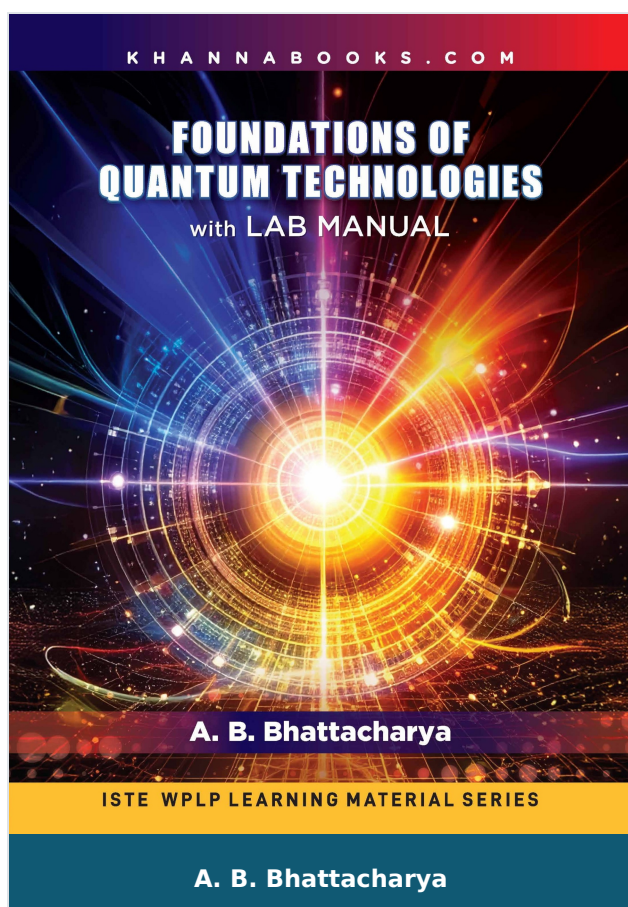




Foundations of Quantum Technology with Lab Manual

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Product Description

Foundations of Quantum Technology with Lab Manual

Explore the Future — Learn the Fundamentals — Master the Tools

Step into the next revolution in science and technology with Foundations of Quantum Technologies (with Lab Manual) — an all-encompassing guide designed for students, educators, and researchers aiming to understand and work with the principles and real-world applications of quantum mechanics.

WHAT'S INSIDE

Part I: Fundamentals of Quantum Mechanics

Begin your journey with a deep dive into the origin and evolution of quantum theory. Understand wave-particle duality, measurement postulates, and the ground-breaking concept of quantum entanglement. Enrich your learning with multiple-choice questions, solved numerical problems, and project ideas at the end of each chapter.

Part II: Core Quantum Technologies

From quantum computing and cryptography to teleportation and metrology, discover how abstract quantum principles power the innovations shaping tomorrow. Learn algorithms like Shor's and Grover's, and explore secure communication via the BB84 Protocol.

Part III: Experimental and Practical Aspects

Get hands-on with quantum hardware platforms like superconducting qubits, trapped ions, and photonic systems. Study experimental realizations from IBM Q, Google Sycamore, and more. It includes detailed insights into quantum gate implementation and optical elements in labs.

Part IV: Lab Manual

Bridge theory with practice in your own quantum lab. Conduct real-world experiments on polarization, entanglement, BB84 protocol, and quantum algorithms using cloud platforms. Learn essential tools like QuTiP, Qiskit, and Cirq for simulating and analyzing quantum systems.

Also Includes

- Conceptual short Q&A
- MCQs and numerical problems with solutions
- Design-driven project tasks
- Oral questions for viva preparation
- Reference tables for quick access

Whether you're a curious beginner or an aspiring quantum researcher, this book offers a robust, intuitive, and experimentally rich learning experience to help you navigate the quantum frontier.

