



Automobile Technologies (Engine, Emission And Electricals)

by Nathu Singh, Yash Bans Mathur

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Description

Automobile Technologies (Engine, Emission And Electricals)

Automobile Technology-II is a comprehensive and academically rigorous guide designed to provide a deep dive into the advanced mechanical and electrical systems of modern vehicles. Developed in alignment with the latest National Education Policy, this textbook bridges the gap between foundational automotive principles and the rapidly evolving technological trends of the current market. The authors, Nathu Singh and Yash Bans Mathur, meticulously cover critical areas including advanced engine designs, sophisticated vehicle control mechanisms, and the intricate electrical systems that define contemporary automotive engineering.

The book's primary purpose is to equip readers with both the theoretical knowledge and the practical technical skills necessary for professional competency in the automotive field. By exploring the relationship between heat, work, and gas properties through thermodynamics, and providing detailed breakdowns of components like reciprocating engines and ignition systems, it offers a holistic view of vehicle performance and efficiency. This makes it an essential resource for students of automobile engineering, professional technicians seeking to upgrade their skills, and researchers interested in the latest advancements in fuel economy, emission reduction, and vehicle safety.

Whether you are preparing for gainful employment or looking to master complex engine supercharging techniques, this book serves as a definitive roadmap for excellence in automobile technology.

Salient Features:

- **Advanced Thermodynamic Insights:** Detailed exploration of gas laws, standard cycles like Otto and Diesel, and the principles of thermodynamics as they apply to internal combustion engines.
- **Comprehensive Suspension Mechanics:** In-depth analysis of various suspension types, including leaf springs and shock absorption, focusing on maintaining vehicle stability and load-bearing capacity.
- **Precision Steering Systems:** Extensive coverage of steering gear mechanisms, from manual rack and pinion setups to modern hydraulic and electric power steering (EPS) systems.
- **Specialized Engine Components:** A thorough breakdown of reciprocating and rotating engine parts, including pistons, crankshafts, and the unique working principles of Wankel engines and gas turbines.
- **Cutting-Edge Electrical Systems:** Comprehensive guides to engine starting circuits, digital ignition systems, and modern lighting technologies such as halogen-quartz and sealed beam headlamps.
- **Advanced Induction Techniques:** Dedicated sections on engine supercharging, turbocharging, and scavenging processes aimed at improving engine power and volumetric efficiency.
- **Practical Vehicle Maintenance:** Technical focus on wheel alignment parameters like caster, camber, and toe, alongside common failure diagnostics for automotive air-conditioning systems.
- **Future-Ready Fuel Technologies:** Insightful discussion on the production and application of alternative fuels, such as methanol produced from biomass or solid waste, for sparking ignition engines.

About the Author(s)

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