Department Of Mechanical Engineering Malaviya National

Sustainable Manufacturing
Biofuel Technologies for a Sustainable Future: India and Beyond
Ergonomics for Improved Productivity
Soft Computing in Materials Development and its Sustainability in the Manufacturing Sector
Primary and Secondary Manufacturing of Polymer Matrix Composites
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Advances in Materials Processing and Manufacturing Applications
Micro Electro-fabrication
Tribology and Surface Engineering for Industrial Applications
Applied Mechatronics and Mechanics
Advances in Engineering Design
Dynamic Balancing of Mechanisms and Synthesizing of Parallel Robots
Advances in Mechanical and Materials Technology
Biomanufacturing
Humanizing work and work Environment (HWWE 2016)
Technology Innovation in Mechanical Engineering
Integration of Process Planning and Scheduling
Recent Innovations in Mechanical Engineering
Recent Advances in Industrial Production
Advances in Mechanical Engineering
High-Entropy Alloys
Innovative Design, Analysis and Development Practices in Aerospace and Automotive Engineering (I-DAD 2018)

Handbook of Research of Internet of Things and Cyber-Physical Systems
Advances in Fluid and Thermal Engineering
Application of Clean Fuels in Combustion Engines
Micromanufacturing Processes
Engine Modeling and Simulation
Proceedings of International Conference in Mechanical and Energy Technology
Advances in Industrial and Production Engineering

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Sustainable Manufacturing Springer Nature
This volume is based on the proceedings of the 28th International Conference on CAD/CAM, Robotics and Factories of the Future. This book specially focuses on the positive changes made in the field of robotics, CAD/CAM and future outlook for emerging manufacturing units. Some of the important topics discussed in the conference are product development and sustainability, modeling and simulation, automation, robotics and handling systems, supply chain management and logistics, advanced manufacturing processes, human aspects in engineering activities, emerging scenarios in engineering education and training. The contents

of this set of proceedings will prove useful to both researchers and practitioners.
Biofuel Technologies for a Sustainable Future: India and Beyond CRC Press div="" This book covers different aspects related to utilization of alcohol fuels in internal combustion (IC) engines with a focus on combustion, performance and emission investigations. The focal point of this book is to present engine combustion, performance and emission characteristics of IC engines fueled by alcohol blended fuels such as methanol, ethanol and butanol. The contents also highlight the importance of alcohol fuel for reducing emission levels. Possibility of alcohol fuels for marine applications has also been discussed. This book is a useful guide for researchers, academics and scientists.
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Ergonomics for Improved Productivity CRC Press
This book gathers the best articles presented by researchers and industrial experts at the International Conference on “Innovative Design and Development Practices in Aerospace and Automotive Engineering (I-DAD 2018)”. The papers discuss new design concepts, analysis and manufacturing technologies, with an emphasis on achieving improved performance by downsizing; improving the weight-to-strength ratio, fuel efficiency, and operational capability at room and elevated temperatures; reducing

wear and tear; and addressing NVH aspects, while balancing the challenges of Euro IV/Barat Stage IV emission norms and beyond, greenhouse effects, and recyclable materials. The innovative methods discussed here offer valuable reference material for educational and research organizations, as well as industry, encouraging them to pursue challenging projects of mutual interest.

Soft Computing in Materials Development and its Sustainability in the Manufacturing Sector
Springer Nature

This research-oriented book, Applied Mechatronics and Mechanics: System Integration and Design, presents a clear and comprehensive introduction to applied mechatronics and mechanics. It presents some of the latest research and technical notes in the field of mechatronics and focuses on the application considerations and relevant practical issues that arise in the selection and design of mechatronics components and systems as well. In the field of mechatronics and mechanics, the variety of materials and their properties is reflected by the concepts and techniques needed to understand them: a rich mixture of mathematics, physics, and experiment. These are all combined in this informative book, based on the chapter authors' years of experience in research and teaching. With the inclusion of several case

studies, this valuable volume will enable readers to comprehend and design mechatronic systems by providing a frame of understanding to develop a truly interdisciplinary and integrated approach to engineering. It will be helpful to faculty and advanced students as well as specialists from all pertinent disciplines.

