

Preface

Advancements in material science and engineering are shaping the sustainable future of various industries, from manufacturing to construction. This special edition reflects the current evolution in material science and technologies in machinery and civil engineering.

Chapter 1, "Metallurgy of Aluminium-Based Materials", explores the properties, production and processing techniques, highlighting aluminium-based alloys significance in modern engineering.

Chapter 2, "Modern Approaches to Defect Detection", presents cutting-edge methods for identifying material surface defects, that ensure quality control, and enhancing structural reliability.

Finally, Chapter 3, "Green Building Materials", delves into innovative bio-based construction material for concrete applications, emphasizing environmentally friendly solutions for the built environment.

This special edition aims to provide valuable insights for researchers, engineers, and professionals seeking to stay at the forefront of material science development and its practical applications.