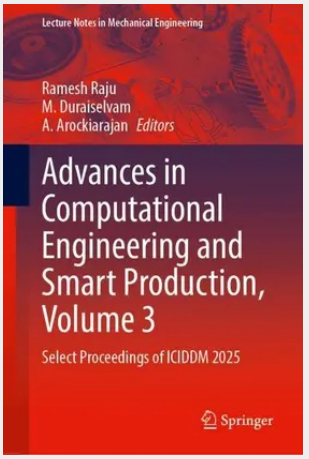
Raju / Duraiselvam / Arockiarajan

Advances in Computational Engineering and Smart Production, Volume 3

Select Proceedings of ICIDDM 2025



The book, Advances in Computational Engineering and Smart Production, Volume 3: Smart Manufacturing and Computational Engineering Systems, presents select peer-reviewed proceedings of the International Conference on Interactive Design and Digital Manufacturing (ICIDDM 2025). It offers cutting-edge research contributions, addressing emerging challenges and innovations in smart manufacturing, computational engineering, industrial safety, digital transformation, and sustainable production systems. The book brings together multidisciplinary research from academicians, scientists, industry practitioners, and research scholars working at the intersection of manufacturing technologies, computational intelligence, industrial automation, and digital engineering. It provides valuable insights into the application of advanced computational tools and intelligent manufacturing systems for improving productivity, sustainability, workplace safety, and operational efficiency across modern industries. A major focus of the volume is on smart manufacturing technologies, including digital twins, cyber-physical systems, IoT-enabled industrial applications, predictive maintenance, big data analytics, machine learning, and intelligent process optimization. Several papers explore the integration of Industry 4.0 concepts with manufacturing systems to achieve enhanced automation, real-time monitoring, quality control, and data-driven decision-making in industrial environments.

This volume serves as an important reference for researchers, postgraduate students, industry professionals, and policymakers working in mechanical engineering, manufacturing engineering, industrial engineering, computational engineering, safety engineering, and smart production technologies. By showcasing emerging trends and transformative technologies, the book contributes significantly to the advancement of next-generation manufacturing ecosystems and sustainable industrial innovation.

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