ISBN(softcover): 978-3-03835-178-8 ISBN(eBook): 978-3-03826-561-0

Table of Contents

Preface and Organizing Committee

Chapter 1: Advanced Manufacturing Engineering and Materials

Numerical Investigation on Heat Transfer of Al_2O_3/Water Nanofluid in a Shell and Tube Heat Exchanger
M. Raja, R. Vijayan, R. Vivekananthan and M.A. Vadivelu 3

Effect of Surface Treatment on the Mechanical Properties of Banana-Glass Fibre Hybrid Composites
V. Santhanam and M. Chandrasekaran 7

Improving the Mechanical Properties of Friction Stir Welded AZ31B Magnesium Alloy Flat Plates through Axial Force Investigation
P. Sevvel and V. Jaiganesh 11

Experimental Investigations on Machining Micro Alloy Steel (MAS 38MnSiVS5) Using K 20 Multi Coated Carbide Insert
S. Muniraj and N. Muthukrishnan 15

Improving the Hardness of a Wind Turbine Gear Surface by Nitriding Process
P. Sakthivel and G.P. Rajamani 19

Design of Electromechanical Engine for Zero Direct Emission
M. Rajesh, J. Jancirani and V. Aishwarya 23

VED & ABC Analysis of Inventories for a Wind Turbine Company
P. Kumar, A. John Rajan and K.N. Balan 27

Analysis on the Performance, Combustion and Emission Characteristicsof a CI Engine Fuelled with Algae Biodiesel
J. Jayaprabakar and A. Karthikeyan 33

Reducing UT Rejections in Cr-Mo and High Mn Steels by Controlling Hydrogen and Optimising Superheat
D. Ravichandar, T. Balusamy and K.B. Nagashanmugam 38

Synthesis and Characteristic of AA6061/SiC Sand Cast Composite
M. Selvakumar, G.P. Rajamani and K. Kalaiselvan 43

Response of Composite Leaf Springs to Low Velocity Impact Loading
R. S. and G.B. Bhaskar 47

Corrosion Behavior of Aluminium-Boron Carbide-Graphite Composites
C. Muthazhagan, A. Gnanavelbabu, K. Rajkumar and G.B. Bhaskar 51

Formability Analysis of AA6061 Aluminium Alloy at Room Temperature
D. Loganathan and A. Gnanavelbabu 55

Reinforcing Effect of Montmorillonite Nanoclay on Mechanical Properties of High Density Polyethylene Nanocomposites
N. Venkatesan, G.B. Bhaskar, K. Pazhanivel and K. Poyyathappan 60

Influence of SMA Short Fibers on Mechanical Properties of Copper/GFRP Composites
K. Pazhanivel, G.B. Bhaskar, N. Venkatesan, P. Anandan and S. Arunachalam 64

Multi Objective Optimization for Spur Gear Design Using Sheep Flocks Heredity Model Algorithm
P. Arulmozhi, M. Chandrasekaran and S. Padmanabhan 68

Dynamic Mechanical and Flexural Characteristics of Glass-Carbon Hybrid Composites
K. Poyyathappan, G.B. Bhaskar, N. Venkatesan, K. Pazhanivel, G. Saravanan and S. Arunachalam 72

Amperometric Determination of L-Ascorbic Acid Using Copper Hexacyanoferrate Nanoparticles Modified Electrode
R.A. Kalaivani and S. Sriman Narayanan 77

Investigation of Surface Roughness on R19 Steel Using PIN on Disc Apparatus
M. Pradeep, P. Vignesh, M. Arun and M. Durairaj 81

Comparative Investigations on the Mechanical and Tribological Properties of Glass Fibre Reinforced Thermoplastic and Blended Graphene-Oxide Hybrid Thermoplastic Nanocomposites
R. Geetha and P. Jawahar 85

Abrasive Assisted Electro Chemical Machining of Aluminum-Boron Carbide-Graphite Hybrid Composite
M. Sankar, R. Baskaran, K. Rajkumar and A. Gnanavelbabu 89

Advanced Product Configuration in Manufacturing Using Enterprise Resource Planning Variant Configuration with Optimization in Manufacturing and Assembly Processes
D. Ram Babu, A. Lenin and G.B. Bhaskar 94

Variation in Residual Stresses due to Thermal Cycling Induced on the Hardfaced Grid Plate in PFBR
S. Balaguru, K. Saranraj, Murali Vela and P. Chellapandi 98

Mechanical Properties of Chopped Randomly Oriented Epoxy - Luffa Fiber Reinforced Polymer Composite
R. Panneerdhass, R. Baskaran, K. Rajkumar and A. Gnanavelbabu 103

Evaluation of Mechanical Property of Friction Welded EN24 Steel Joints
M. Martin Charles, A. Gnanavelbabu and K. Rajkumar 108

