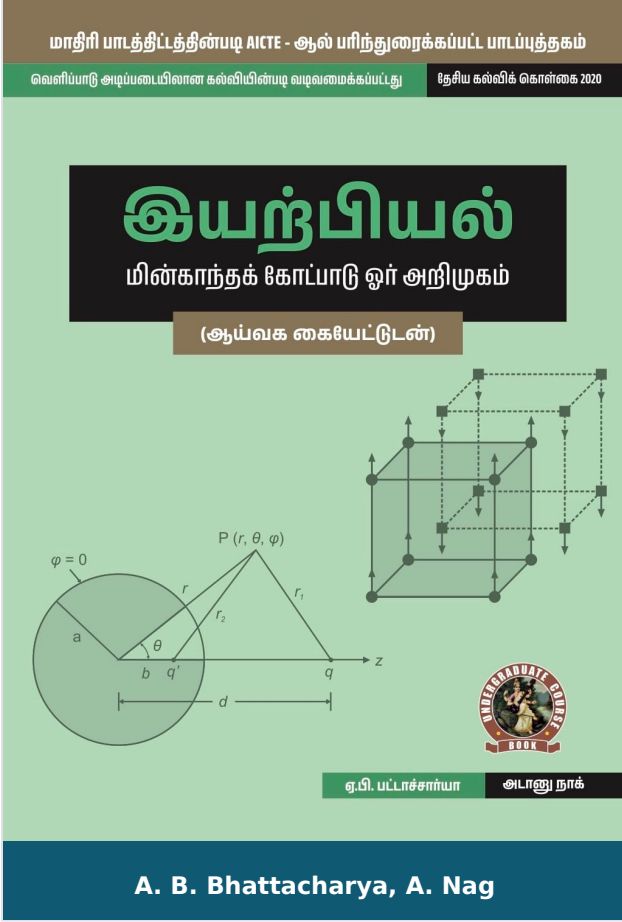
A. B. Bhattacharya

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R. Bhattacharya

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Physics (Introduction to Electromagnetic Theory) (with Lab Manual)

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Engineering Physics: Introduction to Electromagnetic Theory has been written for the first year students of B. Tech Engineering Degree Courses of all Indian Universities following the guideline and syllabus as recommended by AICTE. The book, written in a very simple and lucid way, will be very much helpful to reinforce understanding of different aspects to meet the engineering student's needs. Writing a text-cum manual of this category poses several challenges providing enough content without sacrificing the essentials, highlighting the key features, presenting in a novel format and building informative assessment. This book on engineering physics will prepare students to apply the knowledge of Electromagnetic Theory to tackle 21st century and onward engineering challenges and address the related questions.

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- €1. Expose basic science to the engineering students to the fundamentals of physics and to enable them to get an insight of the subject.
2. To develop knowledge on critical questions, solved and supplementary problems covering all types of medium and advanced level problems in a very logical and systematic manner.
3. Some essential information for the users under the heading “know More” for clarifying some basic
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- €5. Constructive manner of presentation so that an Engineering degree students can prepare to work in different sector or in national laboratories at the very forefront of technology.

