

Table of Contents

Preface and Committees

Chapter 1: Material Removal Process

The Study of Surface Roughness and MRR of Mild Steel Using Manual Plasma Arc Cutting Machining

R. Bhuvanesh, M.S. Abdul Manan and M.H. Norizaman 3

Formation of Nitrides and Carbides on Titanium Alloy Surface through EDM

M.B. Ndaliman, A.A. Khan and Y.A. Mohammad 7

Investigation of the Effects of Machining Parameters and Air Blowing on Surface Topography in High Speed End Milling of Silicon

A.K.M.N. Amin, N.S. Khalid, S.N.M. Nasir and M.D. Arif 11

Application of Permanent Magnets for Chatter Control in End Milling of Titanium Alloy Ti-6Al-4V

S.A. Sulaiman, A.K.M.N. Amin and M.D. Arif 15

Comparison of Surface Roughness Attainable in High Speed End Milling of Silicon with Air Blowing on Conventional and CNC Milling Machines

A.K.M. Nurul Amin, S.N.M. Nasir, N.S. Khalid and M.D. Arif 19

A New Experimental Approach to Determination of Critical Depth in High Speed Machining of Soda-Lime Glass

M.A. Mahmud, A.K.M.N. Amin and M.D. Arif 23

Statistical Approach to Modeling & Optimization of Surface Roughness in High Speed End Milling of Silicon with Diamond Coated Tools

A.K.M.N. Amin, N.S. Khalid, S.N.M. Nasir and M.D. Arif 28

Influence of Magnetic Field on Reduction Chatter and of Surface Roughness in End Milling of Titanium Alloy - Ti-6Al-4V

S.A. Sulaiman, A.K.M.N. Amin and M.D. Arif 32

Modeling and Optimization of Critical Depth in High Speed End Milling of Soda Lime Glass

M.A. Mahmud, A.K.M.N. Amin and M.D. Arif 36

Prediction of Surface Roughness in Compressed Air Jet Assisted High Speed End Milling of Silicon Using Diamond Coated Tools

A.K.M.N. Amin, M.A. Mahmud and M.D. Arif 41

Optimization of Cutting Parameters for High Speed End Milling of Single Crystal Silicon by Diamond Coated Tools with Compressed Air Blowing Using RSM

M.A. Mahmud, A.K.M.N. Amin and M.D. Arif 46

Optimization of Surface Roughness in End Milling of Titanium Alloy Ti-6Al-4V under the Influence of Magnetic Field from Permanents Magnets

S.A. Sulaiman, A.K.M.N. Amin and M.D. Arif 51

Surface Modification by EDM Using Co-Cr Sintered Powder Metallurgy Electrode

A.A. Khan, M.B. Ndaliman, Y.A. Mohammad, M.H.B. Mansor and N.A.B. Idrus 56

A Comprehensive Study on Surface Roughness in Machining of AISI D2 Hardened Steel

N.A.H. Jasni and M.A. Lajis 60

Hole Making Process of Carbon Fiber Reinforced Polymer (CFRP) Using End Mill Cutting Tool

E.A. Rahim, Z. Mohid, K.C. Mat, M.F.M. Jamil, R. Koyasu and H. Sasahara 64

Experimental Study of Helical Milling on CFRP (Carbon Fibre Reinforced Polymer) for the Hole Making Process

E.A. Rahim, Z. Mohid, M.F.M. Jamil, K.C. Mat, R. Koyasu and H. Sasahara 68

Electro-Discharge Machining of SUS 304 Stainless Steel with TaC Powder-Mixed Dielectric

Z.M. Zain, M.B. Ndaliman, A.A. Khan and Y.A. Mohammad 72

Tool Wear Analysis in End Milling of Advanced Ceramics with TiAlN and TiN Coated Carbide Inserts

M.M. Reddy, A. Gorin, K.A. Abou-El-Hossein, D. Sujan, Y.A. Mohammad and M.A. Maleque 76

Analytical Calculation of the True Equivalent Chip Thickness for Cutting Tools and its Influence on the Calculated Tool Life	
J.E. Stähl and F. Schultheiss	80
The Effect of Internal through Coolant on Grinding Performance on AISI1020 Mildsteel	
E.A. Rahim, Z. Mohid, A.H.A. Rahman and M.F. Bahman	87
Prediction of Cutting Temperatures by Using Back Propagation Neural Network Modeling when Cutting Hardened H-13 Steel in CNC End Milling	
E.Y.T. Adesta, M.H.F. Al Hazza, M.Y. Suprianto and M. Riza	91
Power Consumption Optimization in CNC Turning Process Using Multi Objective Genetic Algorithm	
M.H.F. Al Hazza, E.Y.T. Adesta, M. Riza and M.Y. Suprianto	95
Predicting Surface Roughness with Respect to Process Parameters Using Regression Analysis Models in End Milling	
E.Y.T. Adesta, M.H.F. Al Hazza, M.Y. Suprianto and M. Riza	99
Surface Roughness Optimization in End Milling Using the Multi Objective Genetic Algorithm Approach	
M.H.F. Al Hazza, E.Y.T. Adesta, M. Riza and M.Y. Suprianto	103
Surface Roughness Model for High Speed End Milling of Soda Lime Glass Using Carbide Coated Tools with Compressed Air Blowing	
M.A. Mahmud, A.K.M.N. Amin and M.D. Arif	107
Optimization of Cutting Parameters in High Speed End Milling of Soda Lime Glass with Coated Carbide Tools Using Directional Compressed Air Blowing	
M.A. Mahmud, A.K.M.N. Amin and M.D. Arif	111
Optimization of Surface Roughness in End Milling of Medium Carbon Steel under the Influence of Magnets Attached to the Machine Spindle	
A.K.M.N. Amin, S. Akma, M. Akma and M.D. Arif	115
Surface Roughness Optimization in End Milling of Stainless Steel AISI 304 with Uncoated WC-Co Insert Under Magnetic Field	
A.K.M.N. Amin, S.A. Sulaiman, S.N.I. Mohd Zainun and M.D. Arif	119
Efficient Cryogenic Cooling during Machining of Rolled AISI 4340 Steel	
M.I. Ahmed and M. Hrairi	123

