ENGINEERING FOR SUSTAINABILITY RESEARCH, INNOVATION, AND IMPACT

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Preface

The pursuit of knowledge is an ever-evolving journey that transcends disciplinary boundaries, fostering innovation, discovery, and transformation. This book, **Engineering for Sustainability: Research, Innovation, and Impact**, is a culmination of rigorous scholarly work aimed at bridging the gaps between diverse fields of study and presenting contemporary advancements that address real-world challenges.

The world is witnessing an unprecedented convergence of disciplines, where technology, science, engineering, and humanities interweave to create groundbreaking solutions. This book serves as a platform for showcasing interdisciplinary research that not only expands the theoretical understanding of various domains but also has practical implications for industry and society.

Each chapter in this book represents a significant contribution from esteemed researchers and experts, offering in-depth discussions on topics ranging from artificial intelligence and machine learning to sustainable energy, biomedical applications, and next-generation electronics. The contributors have meticulously explored the complexities of their respective fields, providing fresh insights, innovative methodologies, and thought-provoking discussions.

Our primary objective is to offer an invaluable resource for students, academicians, researchers, and industry professionals who seek to stay abreast of emerging trends and paradigm shifts in multidisciplinary research. By integrating diverse perspectives and methodologies, this book aims to inspire further inquiry and foster collaborative efforts in solving complex global challenges.

We extend our sincere gratitude to all the authors who contributed their expertise and knowledge to this volume. We also appreciate the unwavering support from Swami Vivekananda University, Kolkata, and the meticulous efforts of the reviewers who ensured the academic rigor of this publication.

We hope that this book serves as a catalyst for further research and innovation, empowering readers to think beyond traditional boundaries and embrace the endless possibilities of transdisciplinary collaboration.

Dr. Ranjan Kumar
Dr. Arnab Das

Acknowledgement

I extend our heartfelt gratitude to Swami Vivekananda University, Kolkata, India, for their unwavering support and encouragement during the creation of “Engineering for Sustainability: Research, Innovation, and Impact”. The university's commitment to advancing education and research has profoundly influenced the direction and scope of this work.

We are especially grateful for the collaborative environment, resources, and inspiration provided by Swami Vivekananda University, Kolkata. Their contributions have been pivotal in enabling us to explore and present the latest advancements and technologies spanning diverse fields of study.

It is our sincere hope that this book will serve as a valuable resource for the university and the wider academic community, reflecting our collective dedication to fostering knowledge, innovation, and academic excellence.

We also extend our deepest appreciation to the esteemed external reviewers for their meticulous evaluation and invaluable feedback. Their dedication to maintaining the highest scholarly standards has been instrumental in ensuring the academic rigor of this publication.

With sincere gratitude,

Dr. Ranjan Kumar
Dr. Arnab Das

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