

# Preface

This special edition presents a collection of research dedicated to advanced materials and surface engineering technologies. The contributions emphasise the growing importance of materials with enhanced performance, durability, and multifunctionality for modern industrial and engineering applications.

The first chapter addresses the synthesis, properties, and applications of surface layers designed to improve protective coatings and thin films for sensing. The studies included in this chapter highlight both conventional and emerging deposition techniques for thin films and coatings.

The second chapter focuses on the development, processing, and performance of composite materials with tailored mechanical, thermal, and structural properties. Contributions explore innovative reinforcement strategies, design approaches, and analyse properties of multifunctional composite systems for wide applications.

This edition is intended to serve as a valuable resource for researchers, engineers, and practitioners interested in modern materials science and engineering applications.