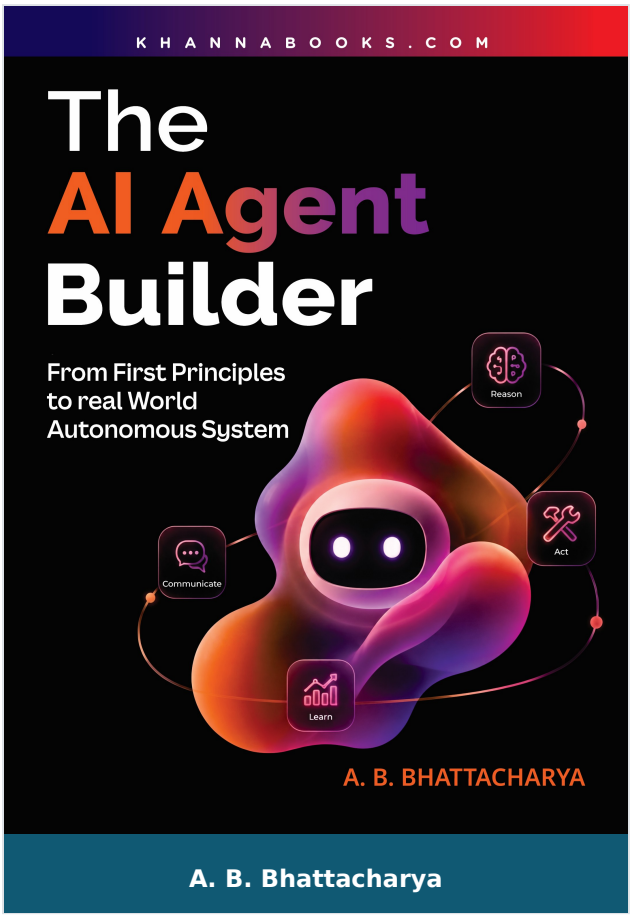



# The AI Agent Builder (From First Principles to real World Autonomous System

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| **Author :** | A. B. Bhattacharya |
| **ISBN 13 :** | 978-93-09430-40-4 |
| **ISBN 10 :** | 9309430400 |
| **E-ISBN 13 :** | 978-93-09430-40-4 |
| **Edition :** | First Edition |
| **Pages :** | 352 |
| **Type of book :** | Physical |
| **Year :** | 2026 |
| **Language :** | English |
| **Publisher :** | Khanna Publishing House |
| **M.R.P :** | Rs 695.00 |
| **Categories :** | Computer Science Engineering, New Arrivals, Book Store |
| **Condition Type :** | New |
| **Country Origin :** | India |

**Khanna Publishing House**

4C/4344, Ansari Road, Daryaganj, New Delhi-110002

Email: contact@khannabooks.com | Tel: 011-2324 44 47 - 48 | Mobile: +91-99109 09320

## Product Description

The AI Agent Builder: From First Principles to Real-World Autonomous Systems is a comprehensive guide that introduces the concepts, architecture, development, and deployment of AI agents through a balanced combination of theoretical foundations and practical implementation. Intended for students, researchers, developers, and AI practitioners, the book explains agent architectures, large language models, memory systems, reasoning, planning, tool integration, multi-agent collaboration, safety, evaluation, deployment, and real-world applications.

### Salient Features

- **AI Agent Foundations:** Explains the evolution of AI agents, agent architectures, environments, perception, reasoning, action, and large language models through a structured first-principles approach.
- **Practical Agent Development:** Covers memory systems, planning strategies, reasoning techniques, tool integration, autonomous execution, and multi-agent collaboration with exercises and project-based learning.
- **Modern AI Technologies:** Introduces APIs, function calling, external knowledge integration, vector databases, retrieval-augmented generation, and scalable deployment methods for intelligent autonomous systems.
- **Safety and Evaluation:** Explains performance benchmarking, reliability testing, hallucination detection, AI safety principles, prompt injection protection, guardrails, and responsible deployment practices.
- **Real-World Applications:** Demonstrates AI agent implementations for research assistance, customer support, data analysis, productivity, and other practical domains through representative application scenarios.
- **Practice-Oriented Learning:** Reinforces understanding through practical exercises, project ideas, short-answer questions, and multiple-choice questions that

strengthen conceptual and implementation skills.

