

# Preface

This special edition examines research results in two pillars of modern materials and industrial engineering: alloys, steel, and chemical technologies and processes.

Chapter 1: Alloys and Steel explores structural metals' processing techniques and performance characteristics. It also considers mechanical properties optimisation, corrosion resistance, and the application of machine learning to predict the hardness of electrodeposited nickel-tungsten alloy coatings. This chapter offers insights into both traditional and emerging high-performance metallurgical practices.

Chapter 2: Chemical Technologies and Processes is devoted to research in chemical technologies and processes, covering synthesis methods, catalytic processes, and parameter process optimisation strategies. The investigations focus on biomass processing, waste degradation and fertiliser production.

This special edition is intended for researchers and engineers in materials engineering, metallurgical science, and chemical process industries.