Table Of Contents

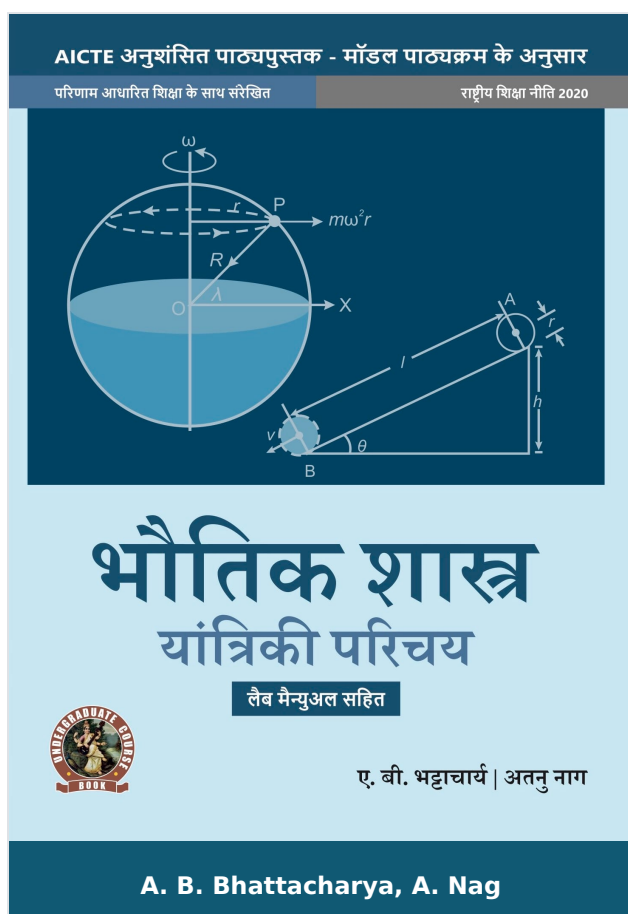
- Part I
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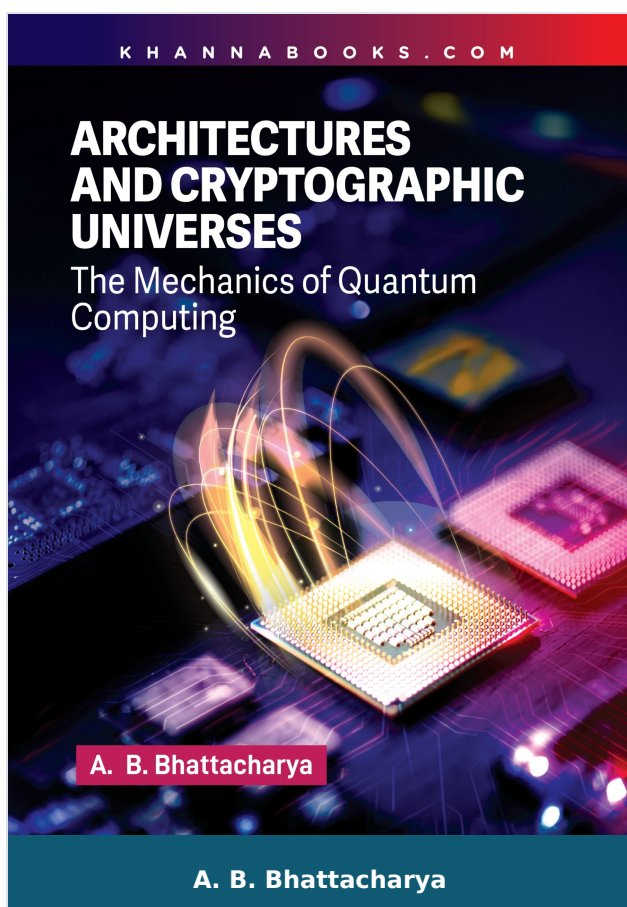
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Architectures And Cryptographic Universes (The Mechanics of Quantum Computing)

Author : A. B. Bhattacharya

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Product Description

Architectures And Cryptographic Universes (The Mechanics of Quantum Computing)

From the basic designs of quantum computers to the latest advances in quantum security. "Architectures and Cryptographic Universes: The Mechanics of Quantum Computing" takes you on a complete journey through the world of quantum technology.

Whether you are a student, researcher, or professional in computing or physics, this book will help you understand and make the most of the exciting quantum revolution.