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- 15- Real-World Agents Applications


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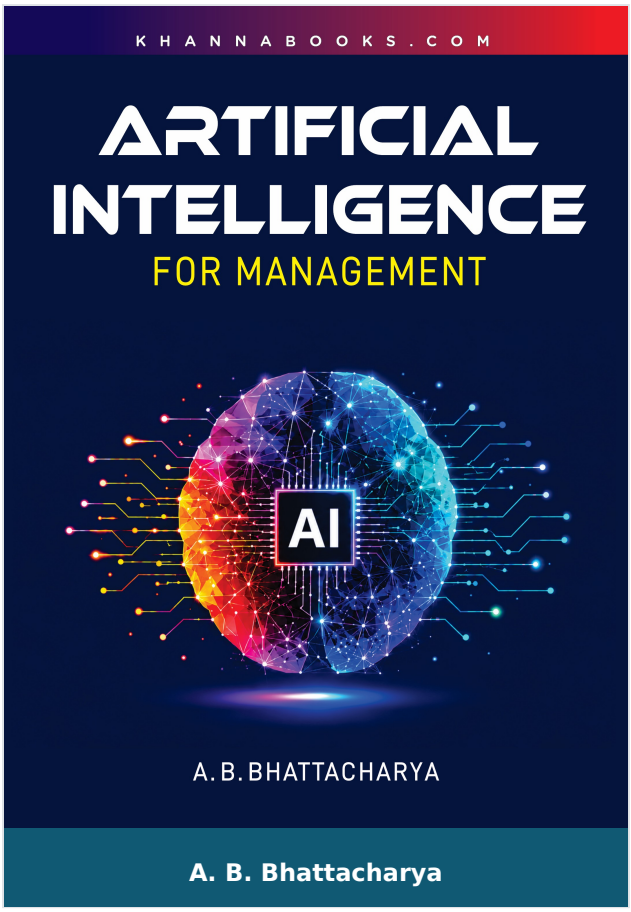
**A. B. Bhattacharya**

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 hon0red 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.

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# Artificial Intelligence For Management

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|---|---|
| **Author :** | A. B. Bhattacharya |
| **ISBN 13 :** | 978-93-09430-11-4 |
| **ISBN 10 :** | 9309430117 |
| **E-ISBN 13 :** | 978-93-09430-11-4 |
| **Edition :** | First |
| **Pages :** | 176 |
| **Type of book :** | Physical |
| **Year :** | 2026 |
| **Language :** | English |
| **Publisher :** | Khanna Publishing House |
| **M.R.P :** | Rs 395.00 |
| **Categories :** | Computer Science Engineering |
| **Condition Type :** | New |
| **Country Origin :** | India |

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4C/4344, Ansari Road, Daryaganj, New Delhi-110002

Email: contact@khannabooks.com | Tel: 011-2324 44 47 - 48 | Mobile: +91-99109 09320

## Product Description

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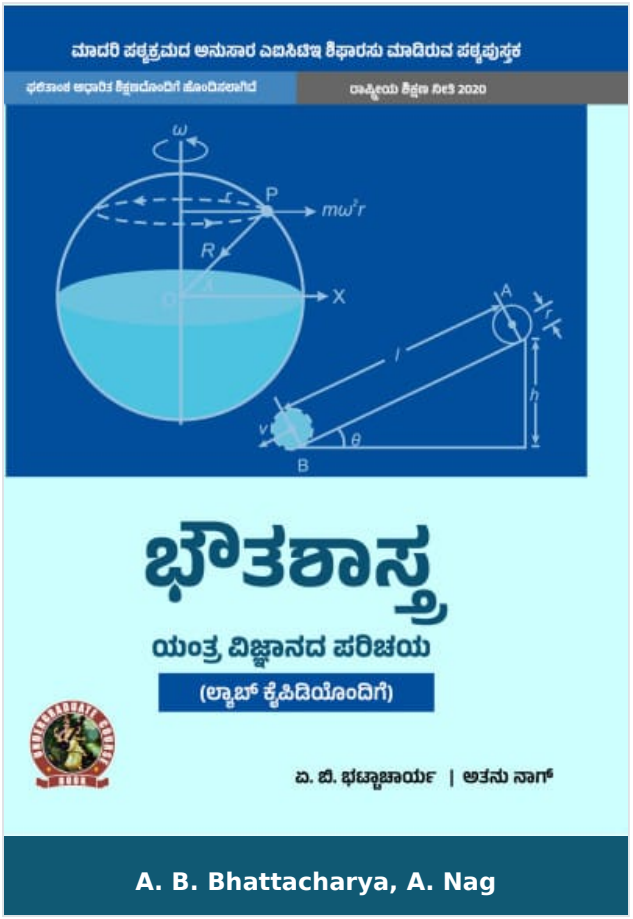
**A. B. Bhattacharya**

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 hon0red 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.