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- Magnetostatics
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- Faraday's Law
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- Table of Physical Constants
- Appendices
- Annexures
- References for Further learning
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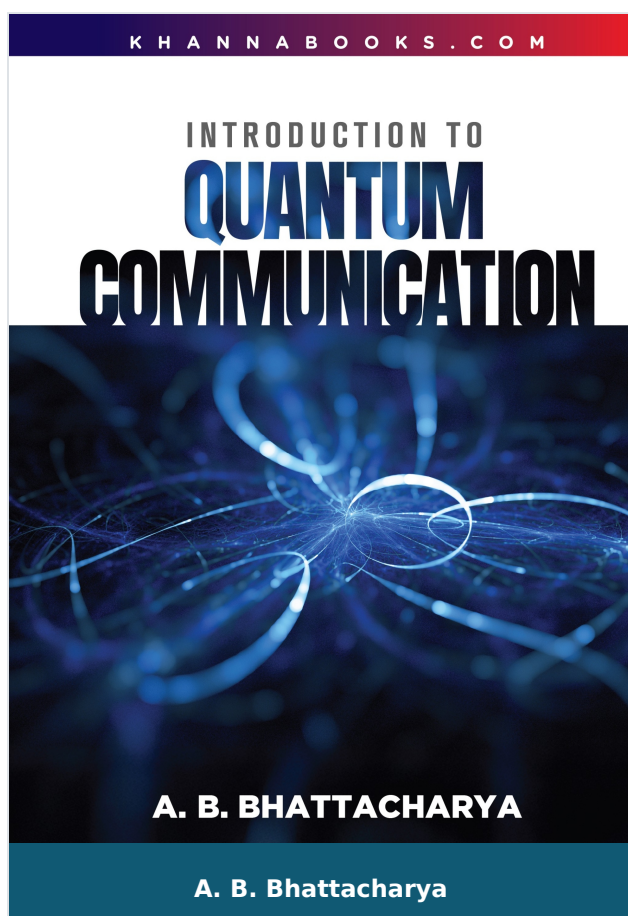
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Introduction to Quantum Communication

Author : A. B. Bhattacharya

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Product Description

Explore the unbreakable Future of Communication

Welcome to a new era where communication is no longer limited by classical boundaries. “Introduction to quantum communication” is your definitive guide to understanding the intricate and revolutionary field that merges quantum physics with information technology.

From the foundations of quantum mechanics to the cutting-edge protocols and technologies that power secure quantum networks, this book offers a clear, structured, and comprehensive journey through the quantum realm, whether you’re a student, researcher, or tech enthusiast, you’ll discover how photons, entanglement, and no-cloning theorems are reshaping the way we think about privacy, data transfer, and global connectivity.

What you’ll learn inside:

- The fundamental difference between classical and quantum communication systems
- The secrets behind quantum key distribution (BB84, E91, B92, DI-QKD)
- Practical implementations like quantum teleportation and quantum internet
- The role of entanglement, dense coding, secret sharing, and quantum bit commitment
- Security threats such as eavesdropping and their quantum countermeasures
- Future directions: satellite-based QKD, post-quantum cryptography, and ethical implications

Each Chapter Includes:

- Numerical problems with solutions
- Short questions & Answers

- Multiple choice questions
- Project ideas for deeper exploration

Bridging physics and information science, this book equips you with the knowledge to understand and participate in the communication revolution of tomorrow.

Table Of Contents

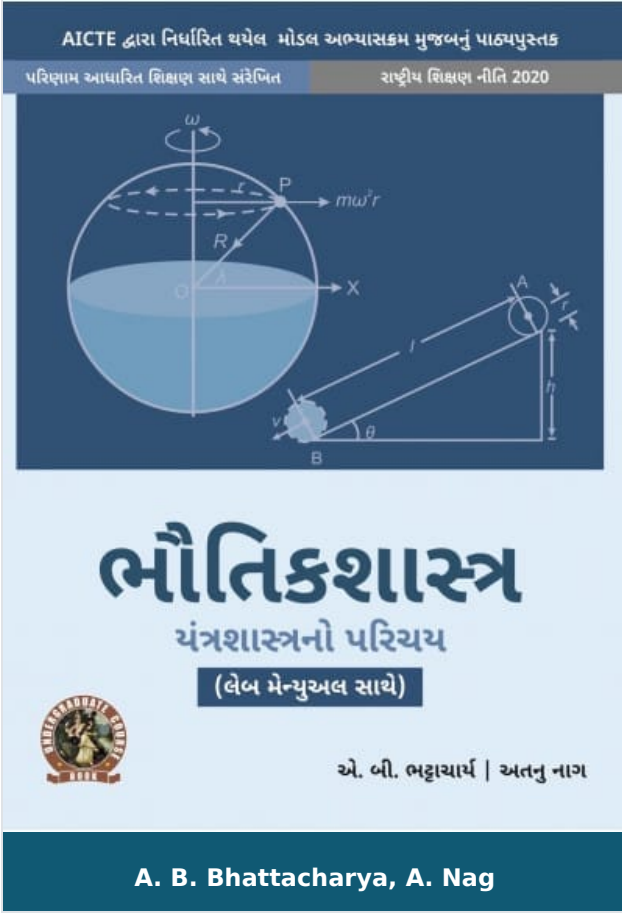
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- Preface
- Acknowledgements
- BASICS OF QUANTUM COMMUNICATION
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- QUANTUM CRYPTOGRAPHY BEYOND QKD
- QUANTUM TELEPORTATION
- QUANTUM NETWORKS
- PROTOCOLS IN QUANTUM COMMUNICATION
- PR5ACTICAL IMPLEMENTATIONS AND TECHNOLOGIES
- SECURITY ASPECTS OF QUANTUM COMMUNICATION
- FUTURE DIRECTIONS AND APPLICATIONS

