

1. Record Nr.	UNINA9910879600203321
Autore	Muduli Kamalakanta
Titolo	Evolutionary Manufacturing, Design and Operational Practices for Resource and Environmental Sustainability
Pubbl/distr/stampa	Newark : , : John Wiley & Sons, Incorporated, , 2024 ©2024
ISBN	1-394-19822-1 1-394-19821-3
Edizione	[1st ed.]
Descrizione fisica	1 online resource (544 pages)
Altri autori (Persone)	RoutSachindra Kumar SarangiSunil IslamSardar M. N MohamedAezeden
Disciplina	670.286
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Cover -- Series Page -- Title Page -- Copyright Page -- Contents -- Preface -- Part 1: Sustainable Operational Practices and Supply Chain Management -- Chapter 1 Financial Impacts of COVID-19: A Special Emphasis on the Sustainability of Indian Banking Sectors and Stock Markets -- Abbreviations -- 1.1 Introduction -- 1.1.1 Objectives of the Study -- 1.2 Research Methodology -- 1.3 Literature -- 1.3.1 Impact Areas of COVID-19 -- 1.3.2 Reforms by the Government of India and RBI -- 1.3.3 Regulatory Measures to Overcome COVID-19 -- 1.3.3.1 Financial Institution's Reforms -- 1.3.4 Influence of COVID-19 on Indian Stock Markets -- 1.4 Conclusion -- References -- Chapter 2 Dynamic Load Frequency Control of Microgrids with Diverse Distributed Energy Resources -- Abbreviations -- 2.1 Introduction -- 2.2 PV Modeling -- 2.2.1 Mathematical Modeling of Boost Converter and Inverter -- 2.2.2 The Gain for State Two -- 2.2.3 The Gain for State Three -- 2.2.4 The Gain for State Four -- 2.3 Grid Modeling -- 2.3.1 Droop -- 2.3.2 Governor Time Constant -- 2.3.3 Turbine Time Constant -- 2.3.4 Generator Load Model -- 2.3.5 Steady State LFC Analysis -- 2.4 Mathematical Model of PV-Grid System -- 2.5

