Table of Contents

Preface, Committees

Chapter 1: Research and Design of Structural Materials

The Effect of Ceramic Reinforcement on the Microstructure, Mechanical Properties and Tribological Behavior of Al-7.5%Si-0.5%Mg Alloy L. Avinash, H. Kumar, A. Parthasarathy, K.N. Varun Kumar and B. Sajjan	3
Investigation of Mechanical Properties and Dry Sliding Wear Behaviour of Graphite Reinforced Al7068 Alloy B. Sajjan, L. Avinash, S. Varun, K.N. Varun Kumar and A. Parthasarathy	10
Effect of Reinforcement and Tribological Behaviour of AA 7068 Hybrid Composites Manufactured through Powder Metallurgy Techniques	
J. Lakshmipathy, S. Rajesh Kannan, K. Manisekar and S. Vinoth Kumar	19
Delamination in Drilling of Sisal/Banana Reinforced Composites Produced by Hand Lay-Up Process	
A. Saravana Kumar, P. Maivizhi Selvi and L. Rajeshkumar	29
Fabrication and Characterization of Al-0.4%Si-0.5%Mg - SiCp Using Permanent Mould Casting Technique A. Parthasarathy, L. Avinash, K.N. Varun Kumar, B. Sajjan and S. Varun	34
Effect of Mechanical Properties on Various Surface Treatment Processes of Banana/Cotton Woven Fabric Vinyl Ester Composite	4.4
C. Umachitra, N.K. Palaniswamy, O.L. Shanmugasundaram and P.S. Sampath	41
Experimental Investigation and Analysis of Ecofriendly Compression Molded Woven Plant Fibre Polyester Composite S.B. Lazarus, E. Jamuna, S. Duraisivam and M. Ravisankar	48
An Experimental Investigation of the Properties of Self Curing Concrete Using Foundry	
Sand S. Ragunath, R. Gokulan and K. Letcham	58
Effects of Nano Particles on the Microstructure of LM 25 (A356) Alloy Manufactured by	
Squeeze Casting N. Nagendran, N. Gayathri, V.K. Shanmuganathan and S. Praveen	64
Chapter 2: Materials Processing Technologies	
Optimization of Material Removal Rate in Wire-EDM Using Fuzzy Logic and Artifical Neural Network	
R. Ashok, L. Poovazhagan, S. Srinath Ramkumar and S. Vignesh Kumar	73
Fatigue Strength Improvement of TIG Welded Joint by Shot Peening Process S. Arun Kumar, M. Muralidharan, P. Ashoka Varthanan, C. Vigneshkumaran, A. Bala Kumaran and S. Nishanth	81
Development of Mathematical Models for Prediction of Weld Bead Geometry of GTAW Stainless Steel	
S.M. Ravikumar and P. Vijian	88
Process Parameters Optimization of Friction Stir Welding in Aluminium Alloy 6063-T6 by Taguchi Method	07
T. Ganapathy, K. Lenin and K. Pannerselvam	97
Friction Stir Spot Welding of AZ31B Magnesium Alloy S. Ramesh Babu, M. Nithin, S. Pavithran and B. Parameshwaran	105
Optimization Analysis of Process Parameters of Friction Stir Welded Dissimilar Joints of Aluminium Alloys	110
S. Rajesh Kannan, J. Lakshmipathy, M. Vignesh Kumar, K. Manisekar and N. Murugan	112
Computational of Orthogonal Metal Cutting Process Using Smooth Particle Hydrodynamics S. Muthusamy and A. Arulmurugu	119

