Futuristic Technology for Sustainable Manufacturing

Part of the Advances in Logistics, Operations, and Management Science Book Series

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Description:

In the manufacturing industry, a major concern persists—the historical entanglement of this sector with environmental issues. Climate change and resource depletion cast a shadow over traditional practices, demanding a paradigm shift. As our planet grapples with these challenges, the imperative for sustainable manufacturing practices becomes undeniable. **Futuristic Technology for Sustainable Manufacturing** addresses the environmental conundrums tied to manufacturing. This groundbreaking book delves into transformative technologies such as artificial intelligence, renewable energy integration, innovative materials, and the Internet of Things. By providing a profound analysis of these futuristic solutions, the book aims to guide academic scholars towards a comprehensive understanding of how these technologies can usher in a greener, more sustainable era in manufacturing.

The urgent need for sustainable manufacturing practices is palpable, and this book rises to the occasion by providing a nuanced analysis of how these revolutionary technologies can propel the industry towards a greener future. From the role of artificial intelligence in smart manufacturing to sustainable materials applications, the book not only illuminates the current state of affairs but also sparks inspiration for a new generation of researchers, engineers, and entrepreneurs. As a persuasive call to action, the book empowers its readership to contribute actively to the ongoing transformation, fostering a resilient, ecologically responsible future where technology and sustainability harmonize.

Designed to captivate the interest of academic scholars, engineers, managers, and practitioners in the manufacturing industry, **Futuristic Technology for Sustainable Manufacturing** serves as a cornerstone resource. It is a catalyst for innovation in the realms of policymaking, environmental advocacy, and business strategy. With an extensive array of recommended topics encompassing AI, sustainable materials, renewable energy, IoT, and more, this book invites a diverse audience to embark on a journey toward sustainable manufacturing practices that promise a brighter, environmentally conscious future.

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Topics Covered:

- Additive Manufacturing (3D Printing) for Eco-Friendly Production
- Advanced Manufacturing Techniques for Lightweight Materials
- Big Data Analytics for Energy Efficiency in Manufacturing
- Biomanufacturing and Sustainable Bio-Based Products
- Blockchain for Supply Chain Transparency in Manufacturing
- Carbon Footprint Reduction Strategies in Manufacturing
- Circular Economy Principles in Manufacturing
- Clean Technologies for Waste Reduction in Manufacturing
- Digital Twins for Sustainable Manufacturing Processes
- Eco-Friendly Additives and Coatings in Manufacturing
- Green Supply Chain Management in Manufacturing
- Human-Centered Design in Sustainable Product Development
- IoT and Industry 4.0 for Sustainable Manufacturing
- Lifecycle Assessment in Sustainable Manufacturing

Subject: Business & Management

Classification: Edited Reference

Readership Level: Advanced-Academic Level (Research Recommended)

Research Suitable for: Advanced Undergraduate Students; Graduate Students; Researchers; Academicians; Professionals; Practitioners

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