Salient Features:

Learn Ahead to the Future – Quantum Computing Survey

- **Learn the Hardware:** Discover how quantum computers actually work – from superconducting qubits and trapped ions to quantum dots and light-based systems – and understand the big challenges of stability and scalability.
- **Learn the Security revolution:** Step into Quantum Cryptography – explore real protocols like BB84, understand the No-Cloning Theorem, and see how quantum tech will change data protection forever.
- **Learn the Science in Action:** Experience how Quantum Simulation helps, design new materials and chemicals, and explore the future of Quantum Machine Learning, adiabatic, and topological computing.
- **Learn by Doing:** Get practical with tools like Google cirq, Microsoft QDK, and open-source simulators. Build your own circuits, run guided exercises, and even test on real quantum devices.
- **Learn the Challenges:** Understand the ongoing research in quantum error correction, cryogenic cooling, and scalable architectures – key steps toward powerful

quantum machines.

- **Learn the future:** Imagine what's next – Quantum Networks, the Quantum Internet, and hybrid systems where classical and quantum computing work hand in hand.

Each chapter Includes:

- Conceptual Breakdown
- Short Questions and MCQs
- Numerical Problems with Solutions
- Project Ideas with Guidance

Table Of Contents

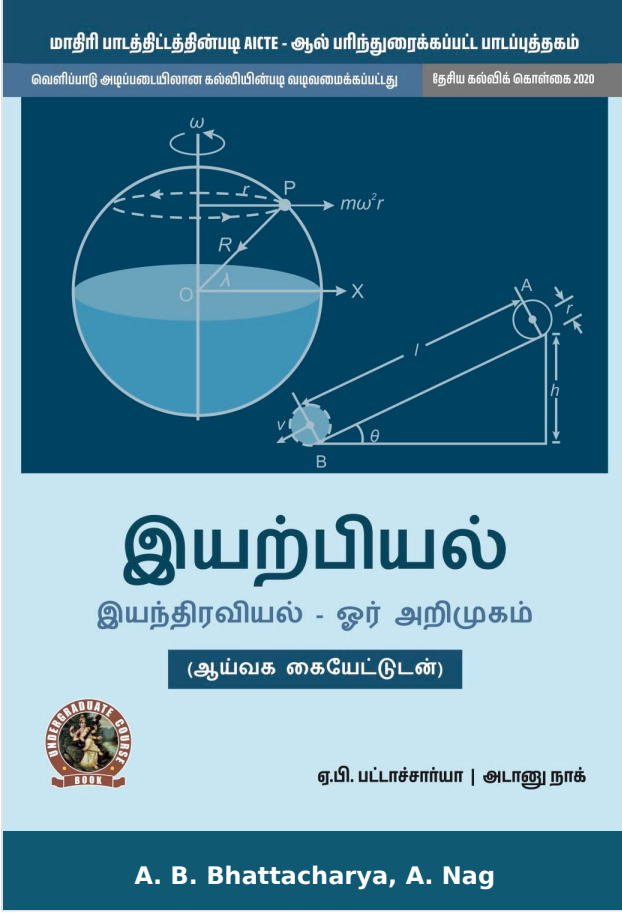
- Preface
- Acknowledgements
- QUANTUM COMPUTING ARCHITECTURES
- QUANTUM CRYPTOGRAPHY
- QUANTUM SIMULATION
- QUANTUM MACHINE LEARNING
- ADVANCED TOPICS IN QUANTUM COMPUTING MECHANICS
- CHALLENGES IN QUANTUM COMPUTING MECHANICS
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Physics (Introduction to Mechanics) (with Lab Manual)

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Some Salient features of the book:

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- € €3. Under problems in a very logical and systematic manner.
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Table Of Contents