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| **ISBN 13 :** | 978-93-91505-94-3 |
| **ISBN 10 :** | 9391505945 |
| **E-ISBN 13 :** | 978-93-91505-94-3 |
| **Edition :** | 1 |
| **Pages :** | 272 |
| **Type of book :** | Physical |
| **Year :** | 2023 |
| **Language :** | English |
| **Publisher :** | Khanna Publishing House |
| **M.R.P :** | Rs 395.00 |
| **Categories :** | AICTE Prescribed Textbooks, Kannada Books, Book Store, Ebooks |
| **Condition Type :** | New |
| **Country Origin :** | India |

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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.

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2. To develop knowledge on critical questions solved and supplementary problems covering all type of medium and advanced level

3. Under problems in a very logical and systematic manner.

4. 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.

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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 hon0red 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.

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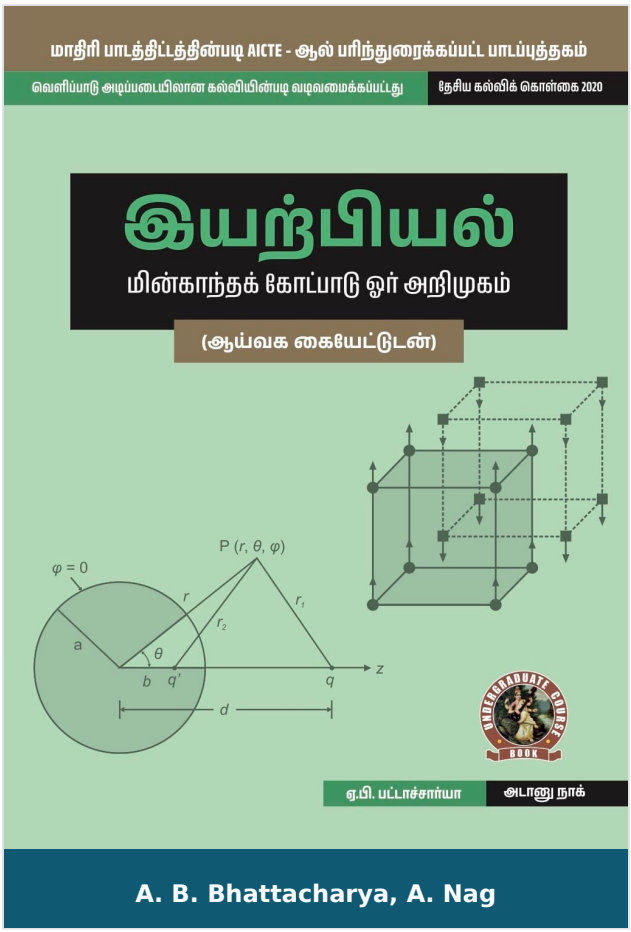
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A. Nag Dr. Atanu Nag did his M. Sc. in 2007 and Ph. D. in 2013 from the University of Kalyani. He has published over 50 Journal papers and 5 books for Science & Engineering students. Presently he is the Head and Associate Professor in the Department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

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

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| **Author :** | A. B. Bhattacharya, A. Nag |
| **ISBN 13 :** | 978-93-91505-75-2 |
| **ISBN 10 :** | 9391505759 |
| **E-ISBN 13 :** | 978-93-91505-75-2 |
| **Edition :** | First |
| **Pages :** | 344 |
| **Type of book :** | Physical |
| **Year :** | 2022 |
| **Language :** | English |
| **Publisher :** | Khanna Publishing House |
| **M.R.P :** | Rs 395.00 |
| **Categories :** | AICTE Prescribed Textbooks, Tamil Books, Book Store, Ebooks |
| **Condition Type :** | New |
| **Country Origin :** | India |

## Product Description

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.