Author

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Physics (Introduction to Mechanics) (with Lab Manual)

Author : A. B. Bhattacharya, A. Nag

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4. Information as well as comprehensive synopsis of formulae for a quick revision of the basic principles.
5. Constructive manner of presentation so that an Engineering degree students can prepare to work in different sector or in national laboratories at the very forefront of technology.

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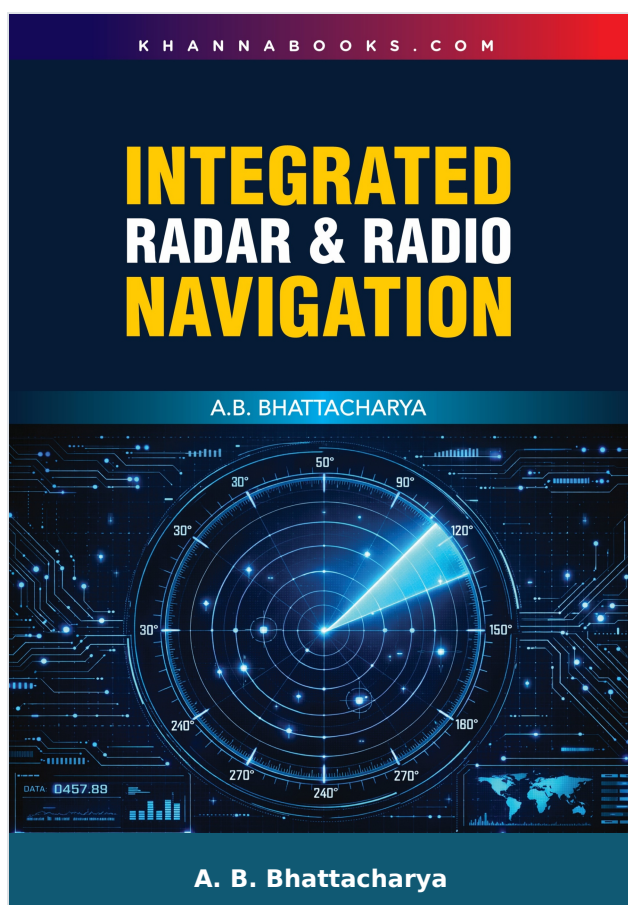
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Integrated Radar & Radio Navigation

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Product Description

Integrated Radar and Radio Navigation: From Classroom Fundamentals to Industry Frontiers by Prof. A.B. Bhattacharya is a comprehensive guide designed to bridge the gap between academic theory and modern industrial application. The text provides a unified exploration of radar systems, satellite-based GNSS, and ground-based radio aids, offering a holistic view of modern navigation architecture. It is specifically tailored for students in electronics, communication, and aviation engineering, as well as professionals seeking to align with global standards like ICAO and IMO.

The book moves beyond traditional pedagogy by integrating AI-enabled autonomous platforms and quantum navigation concepts. With a focus on practical mastery, it features numerous numerical problems, MCQs, and real-world project ideas. This blend of foundational electromagnetic principles and cutting-edge technological trends ensures readers are well-equipped for the evolving demands of the aerospace and maritime sectors.

