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The Complete Technology Book on Textile Processing with Effluent Treatment

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Author: NIIR Board
Format: paperback
Code: NI108
Pages: 584
Price: Rs 2175 | US$ 67
Publisher: NIIR PROJECT CONSULTANCY SERVICES
Shipping: 5 days

About the Book

Textile processing is one of the most important segments of modern manufacturing, transforming natural and synthetic fibres into value-added fabrics for apparel, home furnishings, technical textiles, automotive applications, healthcare, agriculture, and industrial products. The industry relies on advanced fibre science, spinning, weaving, knitting, dyeing, printing, finishing, and quality assurance to produce high-performance materials while meeting evolving environmental and regulatory requirements. As sustainability becomes central to industrial growth, efficient textile processing integrated with effective effluent treatment has become essential for responsible manufacturing and long-term competitiveness.

Automation, digitalization, smart manufacturing, and resource-efficient, sustainable processing are reshaping the global textile sector. Because textile products touch nearly every economic sector, the industry offers wide-ranging opportunities for manufacturers, exporters, and technology providers alike. Global textile fibre production now tops 120 million tonnes a year, and this scale is only expanding. At the same time, rising demand for eco-friendly processing, water conservation, cleaner production methods, and advanced wastewater treatment is pushing significant investment into modern, environmentally compliant textile facilities.

This comprehensive volume presents a systematic understanding of textile processing from fibre fundamentals to advanced manufacturing technologies and environmental management. Readers gain practical knowledge of natural and synthetic fibres, melt, dry, and wet spinning techniques, yarn and fabric formation, knitting, weaving, nonwoven manufacturing, textile wet processing, pretreatment, dyeing, printing, finishing, machinery selection, quality control, testing procedures, process optimization, industrial automation, Industry 4.0, IoT integration, plant layout, and operational efficiency. The book also provides detailed guidance on wastewater generation, effluent treatment technologies, biological, chemical, physicochemical, and advanced treatment systems, water recovery, reuse, conservation practices, environmental compliance, BIS specifications, and modern plant machinery, making it an invaluable technical and operational reference. Its practical approach bridges manufacturing technology with sustainable industrial practices.

Designed as a practical industrial reference, this book will benefit entrepreneurs, aspiring entrepreneurs, MSMEs, startups, textile manufacturers, engineers, consultants, investors, researchers, academicians, technical institutions, plant managers, and quality professionals seeking reliable knowledge for establishing, modernizing, or expanding textile processing facilities. Combining manufacturing technology with environmental responsibility, it serves as a dependable resource for informed decision-making, improved production efficiency, regulatory compliance, and sustainable business growth in the textile processing industry.

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