# Some Salient Features of the Book:

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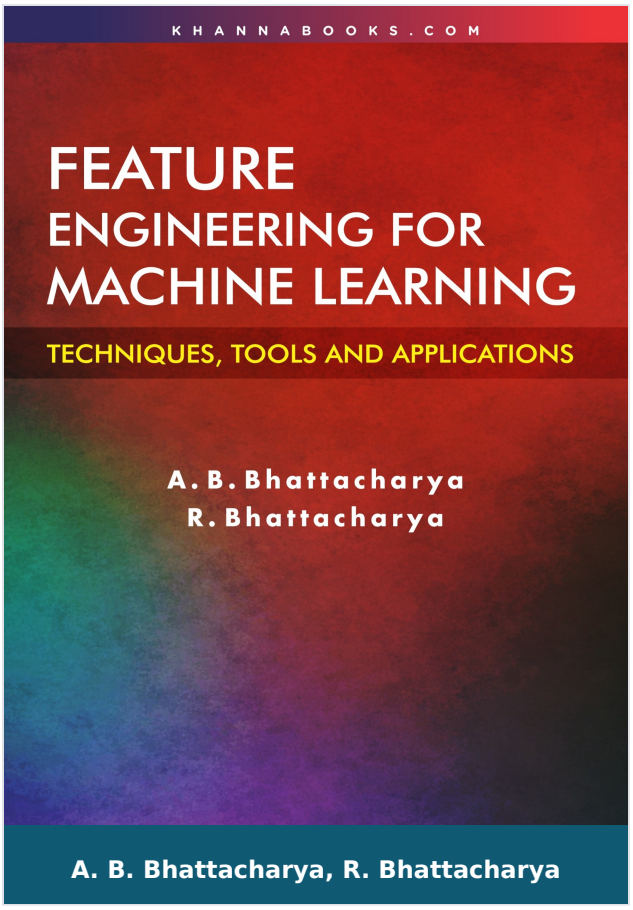
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# Feature Engineering for Machine Learning (Techniques, Tools and Applications)

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| **Author :** | A. B. Bhattacharya, R. Bhattacharya |
| **ISBN 13 :** | 978-93-74541-51-7 |
| **ISBN 10 :** | 9374541513 |
| **E-ISBN 13 :** | 978-93-74541-51-7 |
| **Edition :** | First |
| **Pages :** | 388 |
| **Type of book :** | Physical |
| **Year :** | 2026 |
| **Language :** | English |
| **Publisher :** | Khanna Publishing House |
| **M.R.P :** | Rs 495.00 |
| **Categories :** | New Arrivals, Emerging Technologies, Book Store |
| **Condition Type :** | New |
| **Country Origin :** | India |

**Khanna Publishing House**
4C/4344, Ansari Road, Daryaganj, New Delhi-110002
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**Feature Engineering for Machine Learning (Techniques, Tools and Applications)**

Feature engineering is where machine learning success is truly built.

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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.

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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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- BASIC FEATURE PREPROCESSING
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## 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

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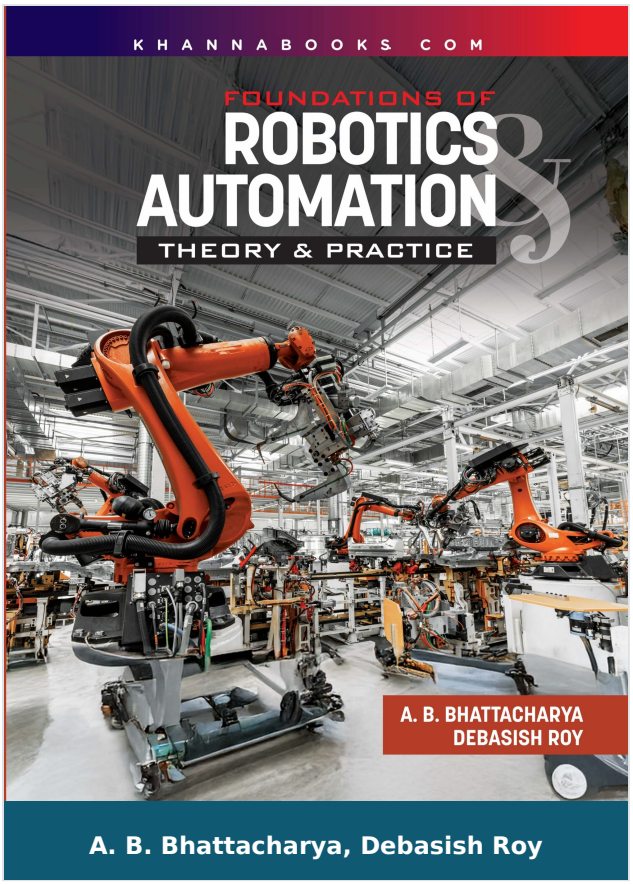
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A. B. Bhattacharya, Debasish Roy