Primary and Secondary Manufacturing of Polymer Matrix Composites

Springer Nature

Sustainable Manufacturing examines the overall sustainability of a wide range of manufacturing processes and industrial systems. With chapters addressing machining, casting, additive and gear manufacturing processes; and hot topics such as remanufacturing, life cycle engineering, and recycling, this book is the most complete guide to this topic available. Drawing on experts in both academia and industry, coverage addresses theoretical developments and practical improvements from research and innovations. This unique book will advise readers on how to achieve sustainable manufacturing processes and systems, and further the clean and safe environment. This handbook is a part of the four volume set entitled Handbooks in Advanced Manufacturing. The other three address Advanced Machining and Finishing, Advanced Welding and Deforming, and Additive Manufacturing. Provides basic to advanced level information on various

aspects of sustainable manufacturing Presents the strategies and techniques to achieve sustainability in numerous areas of manufacturing and industrial engineering such as environmentally benign machining, sustainable additive manufacturing, remanufacturing and recycling, sustainable supply chain, and life cycle engineering Combines contributions from experts in academia and industry with the latest research and case studies Explains how to attain a clean, green, and safe environment via sustainable manufacturing Presents recent developments and suggests future research directions

CAD/CAM, Robotics and Factories of the Future CRC Press

This book presents selected papers from the International Conference on Advances in Materials Processing and Manufacturing Applications (iCADMA 2020), held on November 5–6, 2020, at Malaviya National Institute of Technology, Jaipur, India. iCADMA 2020 proceedings is divided into four topical tracks – Advanced Materials, Materials Manufacturing and Processing, Engineering Optimization and Sustainable Development, and Tribology for Industrial Application.

Emerging Trends in Mechanical and Industrial Engineering CRC Press

This book comprises the select proceedings of the 2nd International Conference on Future Learning Aspects of Mechanical Engineering

(FLAME) 2020. In particular, this volume discusses different topics of industrial and production engineering such as sustainable manufacturing processes, logistics, Industry 4.0 practices, circular economy, lean six sigma, agile manufacturing, additive manufacturing, IoT and Big Data in manufacturing, 3D printing, simulation, manufacturing management and automation, surface roughness, multi-objective optimization and modelling for production processes, developments in casting, welding, machining, and machine tools. The contents of this book will be useful for researchers as well as industry professionals. Operations and Supply Chain Management in the Food Industry CRC Press Micro Electro-fabrication outlines three major nanoscale electro-fabrication techniques, including electro-discharge machining, electrochemical machining and electrochemical deposition. Applications covered include the fabrication of nozzles for automobiles, miniature hole machining for aerospace turbine blade cooling, biomedical device fabrication, such as stents, the fabrication of microchannels for microfluidic application, the production of various MEMS devices, rapid prototyping of micro components, and nanoelectrode fabrication for scanning electron microscopy. This comprehensive book discusses the

fundamental nature of the various electro-fabrication processes as well as mathematical modelling and applications. It is an important reference for materials scientists and engineers working at the nanoscale. Provides state-of-the-art research investigations on various topics of micro/nano EDM, micro LECD, micro/nano ECM and ECDM techniques Compares a variety of electro-fabrication techniques, outlining which is best in different situations Outlines a variety of modeling and optimization techniques relating to micro/nano EDM, micro LECD, micro/nano ECM and ECDM

Innovations in Mechanical Engineering II

Woodhead Publishing

This book comprises select papers presented at the conference on Technology Innovation in Mechanical Engineering (TIME-2021). The book discusses the latest innovation and advanced research in the diverse field of Mechanical Engineering such as materials, manufacturing processes, evaluation of materials properties for the application in automotive, aerospace, marine, locomotive and energy sectors. The topics covered include advanced metal forming, Energy Efficient systems, Material Characterization, Advanced metal forming, bending, welding & casting techniques, Composite and Polymer Manufacturing, Intermetallics, Future generation materials, Laser Based

Manufacturing, High-Energy Beam Processing, Nano materials, Smart Material, Super Alloys, Powder Metallurgy and Ceramic Forming, Aerodynamics, Biological Heat & Mass Transfer, Combustion & Propulsion, Cryogenics, Fire Dynamics, Refrigeration & Air Conditioning, Sensors and Transducers, Turbulent Flows, Reactive Flows, Numerical Heat Transfer, Phase Change Materials, Micro- and Nano-scale Transport, Multi-phase Flows, Nuclear & Space Applications, Flexible Manufacturing Technology & System, Non-Traditional Machining processes, Structural Strength and Robustness, Vibration, Noise Analysis and Control, Tribology. In addition, it discusses industrial applications and cover theoretical and analytical methods, numerical simulations and experimental techniques in the area of Mechanical Engineering. The book will be helpful for academics, including graduate students and researchers, as well as professionals interested in interdisciplinary topics in the areas of materials, manufacturing, and energy sectors.