Salient Features

- **Unified Navigation Architecture:** Explores the integration of radar, radio aids, and GNSS to ensure high-integrity positioning for modern maritime and aviation operations.
- **Global Standard Alignment:** Content is meticulously mapped to international regulatory frameworks, including ICAO, IMO, and IEEE, ensuring industry-relevant professional knowledge.
- **Practical Problem-Solving:** Includes a robust collection of solved numericals, short-answer questions, and MCQs designed to reinforce core technical concepts and examination readiness.
- **Project-Based Learning:** Features innovative "Project Ideas" covering UAV navigation and collision avoidance, helping students translate theoretical knowledge into functional

engineering solutions.

- **Advanced Radar Technologies:** Provides in-depth coverage of Phased Array Radar, SAR, and AESA systems, essential for modern surveillance and remote sensing applications.
- **Satellite Constellation Expertise:** Offers detailed analysis of GPS, GLONASS, and Galileo systems, including signal processing, error correction, and differential augmentation techniques.
- **Future-Ready Innovations:** Addresses emerging frontiers such as Quantum Navigation and AI-driven sensor fusion, preparing readers for the next generation of autonomous systems.
- **Multi-Domain Utility:** Delivers versatile insights applicable across civil aviation, defense, maritime safety, and space exploration, making it a comprehensive reference for various sectors

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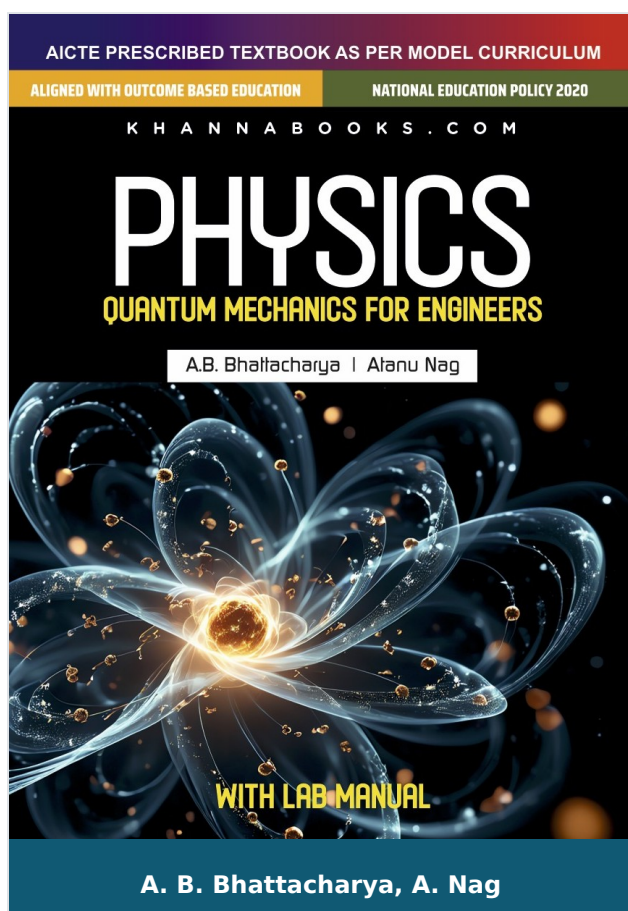
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- Integrated Navigation Systems
- Airborne Radar and Navigation Systems
- Maritime Radar and Radio Navigation
- Navigation in Space and Remote Sensing Applications
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Author

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Product Description

For the implementation of an outcome based education the first requirement is to develop an outcome based curriculum and incorporate an outcome based assessment in the education system. By going through outcome based assessments evaluators will be able to evaluate whether the students have achieved the outlined standard, specific and measurable outcomes. With the proper incorporation of outcome based education there will be a definite commitment to achieve a minimum standard for all learners without giving up at any level. At the end of the Programme running with the aid of outcome based education, a student will be able to arrive at the following outcomes:

Table Of Contents

- Basic Formalism of Quantum Mechanics
- Mathematical Preliminaries for quantum mechanics
- Applications of Schrodinger equation
- Introduction to Molecular Bonding
- Introduction to Solids
- Appendices
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- References for Further learning
- CO and PO Attainment Table