# Foundations of Robotics & Automation (Theory & Practice)

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|---|---|
| **Author :** | A. B. Bhattacharya, Debasish Roy |
| **ISBN 13 :** | 978-93-55388-00-1 |
| **ISBN 10 :** | 9355388004 |
| **E-ISBN 13 :** | 978-93-55388-00-1 |
| **Edition :** | 1 |
| **Pages :** | 428 |
| **Type of book :** | Physical |
| **Year :** | 2025 |
| **Language :** | English |
| **Publisher :** | Khanna Publishing House |
| **M.R.P :** | Rs 575.00 |
| **Categories :** | Emerging Technologies, Book Store |
| **Condition Type :** | New |
| **Country Origin :** | India |

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- 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

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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 hon0red 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**

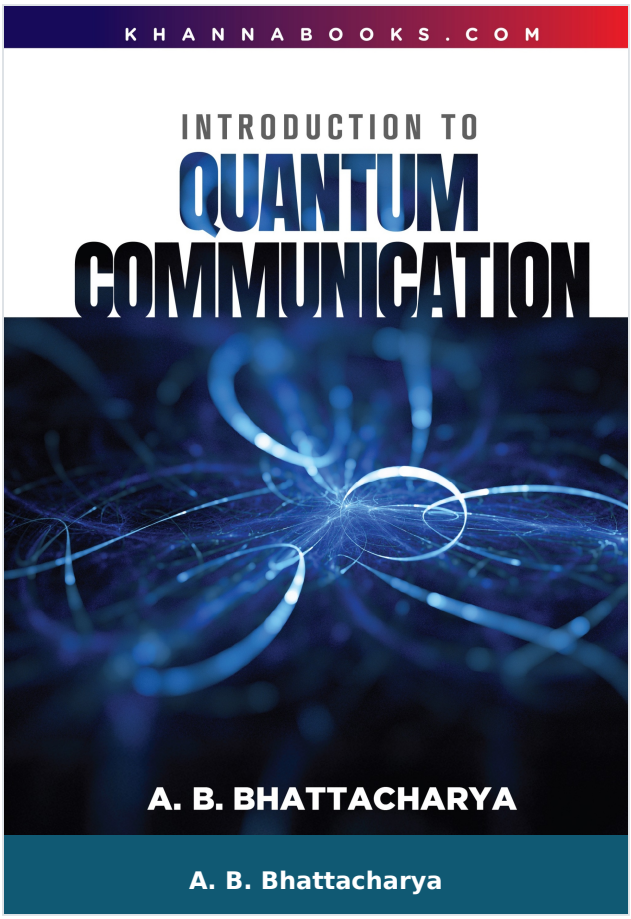
Dr. Debasish Roy is a highly accomplished and motivated professional with a robust academic background in Information Technology, including an MCA, MBA M. Tech, and PhD. He was currently the Director General( Railways) at a top-level position in the Indian Police Service ( IPS). He received the Indian 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.

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# Introduction to Quantum Communication

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| **Author :** | A. B. Bhattacharya |
| **ISBN 13 :** | 978-93-55388-92-6 |
| **ISBN 10 :** | 9355388926 |
| **E-ISBN 13 :** | 978-93-55388-92-6 |
| **Edition :** | First |
| **Pages :** | 448 |
| **Type of book :** | Physical |
| **Year :** | 2026 |
| **Language :** | English |
| **Publisher :** | Khanna Publishing House |
| **M.R.P :** | Rs 675.00 |
| **Categories :** | New Arrivals, Emerging Technologies, Book Store |
| **Condition Type :** | New |
| **Country Origin :** | India |

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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.

