Preface

This special edition presents a modern perspective on the development, performance, processing technologies, and applications of modern engineering materials within the context of sustainability in machinery and civil engineering.

Chapter 1: Metallurgy and Processing of Steel and Alloys explores the scientific foundations and technological advancements in structural metals. The chapter addresses the structural and mechanical features of steel and advanced alloys tailored for structural applications, providing the basis for reliable and efficient engineering solutions.

Chapter 2: Green Building Materials focuses on solutions that reduce environmental impact while maintaining structural integrity and required durability. Topics include eco-efficient binders, recycled aggregates, low-carbon and bio-based composites, and innovative materials designed to minimise embodied energy and carbon emissions.

Chapter 3: Structural Engineering is dedicated to evaluating the performance characteristics of structures and structural elements under static, dynamic, and environmental loading conditions. Special attention is given to reliability, serviceability, durability, and safety considerations.

We hope this special edition will provide valuable insights for researchers, engineers, and practitioners, encouraging the development of next-generation materials and structures that meet today's both technical and environmental challenges.