Smart Manufacturing Technologies for Industry 4.0 Woodhead Publishing

This book focuses on the application of soft computing in materials and manufacturing sectors with the objective to offer an intelligent approach to improve the manufacturing process, material selection and characterization techniques for developing

advanced new materials. It unveils different models and soft computing techniques applicable in the field of advanced materials and solves the problems to help the industry and scientists to develop sustainable materials for all purposes. The book focuses on the overall well-being of the environment for better sustenance and livelihood. Firstly, the authors discuss the implementation of soft computing in the various areas of engineering materials. They also review the latest intelligent technologies and algorithms related to the state-of-the-art methodologies of monitoring and effective implementation of sustainable engineering practices. Finally the authors examine the future generation of sustainable and intelligent monitoring techniques beneficial for manufacturing, and cover novel soft computing techniques for the purpose of effective manufacturing processes at par with the standards laid down by the International Standards of Organization (ISO). This book is intended for academics and researchers from all the fields of engineering interested in joining interdisciplinary initiatives on soft computing techniques for advanced materials and manufacturing.

3D Printing in Podiatric Medicine CRC Press

This book comprises the select proceedings of the International Conference on Future Learning Aspects of Mechanical

Engineering (FLAME 2020). This volume focuses on current research in fluid and thermal engineering and covers topics such as heat transfer enhancement and heat transfer equipment, heat transfer in nuclear applications, microscale and nanoscale transport, multiphase transport and phase change, multi-mode heat transfer, numerical methods in fluid mechanics and heat transfer, refrigeration and air conditioning, thermodynamics, space heat transfer, transport phenomena in porous media, turbulent transport, theoretical and experimental fluid dynamics, flow measurement techniques and instrumentation, computational fluid dynamics, fluid machinery, turbo machinery and fluid power. Given the scope of its contents, this book will be interesting for students, researchers as well as industry professionals.

Operations Management and Data Analytics Modelling

GIAP Journals

Increased demand for and developments in micromanufacturing have created a need for a resource that covers both the science and technology of this rapidly growing area. With contributions from eminent professors and researchers actively engaged in teaching, research, and development, Micromanufacturing Processes details the basic principles, tools,

Alcohol as an Alternative

Fuel for Internal Combustion Engines
Springer Nature
3D Printing in Podiatric Medicine compiles an interdisciplinary range of scientific literature, laboratory developments, industrial implications and futuristic avenues in this field. The book provides recent developments and research breakthroughs in 3D printing in podiatric medicine, such as functionalized feedstock systems, smart products, process characteristics, modeling and optimization of printed systems and products, and industrial applications. It covers best practices for 3D printing methods to capture, document and validate challenges at the early stage of the design process. The book's content then goes into mitigating design strategies to address these challenges without compromising the cost, safety and quality of the device. This book supports new and emerging specializations and provides a comprehensive collection of technical notes, research designs, design methods and processes and case studies. Includes coverage of the biomechanical behavior of feet, injuries and injury prevention using 3D printed customized orthosis Uses an amalgamation of CAD/CAM, reverse engineering and artificial intelligence with 3D printing in podiatric medicine Investigates plantar pressure using gait measurement technologies
Computational

Intelligence in Manufacturing Springer Nature
Both process planning and scheduling are very important functions of manufacturing, which affect together the cost to manufacture a product and the time to deliver it. This book contains various approaches proposed by researchers to integrate the process planning and scheduling functions of manufacturing under varying configurations of shops. It is useful for both beginners and advanced researchers to understand and formulate the Integration Process Planning and Scheduling (IPPS) problem effectively. Features Covers the basics of both process planning and scheduling Presents nonlinear approaches, closed-loop approaches, as well as distributed approaches Discuss the outfit of IPPS in Industry 4.0 paradigm Includes the benchmarking problems on IPPS Contains nature-algorithms and metaheuristics for performance measurements in IPPS Presents analysis of energy-efficient objective for sustainable manufacturing in IPPS
Machines, Mechanism and Robotics Springer Nature
This book covers a variety of topics in the field of mechanical engineering, with a special focus on methods and technologies for modeling, simulation, and design of mechanical systems. Based on a set of papers presented at the 2nd International Conference “Innovation in Engineering”, ICIE, held in Minho, Portugal, on June 28–30, 2022, it focuses on

innovation in mechanical engineering, spanning from advanced materials and composites, optimization of manufacturing and production processes, and converging issues and technologies in additive manufacturing and industry 4.0. It covers applications in the transport and automotive, and medical and education sector, among others. This book, which belongs to a three-volume set, provides engineering researchers and professionals with extensive and timely information on new technologies and developments in the field of mechanical engineering and materials.