Author

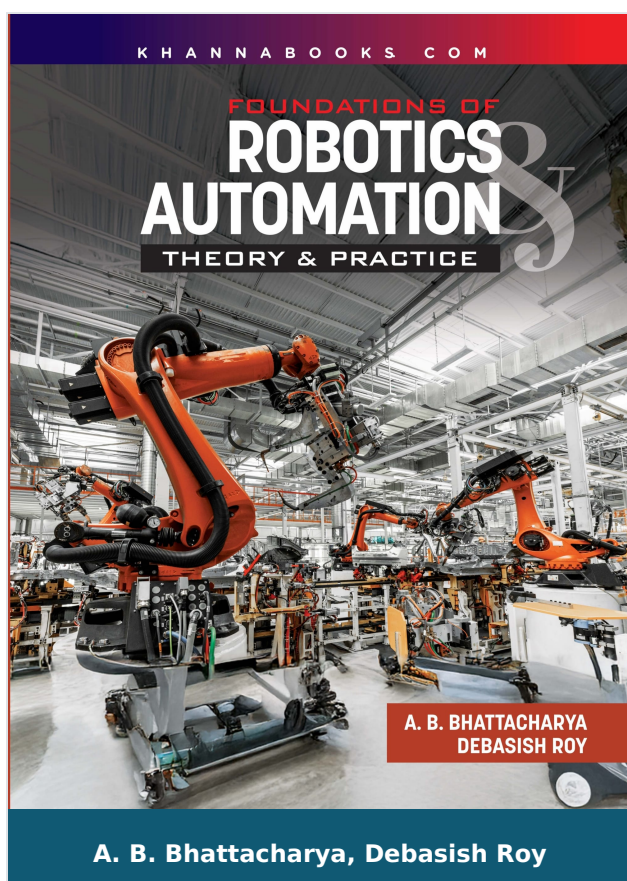
A. B. Bhattacharya

Prof. A. B. Bhattacharya did his MSc and PhD degree from the University of Calcutta in Physics and Post-doc from the Massachusetts Institute of Technology (MIT), Cambridge, USA. He worked in close collaboration with the leading laboratories like Lincoln Laboratory; Milestone Hill Observatory; Earth, Atmospheric and Planetary Sciences division of MIT and many other well recognized laboratories in India and abroad. He served as Professor & Head of the Department of Physics, University of Kalyani; Dean of Research and Head of the ECE Department, Techno India University; Pro Vice Chancellor of JIS University and Director of Brainware University. He has published 32 text books for Science and Engineering students, two popular books for general readers and over 400 research articles in reputed International Journals. Under his supervision 24 scholars received their doctoral degree. He is a fellow of the Institute of Electronics and Telecommunication Engineers and member of many scientific organizations. India

International Friendship Society awarded him the prestigious "Shiksha Ratna Award" and Certificate of Excellence for meritorious services, outstanding performance and significant contribution to education. The International Institute of Success Awareness honored him with their globally recognized "Glory of India Gold Medal" for his outstanding contribution to the national stature of India. A few words from the certificate issued by Prof. Williams of MIT may be quoted "Our collaborative effort was directed at the wavelength dependence of radar echoes observations with the Millstone Hill UHF radar in Westford. He made use of the Charles River Data System computer in the Weather Radar Laboratory for these calculations. His results help to make a convincing case that the volume reflectivity associated with lighting is a diminishing function of radar wavelength, contrary to contemporary thinking". Dr.

A. Nag

A. Nag Dr. Atanu Nag did his M. Sc. in 2007 and Ph. D. in 2013 from the University of Kalyani. He has published over 50 Journal papers and 5 books for Science & Engineering students. Presently he is the Head and Associate Professor in the Department of Physics, Modern Institute of Engineering & Technology, Hooghly, West Bengal.



Foundations of Robotics & Automation (Theory & Practice)

Author : A. B. Bhattacharya, Debasish Roy

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Salient Features of the Book :

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This book offers a profound blend of theory and practice, charting the path toward the next generation of intelligent robotics & automation.

