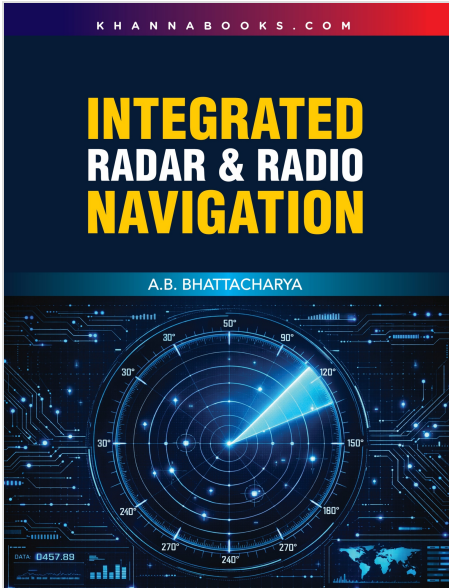




Integrated Radar & Radio Navigation

by A. B. Bhattacharya

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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.

About the Author(s)

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