Recent Advances in Smart Manufacturing and Materials Elsevier This book presents the select proceedings of the 3rd International Conference on Recent Innovations & Technological Development in Mechanical Engineering (ICRITDME 2020). It focuses on recent innovations and technological developments in the area of mechanical engineering to solve real-life problems occurring in different domains. Various topics covered in this book include machinery and machine elements, automotive engineering, aerospace technology and astronautics, nanotechnology and microengineering, control, robotics, mechatronics, dynamical systems, control, fluid mechanics engineering, thermodynamics, and heat and mass transfer.

The book will be useful for students, researchers and professionals working in the area of mechanical engineering and allied fields.

Innovative Processes and Materials in Additive Manufacturing Springer Nature

This book presents select proceedings of the International Conference on Evolution in Manufacturing (ICEM 2020), and examines a range of areas including internet-of-things for cyber manufacturing, data analytics for manufacturing systems and processes and materials. The topics covered include modeling simulation and decision making in cyber physical systems for supporting engineering and production management, innovative approach in materials development, biomaterial applications, and advancement in manufacturing and material technologies. The book also discusses sustainability in manufacturing and supply chain management including circular economy. The book will be a valuable reference for beginners, researchers, and professionals interested in smart manufacturing in engineering, production management and materials technology.

Advances in Materials Processing and Manufacturing Applications Walter de Gruyter GmbH & Co KG

This book offers effective and competitive food supply chains that are the consequence of technological innovation, collaboration, small agri-

food business cases, entrepreneurial opportunities, cold chain technology management, disruptive technologies, and performance assessment through empirical analysis, case studies, and multimethod research in the food industry. The book comprehensively covers different interfaces of the food supply chain including procurement, processing, distribution, consumer, i.e., farm to fork. It provides solutions to various challenges such as globalization, food recalls, technological innovations, and consumer trust. This book will be of interest to researchers in the areas of the food supply chain, operations management, industrial engineering as well as professionals in the agri-food and allied industry.

Micro Electro-fabrication Academic Press

This book addresses issues related to the integration of digital evolutionary technologies and provides solutions to various challenges encountered during the implementation process. With real-time case studies, the book explains the smart technologies available and their operational applications and benefits in the manufacturing sector. Smart Manufacturing Technologies for Industry 4.0: Integration, Benefits, and Operational Activities assists in the understanding of the shifting paradigm in the manufacturing sector towards smart manufacturing and spotlights these

technologies and the effects they are having on existing industries. It showcases Industry 4.0 as a promising research area in its infancy and offers insights into the role smart technologies are playing now and into the future. The book focuses on smart technologies' rudiments, implementation, and integration for organizational development and offers insights on how to achieve resiliency through and because of these technologies. This book presents real-time implementation discussions along with case studies that emphasize benefits and operational activities for engineers and managers. It's also a very useful book for technology developers, academicians, data scientists, industrial engineers, researchers, and students interested in uncovering the latest innovations in a field that seeks current research on products and services.

Tribology and Surface Engineering for Industrial Applications

Springer Nature Computational Intelligence in Manufacturing addresses applications of AI, machine learning and other innovative computational techniques across the manufacturing supply chain. The rapid development of smart or digital manufacturing known as Industry 4.0 has swiftly provided a large number of opportunities for product and manufacturing process improvement. Selecting the appropriate technologies and

combining them successfully is a challenge this book helps readers overcome . It explains how to prepare different manufacturing cells for flexibility and enhanced productivity with better supply chain management, e.g., calibrating design machine tools for automation and agility. Computational intelligence applications for non-conventional manufacturing processes such as ECM and EDM are covered alongside recent advances in traditional processes like casting, welding and metal forming. As well as describing specific applications, this practical guide also explains the computational intelligence paradigm for enhanced supply chain management. Includes hot topics such as augmented and virtual reality applications in manufacturing Provides details of computational techniques, such as nature inspired algorithms for manufacturing process modeling Gives practical technical advice on how to calibrate processes and tools to work efficiently in an industry 4.0 system