Conclusion -- References -- Chapter 3 Analysis of Microgrids with Diverse Distributed Energy Resources Using Genetic Algorithm -- List of Abbreviations -- 3.1 Introduction -- 3.2 Mathematical Model of PV-Grid System -- 3.2.1 The LFC Algorithm of the Proposed System -- 3.3 Results and Discussion -- 3.3.1 Results Obtained At Steady State Condition -- 3.3.2 PV Power Analysis at Steady State -- 3.3.3 Grid Power Analysis at Steady State -- 3.3.4 PV-Grid Interconnected Load Analysis -- 3.3.5 Conversion of Results in Per Unit to MW -- 3.4 Results Obtained at Dynamic State Using Proposed GA-Optimized PID Controller -- 3.4.1 PV Power Analysis at Dynamic State. 3.4.2 Grid Turbine Power Analysis -- 3.4.3 PV-Grid Interconnected Load Analysis -- 3.4.4 Conversion of Results in Per Unit to MW -- 3.5 Conclusion -- References -- Chapter 4 Comparison of Solar Power Forecasting Using RNN-Dense and LSTM-Dense Neural Network -- List of Abbreviations -- 4.1 Introduction -- 4.2 Related Work -- 4.3 Machine Learning -- 4.3.1 Model of a Simple RNN (Recurrent Neural Network) -- 4.3.2 The LSTM (Long and Short-Term Memory) -- 4.4 Methodology -- 4.4.1 Normalization -- 4.4.2 Preprocessing of Data -- 4.4.3 Code Execution -- 4.4.4 Prediction Accuracy -- 4.5 Results -- 4.6 Conclusion -- References -- Chapter 5 Organizational Opportunities Through Digital- and Social-Media Marketing for Sustainable Businesses -- Abbreviations -- 5.1 Introduction -- 5.2 Methodology -- 5.3 Literature -- 5.3.1 Environmental Aspects -- 5.3.2 Organizational Aspects -- 5.3.3 Marketing Aspects -- 5.3.4 Outcome-Based Aspects -- 5.4 Challenges in DSMM -- 5.5 Conclusion -- References -- Chapter 6 Design of Innovative and User-Friendly Household PET Plastic Bottle Shredder to Promote Green Economy -- List of Abbreviations -- 6.1 Introduction -- 6.1.1 Effects of Plastic in PNG -- 6.1.2 Possible Solutions -- 6.1.3 Objectives -- 6.2 Literature Review -- 6.2.1 Background -- 6.2.2 Structure of The Plastic Shredder Machine -- 6.2.3 Limitations -- 6.2.4 Future Research -- 6.3 Methodology -- 6.3.1 Research Phase -- 6.3.2 Design Phase -- 6.3.2.1 Shredder Mechanism -- 6.3.2.2 Driver -- 6.3.2.3 Drive Transmission -- 6.3.2.4 Frame -- 6.3.3 Fabrication Phase -- 6.4 Results and Discussion -- 6.4.1 Blade -- 6.4.2 Shaft -- 6.4.3 Spur Gears -- 6.5 Conclusion and Recommendation -- References -- Part 2: Prospective of Advanced Materials and Development for Sustainable Manufacturing -- Chapter 7 Sacrificial Anodes and Environmental Effects -- Abbreviations -- 7.1 Introduction.  
7.1.1 Magnesium-Effective Sacrificial Anodes -- 7.1.2 Zinc-Less Effective After Magnesium -- 7.1.3 Aluminum-Less Reactive After Zinc and Magnesium -- 7.1.4 Sacrificial Anodes and Impressed Current CP System -- 7.1.4.1 Impressed Current Cathodic Protection -- 7.1.4.2 Sacrificial Anodes -- 7.1.5 Environmental Impacts -- 7.2 Literature Review -- 7.2.1 Electrolyte Resistivity -- 7.2.2 Thermal Spray Aluminum (TSA) -- 7.2.3 Distributed Sacrificial Anodes (DSA) -- 7.3 Methodology -- 7.3.1 Electrolyte Resistivity Data Analysis -- 7.3.1.1 Soil Resistivity Against Current -- 7.3.2 Corrosion Rates of Cathodes in Puma Energy -- 7.3.2.1 Experiment and Calculations -- 7.3.2.2 Data Analysis -- 7.3.2.3 Corrosion Penetration Rate -- 7.3.2.4 Quantity of Sacrificial Anodes Against Soil Resistivity -- 7.4 Recommendation -- 7.5 Conclusion -- References -- Chapter 8 Experimental Investigation of Steel and Porous Al Foam LM Vehicle Leaf Spring By Using Mechanical and Computer Method -- List of Abbreviation -- 8.1 Introduction -- 8.2 Manufacture of Al Foam -- 8.3 Tests for Deflection -- 8.3.1 Steel and Al Foam Leaf Spring Deflection -- 8.3.2 Finite Element Analysis -- 8.4 Results and Discussion -- 8.5 Conclusion -- References -- Chapter 9 Effect on Mechanical and Physical Properties of

Microwave-Sintered Alumina Nanocomposite on Addition of ZrO<sub>2</sub> and MgO -- Abbreviations -- 9.1 Introduction -- 9.2 Investigation Procedure -- 9.2.1 Selection of Materials for Nanocomposite -- 9.2.2 Fabrication Process of Nanocomposites -- 9.2.3 Characterization Methods and Techniques -- 9.3 Results and Discussion -- 9.3.1 Microstructural Investigation -- 9.3.2 Average Grain Size Study -- 9.3.3 Relative Density Examination -- 9.3.4 Porosity of Microwave-Sintered Samples -- 9.3.5 Microhardness Examination -- 9.4 Conclusions -- Acknowledgments -- References.