Table Of Contents

- Evolution of Robotics and Automation.
- Linear Algebra for solving Complex Problems of Robotics and Automation.
- Calculus as the Mathematical Framework for Modeling, Analyzing and Controlling Robotics Systems.
- Differential Equations in Modeling and Analyzing Various Aspects of Robotics and Automation.
- Probability and Statistics as Hypothesis Testing, Experimental Design and Machine Learning.
- Control Theory with the Study of controlling the behavior of Dynamics Systems.
- Kinematics and Dynamics in the Study of Motion and the Behavior of Object and System.
- Machine Learning and Artificial Intelligence as applied in Robotics and Automation.
- Graph Theory in Solving Real-World Problems Across Different Domains.
- Numerical Methods to obtain Practical Solutions by using Computational Algorithms and Techniques.
- Signal Processing for analyzing Vast Data Generated in Digital World.
- Optimization Process of finding the Best Possible Solution from a Set of Available Option.
- Computer Vision as a Field of Artificial Intelligence.
- Quantum Computing a Applied to Robotics and Automation.

Author

A. B. Bhattacharya

Prof. A. B. Bhattacharya did his MSc and PhD degree from the University of Calcutta in Physics and Post-doc from the Massachusetts Institute of Technology (MIT), Cambridge, USA. He worked in close collaboration with the leading laboratories like Lincoln Laboratory; Milestone Hill Observatory; Earth, Atmospheric and Planetary Sciences division of MIT and many other well recognized laboratories in India and abroad. He

served as Professor & Head of the Department of Physics, University of Kalyani; Dean of Research and Head of the ECE Department, Techno India University; Pro Vice Chancellor of JIS University and Director of Brainware University. He has published 32 text books for Science and Engineering students, two popular books for general readers and over 400 research articles in reputed International Journals. Under his supervision 24 scholars received their doctoral degree. He is a fellow of the Institute of Electronics and Telecommunication Engineers and member of many scientific organizations. India International Friendship Society awarded him the prestigious "Shiksha Ratna Award" and Certificate of Excellence for meritorious services, outstanding performance and significant contribution to education. The International Institute of Success Awareness honored him with their globally recognized "Glory of India Gold Medal" for his outstanding contribution to the national stature of India. A few words from the certificate issued by Prof. Williams of MIT may be quoted "Our collaborative effort was directed at the wavelength dependence of radar echoes observations with the Millstone Hill UHF radar in Westford. He made use of the Charles River Data System computer in the Weather Radar Laboratory for these calculations. His results help to make a convincing case that the volume reflectivity associated with lighting is a diminishing function of radar wavelength, contrary to contemporary thinking". Dr.

Debasish Roy

Dr. Debasish Roy is a highly accomplished and motivated professional with a robust academic background in Information Technology, including an MCA, MBA M. Tech, and PhD. He was currently the Director General(Railways) at a top-level position in the Indian Police Service (IPS). He received the Indian Police Medal and President's Police Medal in 2000 and 2010. He is well known for pioneering contributions in land mobile radio systems. He is highly recognized for spearheading strategic planning and execution of security measures for the railways network, implementing innovative technologies to enhance railway security and counteract emerging day-to-day operations efficiently. He

has provided expert guidance on implementing land mobile radio system for public safety agencies and conducted groundbreaking research in cryptanalysis, leading to development of advanced techniques for enhancing cyber security. He successfully led a team in designing and implementing secure communication protocols for land mobile radio systems, ensuring robust and encrypted communication. He has published numerous research papers in reputed conferences. He mentored and guided students at the postgraduate and doctoral levels. He has a proven track record of effective leadership and team management, besides all his strategies planning and execution in high-stakes environments. He received many honors and awards for his outstanding contributions to the field and was recognized for exceptional leadership and innovation in technology-driven security initiatives. He completed an Executive Program in Quantum Company and Machine Learning from IIT Delhi in 2023. He participated in the Workshop on Machine Learning for Cryptology (ML4Crypto 2023) at ISI, Kolkata from November 8-10, 2023, organized by SAG, DRDO. His recent paper on " Iterative Quantum Algorithm for Linear System Solving" has been accepted at the International Conference SAI, Computing, 2024 London, organized by Microsoft Corporation.