

Preface

This special edition is a collection of results from a focused exploration of key processes and innovations in modern metalworking and materials engineering.

Chapter 1: Turning and Forming of Structural Metals examines the fundamental methods and solutions used to facilitate improvement of metal machining technologies, emphasising precision, mechanical integrity and quality.

Chapter 2: Metal Welding delves into the joining techniques critical for the production of structurally reliable structures. Some articles focused on friction welding technologies that are a perspective now in machinery, etc.

Advancing into issues of durability and reliability, Chapter 3: Corrosion and Surface Treatment addresses the challenges of corrosion degradation in the marine industry, etc. and analyses the protective strategy based on improving metal surface hardness by carburization using carbon nanotubes.

Finally, Chapter 4: Improvement of Technologies and Technological Equipment highlights current advancements aimed at enhancing the efficiency of some existing technologies and technological equipment performance.

The special edition offers a cohesive overview of engineering solutions and urgent technological challenges in the field of modern structural materials treatment and will be useful for a wide range of engineers in mechanical engineering.