Chapter 10 Pull Test Analysis of Friction Welding Samples on Boiler Grade Materials With the Assistance of Taguchi and ANOVA -- Abbreviations -- 10.1 Introduction -- 10.2 Experimental Investigation -- 10.2.1 Selection of Base Materials, Tools and Supporting Block -- 10.2.2 FWT/PET Process -- 10.2.3 Mechanical Analysis -- 10.3 Discussion on Results -- 10.3.1 Taguchi Significance -- 10.3.2 Regression Analysis -- 10.3.3 Statistical Analysis (ANOVA) -- 10.3.4 Mechanical and Metallurgical Investigation -- 10.4 Conclusions -- References -- Chapter 11 A Review of Natural Biofiber-Reinforced Polymer Matrix Composites -- List of Abbreviation -- 11.1 Introduction -- 11.2 Biofibers in Manufacturing -- 11.3 Composites Made of Natural Biofibers -- 11.4 Natural Fibers Treatment -- 11.5 Selecting A Matrix -- 11.6 Mechanical Characteristics of Composites -- 11.6.1 Tensile Property -- 11.6.2 Impact and Flexural Properties -- 11.7 Conclusion -- References -- Chapter 12 Evaluation of Hot Corrosion and High Temperature Oxidation on GTA Weldments of Nb-Controlled INCONEL 718 -- Abbreviations -- 12.1 Introduction -- 12.2 Experimental Procedure -- 12.2.1 Materials and Methods -- 12.2.2 Welding Procedure -- 12.2.3 Welding Parameters -- 12.3 Results and Discussion -- 12.3.1 Microstructure of the Weldments -- 12.3.2 Macrostructure of Welded Specimen -- 12.3.3 Radiographic Test -- 12.3.4 Evaluation of Hardness Across Weldment -- 12.3.5 Hot Corrosion and High Temperature Oxidation Plots -- 12.3.6 Profilometry Analysis for Inconel 718 GTA Weldments -- Conclusions -- References -- Chapter 13 Review on "Fused Deposition Modeling" Process Parameters and Their Influence on Material Properties: A Sustainable Approach -- Abbreviations -- 13.1 Introduction -- 13.2 Process Parameters -- 13.3 Properties Affected by Different Process Parameters -- 13.3.1 Dimensional Accuracy.

13.3.2 Surface Roughness -- 13.3.3 Mechanical Properties -- 13.3.4 Tensile Strength -- 13.3.5 Compressive Strength -- 13.3.6 Other Mechanical Properties -- 13.4 Conclusions -- References -- Chapter 14 Numerical Investigation of Combustion Characteristics for Soybean Biodiesel Depending on Variable Compression Ratios by Using Diesel RK Software -- Nomenclature -- 14.1 Introduction -- 14.2 Physical Properties of Biodiesel -- 14.3 Production of Biodiesel -- 14.4 Diesel-RK Software -- 14.5 Results and Discussion -- 14.5.1 Combustion Analysis -- 14.5.1.1 Cylinder Pressure -- 14.5.1.2 Cylinder Temperature -- 14.5.1.3 Combustion Duration -- 14.5.1.4 Ignition Delay -- 14.6 Conclusion -- References -- Chapter 15 Property Evaluation of Coconut Shell Ash-Reinforced Aluminum Composite Made by Squeeze Casting -- List of Abbreviations -- 15.1 Introduction -- 15.2 Materials and Methods -- 15.3 Results and Discussion -- 15.3.1 Density -- 15.3.2 Microstructure -- 15.3.3 Hardness -- 15.3.4 Tensile Strength -- 15.4 Conclusion -- References -- Chapter 16 Synthesis and Characterization of AZ91 Magnesium Alloy-Alumina/Ceria Composite Coating By Thermal Spray Technique -- Abbreviations -- 16.1 Introduction -- 16.2 Selection of Materials and Methods -- 16.2.1 Materials Selection -- 16.2.2 Coating Formulation -- 16.2.3 Mechanical

Properties, Chemical Surface and Thermal Analysis -- 16.3 Results and Discussions -- 16.3.1 Coating Characterization: Morphology Studies -- 16.3.2 Coating Subsurface and Interface Analysis -- 16.3.3 Porosity and Density -- 16.3.4 Thermal Conductivity -- 16.4 Conclusions -- References -- Chapter 17 Sustainable Corrosion Prevention System of Steel Structures -- Abbreviations -- 17.1 Introduction -- 17.2 Sustainable Sacrificial Anodes -- 17.2.1 Importance of Sacrificial Anodes -- 17.2.2 Electrolytic Resistivity. 17.3 Impressed Current Cathodic Protection System.

---