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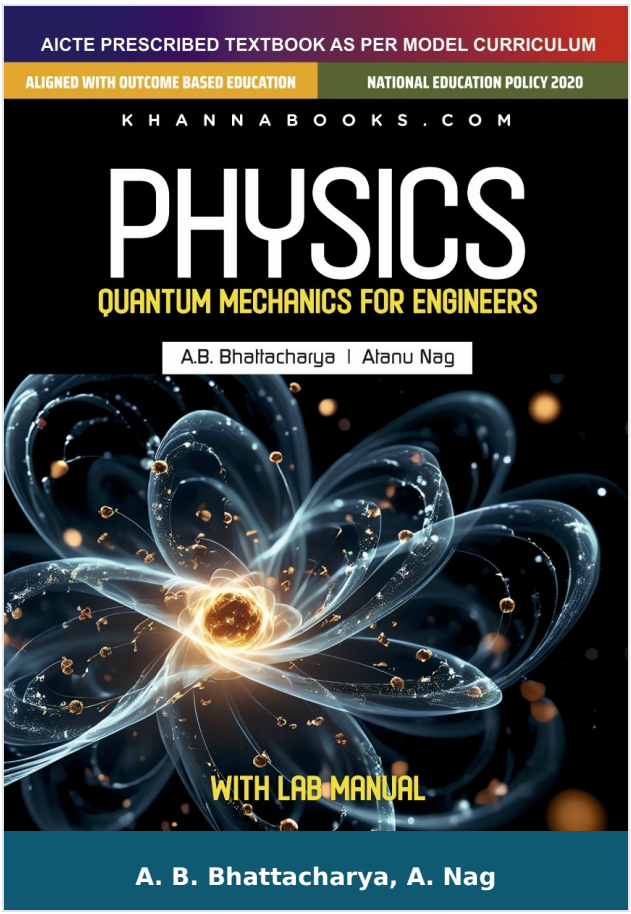
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# Physics (Quantum Mechanics for Engineers) With Lab Manual

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| **ISBN 13 :** | 978-93-91505-25-7 |
| **ISBN 10 :** | 9391505252 |
| **E-ISBN 13 :** | 978-93-91505-25-7 |
| **Edition :** | 1 |
| **Pages :** | 240 |
| **Type of book :** | Physical |
| **Year :** | 2025 |
| **Language :** | English |
| **Publisher :** | Khanna Publishing House |
| **M.R.P :** | Rs 295.00 |
| **Categories :** | AICTE Prescribed Textbooks, English Books, Ebooks |
| **Condition Type :** | New |
| **Country Origin :** | India |

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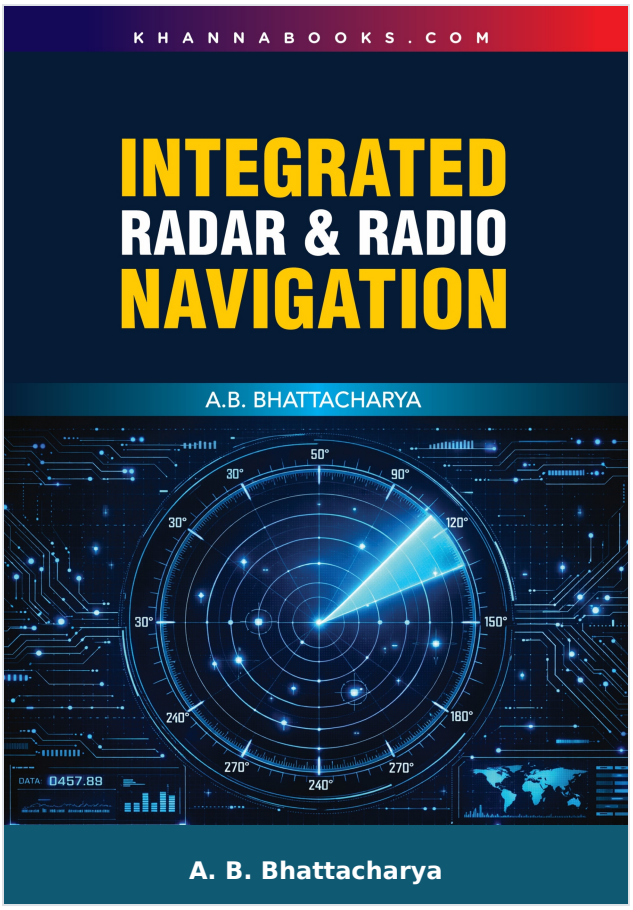
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# Integrated Radar & Radio Navigation

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| **Author :** | A. B. Bhattacharya |
| **ISBN 13 :** | 978-93-77083-87-8 |
| **ISBN 10 :** | 9377083877 |
| **E-ISBN 13 :** | 978-93-77083-87-8 |
| **Edition :** | First |
| **Pages :** | 408 |
| **Type of book :** | Physical |
| **Year :** | 2026 |
| **Language :** | English |
| **Publisher :** | Khanna Publishing House |
| **M.R.P :** | Rs 695.00 |
| **Categories :** | Electrical, Electronics & Communication Engineering, New Arrivals, Book Store |
| **Condition Type :** | New |
| **Country Origin :** | India |

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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.