Analysis of AlSi CNT Composite Coating on Al6061 and SS304L Substrate by Plasma Spray
R. Kumar, S. Madhu and M. Balasubramanian 112

Investigation on Impact and Compression Properties of Pineapple Reinforced Polymer Composite
V.M. Manickavasagam, B.V. Ramnath, C. Elanchezhian, J. Jenish, S. Jayavel and V. Muthukumar 116

A Review on CNT Reinforced Aluminium and Magnesium Matrix Composites
B.V. Ramnath, C. Parswajinan, C. Elanchezhian, S.V. Pragadeesh, P.R. Ramkishore and V. Sabarish 120

Determination of Mechanical Properties of Notched Weft Knitted Glass Fiber in Variable Thickness Composites
C. Elanchezhian, B.V. Ramnath, K.P. Kumar, S.P. Saikeerthi and M.S. Kumar 124

Analytic Studies on the Computer Aided Design and Analaysis of Hydro Electric Barrel Turbine
Rayid Muneer, R. Vithya Sagar and S. Ramachandran 128

Investigate the Fiber Reinforcement Effect on Viscoelastic Response and Thermal Stability of Hybrid Friction Composites
S. Manoharan, G. Ramadoss and B. Suresha 132

Modelling and Analysis of Extrusion Die and Bolt Ejector Pin
B.V. Ramnath, V. Chandrasekhar, S. Pithchai Pandian, R. Sundarrajan, A. Santhosh Shankar and S. Vickneshwaran 137

Investigation of Mechanical Behaviour of Glass Fibre Based SiC Polymer Composites
B.V. Ramnath, S. Rajesh, C. Elanchezhian, V. Vignesh, V. Vijai Rahul, V. Tamilselvan and S.U.S. Narayanan 142

Investigation of Tensile Behavior of Sisal and Coir Reinforced Hybrid Composites Using Vinyl Ester Resin
C. Chaithanyan, T. Panneerselvam, S. Raghuraman and B.V. Ramnath 146

Hydrogen Gas in Diesel Engine Using DEE as Ignition Source
C. Dhanasekaran and G. Mohankumar 150

Chapter 2: Intelligent Algorithms and Industry Development, its Applications for Manufacturing Engineering and Automation

Optimization of Multi Objective Job Shop Scheduling Problems Using Firefly Algorithm
K.C. Udaiyakumar and M. Chandrasekaran 157

Time and Frequency Domain Performance Comparison for Wheeze Detection Using K-Nearest Neighbor
Syamimi Mardiah Shaharum and K. Sundaraj 163

Development of after Sales Service Strategies for the Manufacturing Firm
B. Malarkannan, S. Murali, C. Muralidharan and S. Pugazhendhi 167

Computational Complexity Analysis of Selective Breeding Algorithm
M. Chandrasekaran, P. Sriramya, B. Parvathavarthini and M. Saravanamanikandan 172

Optimization of Total Holding Cost in Job Shop Scheduling by Using Hybrid Algorithm
S. Gobinath, C. Arumugam, G. Ramya and M. Chandrasekaran 176

Controlling of Faulty Vehicles Using GSM and GPS Technology
G. Elumalai, G.B. Bhaskar and R. Subash 180

A New GT Heuristic for Solving Multi Objective Job Shop Scheduling Problems
D. Lakshmipathy, M. Chandrasekaran, T. Balamurugan and P. Sriramya 184

Improved TCP Congestion Control Mechanism for Multihop Wireless Networks
G. Sankara Malliga, T. Meeradevi, M. Umaparvathi, B. Parvathavartini, S. Thayammal and P. Sriramya 189

Powered Two-Wheeler with Integrated Safety Using Recurdyn Multi-Body Dynamics
B.V. Ramnath, K. Venkataraman, S. Venkatram, S. Thomas, M. Maheshwaran and N. Dinesh 193

Comparative Analysis of AHP and ANP Model for Lean Production System Justification
K. Venkataraman, B. Vijaya Ramnath, S. Kannapan, L.B.S. Vinoth and K.V. Velmurugan 197

Multi Camera Image Capturing for Robot Soccer
N. Sivadev and K. Sundaraj 202

Super Strongly Perfect Graphs in the Selection of Cluster Heads in Wireless Sensor Networks
R. Mary Jeya Jothi, S.E. Roslin and N.M. Nandhitha 206

Pulmonary Acoustic Signal Classification Using Autoregressive Coefficients and k-Nearest Neighbor
Rajkumar Palaniappan, K. Sundaraj, S. Sundaraj, N. Huliraj, S.S. Revadi and B. Archana 211

Effective Performance of an User Friendly Dynamic Tool Design in Small and Medium Scale Enterprises
T. Varun Kumar, B. Ganeshbabu and M. Saravanan 215