

Table of Contents

Preface

Sensor Based Human Movement Controlled Hydraulic and Electrical Robotic Arm M.S. Rahman, R.A. Sultan and N.M. Hasan	1
Effect of Heat Treatment on Low Carbon Steel: An Experimental Investigation S.M.M. Rahman, K.E. Karim and M.H.S. Simanto	7
A Surface Generation Mechanism of Grinding A.M.M. Sharif Ullah, M.A.K. Chowdhury and A. Kubo	13
Flatwise Compression and Flexural Behaviour of Perlite/Sodium Silicate Composite Foam M. Arifuzzaman and H.S. Kim	19
Analysis of Interface Trap Densities for Al₂O₃ Dielectric Material Based Ultra Thin MOS Devices N.P. Maity, R.R. Thakur, R. Maity, R.K. Thapa and S. Baishya	25
Modeling and Simulation of Tunneling Current Density for Ultra Thin MOS Devices N.P. Maity, R. Maity, R.K. Thapa and S. Baishya	30
Characterization of Nanoscale Ultrasonic Transducer Elements as Effective Acoustical Devices R. Maity, N.P. Maity, R.K. Thapa and S. Baishya	35
Investigation of Silicon Nitride as an Excellent Membrane Material for MEMS Ultrasonic Transducers R. Maity, N.P. Maity, R.K. Thapa and S. Baishya	41
Marforming: A Novel Method for Grain Refinement in Ni-Ti Based Shape Memory Alloys R. Basu, J.A. Szpunar and M. Eskandari	46
3D CFD Based Optimization Technique for Muffler Design of a Motorcycle M.A. Habib, M.A.U. Patwari, A.S. Anwar, S. Shadman and O.H. Abir	52
Tool Life Improvement by Externally Applied Ultrasonic Waves in Cutting Process of Dry Turning Operation of Mild Steel M.A.U. Patwari, M.S.I. Chowdhury, M.A. Habib, A.H. Neelav, M.S. Latif and T.M.M. Sunny	58
Investigation of Quality of Drilled Holes by Guiding the Drill Bit Using Permanent Magnet on a Glass Fibre Reinforced Polymer Composite Material M.A.U. Patwari, S.M. Yusuf, M.A. Habib, S. Ragib and F. Azam	64
Development of a Passive Damping Tool Holder for the Improvement of Surface Roughness in Turning Operation of Stainless Steel M.A.U. Patwari, M.K. Bashir, M.A. Habib, A. Aziz and M. Alam	70
Reduction of Process Lead Time Using Lean Tool - Value Stream Mapping (VSM) A.H. Chowdhury, S. Shahriar, T. Hossen and P. Mahmud	74
Effects of Rice Husk Ash and Brick Waste on the Properties of Construction Bricks S.M. Sorna, S.E. Anjum, S.B. Ashraf and R. Haque	81
Fabrication of CoNiP Thin Films with Improved Magnetic Property for Application in MEMS M.S. Haque, M.F. Rahman, M.M. Zaman, M.A. Matin, A.K.M.A. Hakim and M.F. Islam	87
Analysis of a CNG Driven Three Wheeler Drive Shaft R.I. Rubel, M.J. Iqbal and M.E. Hoque	93
Investigation on the Correlation between Structural and Electrical Properties of Lanthanum Doped Barium Titanate Ceramics M. Billah and M.M. Rahman	99
A Study on the Structural Strength and Behaviour of Composite Profiled Steel Sheet with Plywood S.M.Z. Islam, D. Khatun and A. Amin	105
A Review on Analytical Modeling of Bio-Sensors Based on Carbon Nanotube O. Ahamed, F. bin Mazhar and M. Rasedujjaman	111
Comparative Study of the Characteristics in Strained Al_xIn_yGa_(1-x-y)N/InGaN and Al_xIn_yGa_(1-x-y)N/GaN Heterostructures M. Islam, K.H. Sara, M. Rasedujjaman and M. Munna	117

A Framework for Application of Reliability Centered Maintenance in the Lead Oxide Production System	123
N. Ahmad and M.A.U. Karim	
Effect of Sintering Time on Dielectric Properties of Barium Titanate and Nb Doped Barium Titanate	129
M.K. Rahman, M.F. Hossain, K.M. Shorowordi and M.A. Matin	
Physical and Mechanical Properties of Chemically Treated Jute Fiber Reinforced MAgPP Green Composites	134
S. Shahinur, M. Hasan and Q. Ahsan	
Numerical Simulations of Fully Encased Composite Columns under Gravity Loads	140
S. Rahman and M. Begum	
Performance Analysis of Poly Vinyl Chloride Outsole Using FEA Method	146
N.R. Mondal, M.M. Ahmed, M.S. Arefin and M.H. Rony	
Effects of Chromium and Nickel Additions on the Austenite Grain Coarsening of Low Carbon Structural Steels Containing 0.13% C	152
M. Ahmed, M.M.A. Bepari and R.H. Galib	
Effect of Chromium and Nickel Additions on the Transformation Characteristic and Ferrite Grain Size Refinement of Low Carbon Structural Steels Containing 0.13% C	158
M.M.A. Bepari and M. Ahmed	
Effect of Different Corroding Media on the Corrosion Rate of Locally Produced Thermo Mechanically Treated (TMT) High Strength Structural Steel Bar	165
M.R. Jomaddar and M.M.A. Bepari	
Mechanical and Thermal Properties of Zn-xMg Solder Alloys	173
R.H. Galib, A. Sharif, M.A. Gafur, M.R. Qadir, M.A. Anwar and M.A.A. Antor	
Green Synthesis and Characterization of Silver Nanoparticles by Using Aloe Vera Leaf Extract to Study the Effects of Synthesis Parameters	179
A. Rahman, A.K.M.B. Rashid, M.A.A. Antor, M.A. Anwar and R.H. Galib	