Modeling and Analysis of Friction Stir Welding and Underwater Friction Stir Welding of	
Aluminium Alloy: A Review S. Shamsudeen and J.E.R. Dhas	127
Optimization of Cutting Parameters in Machining GFRP Using End Mill Cutter through DoE and Verification through Genetic Algorithm S. Sankar and V.K. Manivarma	134
Parametric Optimization of CNC End Milling Process on Aluminium 6063 Alloy Using	134
Grey Based Taguchi Method M.A. Hussain, K.K. Prasad, A.S. Jadhav and G. Biradar	148
Wear Analysis of LM 25 (A356) Alloy Manufactured by Squeeze Casting N. Nagendran, V.K. Shanmuganathan, N. Gayathri and G. Dinesh Ram	157
Performance Evaluation of PVD and CVD Coated Inserts during End Milling with DRY and MQL Condition I. Srivastava and A. Batish	165
Parametric Investigations on Surface Roughness of Hard Turned AISI 52100 Steel B. Ravi Sankar, P. Umamaheswarrao, S.N. Sharief, T. Suresh and R. Raju	171
Experimental Investigation of Single Point Incremental Forming of Aluminum Sheet in	1/1
Groove Test V. Sharma, A. Gohil and B. Modi	177
Chapter 3: Design of Machines for Solar Power	
Enhancement of Performance of Solar Parabolic Trough Collector Using Selective Absorption Coating	
A.M. Sukanta, M. Vignesh and C. Dhineshkumar	187
Performance Enhancement of Solar Parabolic Trough Collector Using Intensified Ray Convergence System A.M. Sukanta, M.N. Sakthivel, G. Manoranjith and L. Naveen Kumar	191
A Comparative Analysis and Effect of Water Depth on the Performance of Single Slope Basin Type Passive Solar Still Coupled with Flat Plate Collector and Evacuated Tube Collector	
S. Balamurugan, N.S. Sundaram, K.P. Marimuthu and J. Devaraj	195
Chapter 4: Engineering Practice of Design in Machinery	
Stiffness Analysis of Inverted Tripod Parallel Manipulator T. Geethapriyan, R. Manoj Samson, T. Muthuramalingam and A.C. Arun Raj	205
Structural Analysis of CFRP Layered Laminate under Bi-Axial Loading L. Kaushik, D.B. Shah, S.J. Joshi and K.M. Patel	212
Optimization of Spur Gear Design to Reduce Stress M. Senthil Kumar, M. Santhosh, E. Arvind, M. Ashwin and S. Prashant	220
Finite Element Analysis of Aluminium Based Composite as a Material for Connecting Rod B. Nandish, K.P. Muthanna and M.B. Kaveriappa	228
GETSLOCK-Advanced Front Closure Design for Multi-Tube Hairpin Heat-Exchanger L. Babu, V.K. Anugraha and A. Babu	233
Thermal Analysis and Fabrication of Split Shoe Drum Brake S. Duraisivam and E. Jamuna	239
Analysis of Physical and Mechanical Properties of A3003 Aluminum Honeycomb Core Sandwich Panels	
S. Rajkumar, B. Arulmurugan, M. Manikandan, R. Karthick and S. Kaviprasath Application of Tubercles in Wind Turbine Blades: A Review	245
V.V. Kumar and D.A. Shah	254
Performance and Emission Analysis of a Ci Engine Fuelled with JOME-JOEE-Diesel Blends	
S. Sankar, V.K. Manivarma and A. Thampi	261
Energy Saving Method for Operating CNC Machine Door N. Gayathri, V.K. Shanmuganathan, K.G. Karthigayan and S. Manesh Kumar	272

Chapter 5: Industrial Engineering and Product Design

Measure of Utilisation of Government Schemes & Support by Small and Medium	
Enterprises (SME): Service Providers Perspective S. Gopinath, K. Srivats Balan, M. Ramanathan and K. Narashiman	283
Sustainability Analysis of Prototyping Processes K. Jayakrishna, P. Sanjay Guar, R. Senthilkumar and N. Aathis	290
Modeling the Performance Measures of Public Sector Banks H. Tata and N. Vijaya Sai	294
Development of Environmental Value Stream Model for Assessing Sustainability in Manufacturing	301
K. Jayakrishna, M. Srikrishna, S. Senthilkumar, A. Vinoth Louie and R. Kamalakannan Scheduling of Machines and Automated Guided Vehicles in FMS Using Gravitational	301
Search Algorithm M. Nageswararao, K. Narayanarao and G. Rangajanardhana	307