

Biomedical Engineering
and **Advancing Healthcare**
Technologies

Biomedical Engineering and Advancing Healthcare Technologies

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PREFACE

Biomedical engineering stands at the crossroads of engineering innovation and medical advancement, playing a pivotal role in shaping the future of healthcare. This book was conceived to provide a consolidated and accessible resource that captures the dynamic scope of biomedical technologies, from foundational systems to specialised applications in clinical and research settings. The content presented spans a wide range of topics reflecting the interdisciplinary nature of the field, ranging from core biomedical principles and disinfection technologies to sophisticated systems such as bioimpedance analysis, electrosurgical platforms, neurotechnology, and gait analysis tools. Each chapter has been thoughtfully structured to present both theoretical underpinnings and real-world applications. This volume is designed to benefit a broad spectrum of readers: Students seeking to build foundational knowledge, researchers exploring new biomedical frontiers, clinicians looking to integrate technology into practice, and engineers engaged in the design and development of medical devices. The book emphasises practical insight and innovation, underscoring how technology can address complex medical challenges and improve patient outcomes. The development of this book is the result of a collaborative effort involving contributors from various disciplines and institutions.

Tan Tian Swee

Jahanzeb Sheikh

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