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## 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

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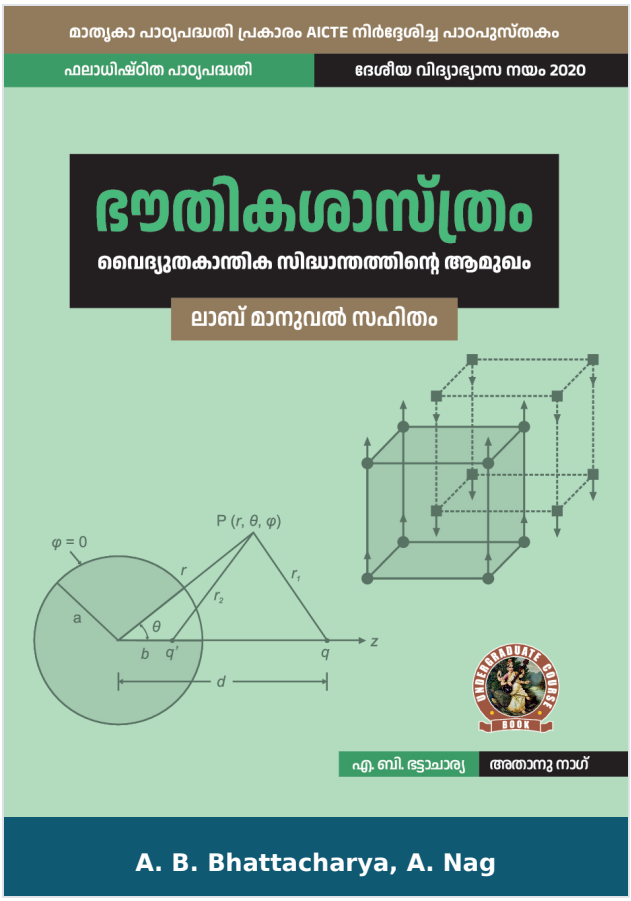
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Research and Head of the ECE Department, Techno India University; Pro Vice Chancellor of JIS University and Director of Brainware University. He has published 32 text books for Science and Engineering students, two popular books for general readers 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 hon0red 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.

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

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| **Author :** | A. B. Bhattacharya, A. Nag |
| **ISBN 13 :** | 978-93-55381-55-2 |
| **ISBN 10 :** | 9355381557 |
| **E-ISBN 13 :** | 978-93-55381-55-2 |
| **Edition :** | 1 |
| **Pages :** | 384 |
| **Type of book :** | Physical |
| **Year :** | 2025 |
| **Language :** | English |
| **Publisher :** | Khanna Publishing House |
| **M.R.P :** | Rs 295.00 |
| **Categories :** | AICTE Prescribed Textbooks, Book Store, Ebooks, Malayalam Books |
| **Condition Type :** | New |
| **Country Origin :** | India |