- Foreword
- Acknowledgement
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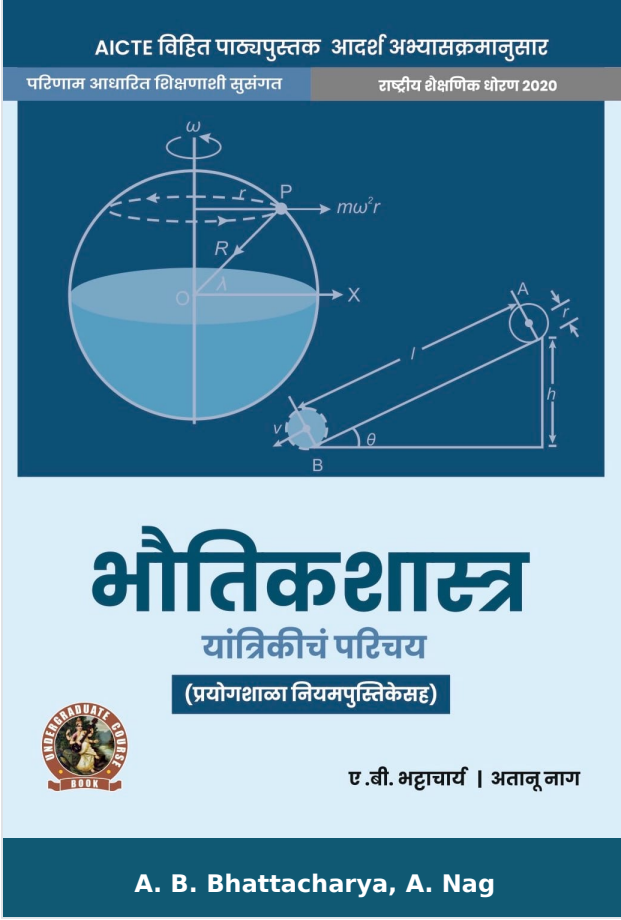
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Physics (Introduction Mechanics)

