Multidisciplinary Perspectives in Mechanical and Applied Sciences

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Preface

In the rapidly evolving world of mechanical engineering and applied sciences, research and innovation play a pivotal role in shaping the future of industries and technology. This book, **"Multidisciplinary Perspectives in Mechanical and Applied Sciences,"** brings together groundbreaking studies that explore the latest advancements across multiple domains of mechanical engineering, materials science, artificial intelligence, and sustainable technologies. By compiling diverse perspectives and cutting-edge methodologies, this volume aims to provide a holistic view of contemporary research that pushes the boundaries of traditional engineering disciplines.

The chapters within this book delve into a wide range of topics, including advancements in renewable energy systems, predictive maintenance with artificial intelligence, emerging manufacturing techniques, and the integration of machine learning in mechanical engineering applications. By fostering interdisciplinary collaboration and innovation, these studies contribute to the development of more efficient, sustainable, and intelligent engineering solutions for modern challenges.

This book is designed as a valuable resource for researchers, industry professionals, and students who seek to deepen their understanding of the latest technological breakthroughs. Each chapter presents a blend of theoretical insights and practical applications, equipping readers with knowledge that bridges the gap between academia and industry.

We extend our sincere gratitude to all contributing authors for their dedication and scholarly contributions. Our appreciation also goes to Swami Vivekananda University, Kolkata, for its unwavering support, and to the editorial team and reviewers who ensured the highest academic quality of this publication.

It is our hope that this book serves as a source of inspiration and knowledge, encouraging further research, collaboration, and innovation in mechanical engineering and beyond.

Dr. Ranjan Kumar
Dr. Arnab Das

Acknowledgement

We extend our deepest gratitude to Swami Vivekananda University, Kolkata, India, for their unwavering support and encouragement in the creation of "Multidisciplinary Perspectives in Mechanical and Applied Sciences." The university's commitment to academic excellence and research innovation has been instrumental in shaping this book. Their dedication to fostering an environment of learning and exploration has enabled the compilation of diverse and cutting-edge research contributions.

We are especially thankful for the collaborative spirit, state-of-the-art facilities, and continuous inspiration provided by Swami Vivekananda University, Kolkata. The institution's emphasis on interdisciplinary research has played a crucial role in bringing together scholars from various domains, enriching the depth and impact of this volume.

Our sincere appreciation also goes to the esteemed external reviewers for their meticulous evaluation, insightful feedback, and commitment to maintaining the highest scholarly standards. Their expertise has significantly contributed to enhancing the academic rigor and quality of this publication.

Finally, we acknowledge the dedication and hard work of all contributing authors, researchers, and editorial team members. Their passion for advancing knowledge and their perseverance in research have made this compilation possible. It is our sincere hope that this book serves as a valuable resource for scholars, students, and professionals, reflecting our shared vision of fostering innovation, collaboration, and academic excellence.

Dr. Ranjan Kumar
Dr. Ashes Banerjee

Contents

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