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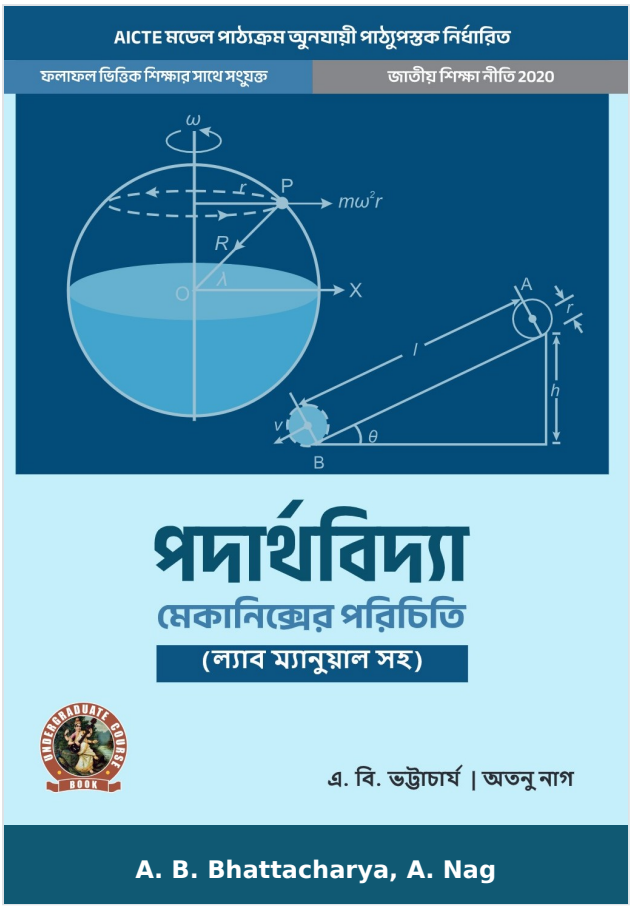
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| **ISBN 13 :** | 978-93-55381-16-3 |
| **ISBN 10 :** | 9355381166 |
| **E-ISBN 13 :** | 978-93-55381-16-3 |
| **Edition :** | 1 |
| **Pages :** | 236 |
| **Type of book :** | Physical |
| **Year :** | 2025 |
| **Language :** | English |
| **Publisher :** | Khanna Publishing House |
| **M.R.P :** | Rs 295.00 |
| **Categories :** | AICTE Prescribed Textbooks, Bengali Books, Book Store, Ebooks |
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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 hon0red 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.

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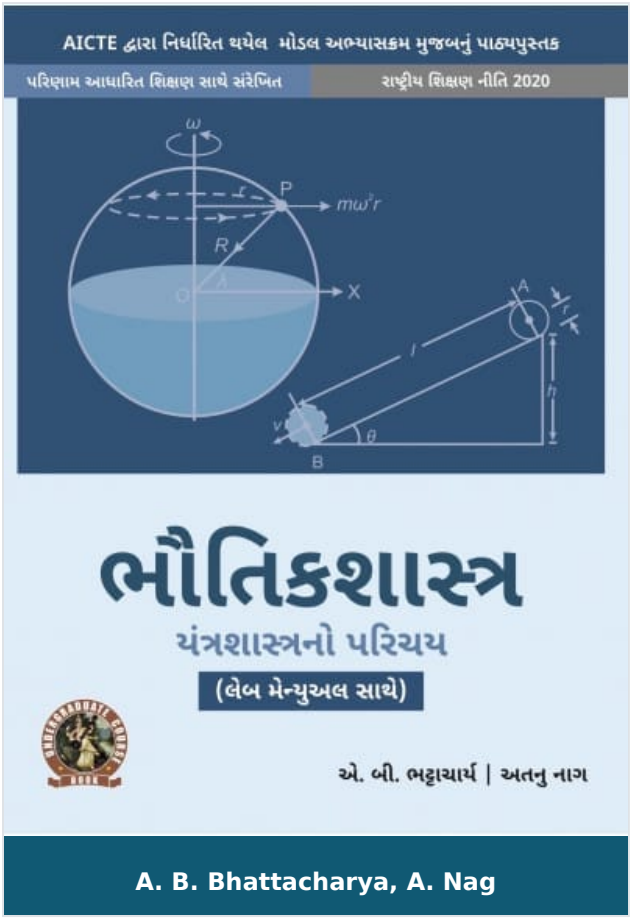
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A. Nag Dr. Atanu Nag did his M. Sc. in 2007 and Ph. D. in 2013 from the University of Kalyani. He has published over 50 Journal papers and 5 books for Science & Engineering students. Presently he is the Head and Associate Professor in the Department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

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# Physics (Introduction to Mechanics) (with Lab Manual)

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| **Author :** | A. B. Bhattacharya, A. Nag |
| **ISBN 13 :** | 978-93-55381-66-8 |
| **ISBN 10 :** | 9355381662 |
| **E-ISBN 13 :** | 978-93-55381-66-8 |
| **Edition :** | First |
| **Pages :** | 244 |
| **Type of book :** | Physical |
| **Year :** | 2023 |
| **Language :** | English |
| **Publisher :** | Khanna Publishing House |
| **M.R.P :** | Rs 395.00 |
| **Categories :** | AICTE Prescribed Textbooks, Gujarati Books, Book Store, Ebooks |
| **Condition Type :** | New |
| **Country Origin :** | India |

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