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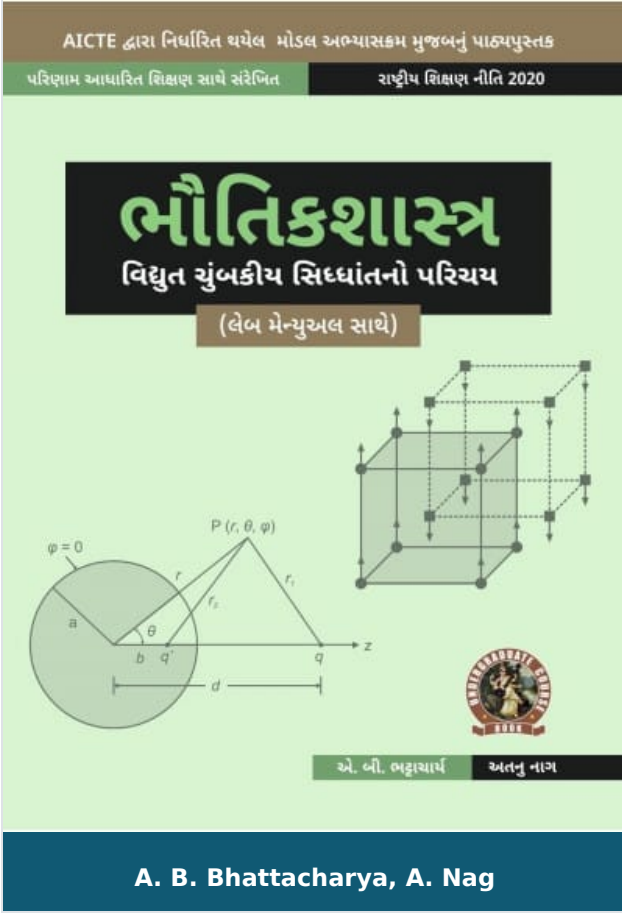
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- Magnetostatics
- Magnetostatics in Linear Dielectric Medium
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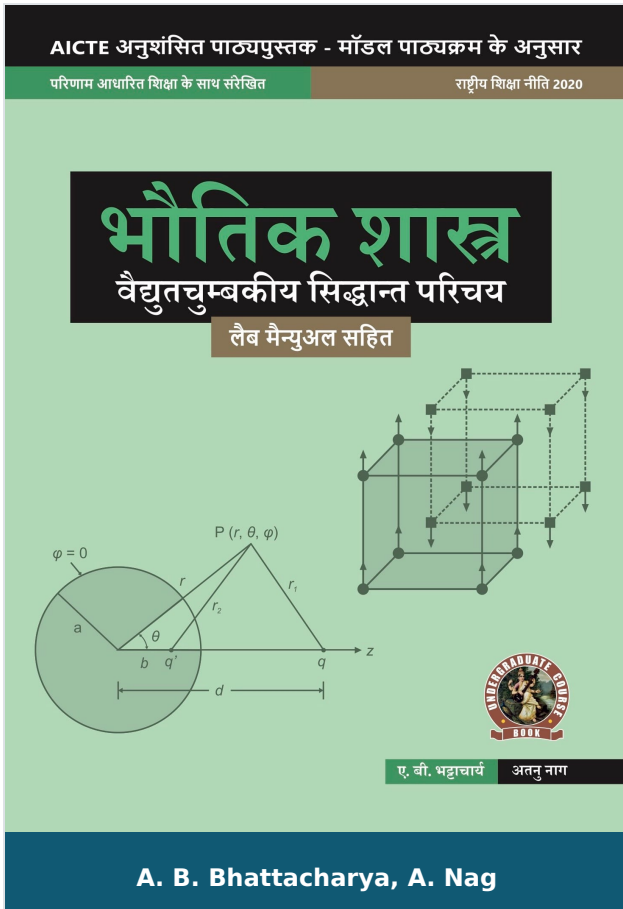
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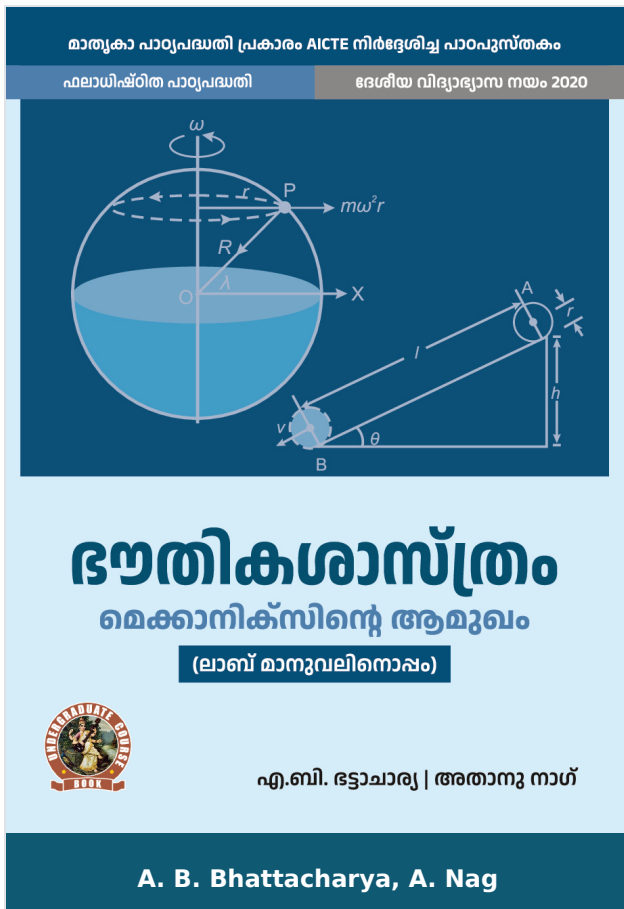
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Product Description

Physics: Introduction to Mechanics 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 Mechanics to tackle 21 century and onward engineering challenges and address the related questions.

Some Salient features of the book:

- Expose basic science to the engineering students to the fundamentals of physics and to enable them to get an insight of the subject.
- To develop knowledge on critical questions solved and supplementary problems covering all type of medium and advanced level
- Under problems in a very logical and systematic manner.
- Some essential information for the user the heading "Know more" for clarifying some basic information as well as comprehensive synopsis of formulae for a quick revision of the basic principles.
- Constructive manner of presentation so that an Engineering degree students can prepare to work in different sectors or in national laboratories at the very forefront of technology.

Table Of Contents

- Foreword
- Acknowledgement
- Preface
- Outcome Based Education
- Course Outcomes
- Abbreviations and Symbols
- List of Figures
- Guidelines for Teachers
- Guidelines for Students
- Introductory Mechanics.
- Conservation Principles.
- Dynamics of Particles.
- Oscillations.
- Rotational Motion.
- Dynamics of a Rigid Body.
- Table of Physical Constants
- Appendices
- Annexures
- References for Further learning
- CO and PO Attainment Table
- Ind

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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 lightning is a diminishing function of radar wavelength, contrary to contemporary thinking". Dr.

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