Chapter 2: Forming Processes

Optimization of Anode Usage in Electroplating Process by Using Response Surface Methodology	
S. Begum, F. Tarlochan and K. Sambasivam	129
Effect of Die Modification to Geometrical Defect of Cold Forged AUV Propeller Blade	
A.B. Abdullah, S.M. Sapuan, Z. Samad, M.T. Khaleed and N.A. Aziz	133
On Strain Distributions in the Formation of Flexible Channel Section Development of Flexible Cold Roll Forming Machine	
H. Ona, I. Shou and K. Hoshi	137
Development of Bio-Compatible Metallic Structures Using Direct Metal Deposition Process	
S.H. Riza, S.H. Masood, C. Wen and W. Song	141
Effect of Holding Time, Grain Size and Compacting Pressure Parameters against Compressive Strength of Aluminum - 5%Fly Ash	
D. Seprianto, F. Firduus and F. Arifin	146
Investigations on Metal Injection Molding of 316L SS Using Thermoplastic Natural Rubber (TPNR) Binder as a New System	
H. Norita, N.A. Hassan, S.H. Ahmad, N. Muhamad, M.A. Omar and M.A. Tarawneh	150
Mixed-Flow Impeller Characteristics in Baffled Mixing Tank	
N. Adeyemi, A.K.M. Mohiuddin, M. Husaini and A.T. Jameel	154
Rheological Behavior and Stability of Cassava Starch for Ceramic Mould Binder Application	
T.Y. Alias, M.H. Idris, A. Zuraida and A. Ourdjini	162
Microwave Sintering of Pure Iron with Addition of Stearic Acid as Binder	
W. Rahman, S.B. Jamaludin and M. Mohd Noor	166

Chapter 3: Casting and Joining

Modeling and Optimization of Weld Zone Development in Resistance Seam Welding N. Muhammad, Y.H.P. Manurung, R. Jaafar, S.K. Abas, A.G. Tham, M.R.A. Rahim and A. Mansor	173
Optimizing Robotic Welding Parameter of Single Passed Butt Joint under Simultaneous Consideration of Multiple Response Using Multi Objective Taguchi Method M.R. Abdul Rahim, Y.H.P. Manurung, R. Jaafar, K.A. Sunhaji, G. Tham, M.R.M. Redza, R.N.A. Lidam, S. Sulaiman, M. Noasiah and R. Amirul	177
Transversed Residual Stress Analysis on Multipassed Fillet Weld 2D-Using FEM and Experiment M.R.M. Redza, Y.H.P. Manurung, R.N.A. Lidam, M.S. Sulaiman, M.R.A. Rahim, N.S. Yussoff and A.G. Tham	181
Predicting Bead Geometry of 2F-Fillet Joint Welded by Small Wire SAW S.H. Ahmad Hamidi, A.G. Tham, Y.H.P. Manurung and S.K. Abas	185
Investigation on Weld Induced Distortion of Butt Joint Using a Local/Global Simulation Approach M.S. Sulaiman, Y.H.P. Manurung, M.R. Ridhwan, N.L. Robert, M.A.R. Ridzwan, M.H. Hazwan, E. Haruman, K.A. Sunhaji and T. Ghilip	189

Chapter 4: Materials

Characterization of Forsterite Bioceramics K.Y.S. Lee, K.M.C. Chin, R. Singh, C.Y. Tan, W.D. Teng and I. Sopyan	195
Effect of Sintering Time on Silver-Aluminium Nanopaste for High Temperature Die Attach Applications V.R. Manikam, A.R. Khairunisak and K.Y. Cheong	199
Development of Cu-SiC Composite for Electrical Discharge Machining Electrode Using Powder Metallurgy Technique A.R.F. Azreen, A.G.E. Sutjipto and A.M.A. Souad	203
Effect of Bead Size on Fineness of <i>Centella asiatica</i> (<i>C. asiatica</i>) Particles in Wet Grinding M.Z. Borhan, A. Norhidayah, I. Nurulhuda, R. Ahmad, M. Rusop and S. Abdullah	208
Preparation and Characterization of Physical Properties of Durian Skin Fibers Biocomposite R.M. Manshor, H. Anuar, W.B. Wan Nazri and M.I.A. Fitrie	212
Mechanical Properties Investigation of HIP and As-Built EBM Parts A.M. Hosseini, S.H. Masood, D. Fraser and M. Jahedi	216
The Effect of Milling Speed and Calcination Temperature towards Composite Cathode LSCF-SDC Carbonate S. Ahmad, M.S.A. Bakar, A. Muchtar, N. Muhamad and H.A. Rahman	220
Dynamic Mechanical Behaviour of Poly Ethylene Glycol Plasticized Polylacticacid M.R. Kaiser, H. Anuar and S.B.A. Razak	224
Mechanical and Electrical Properties of Y-TZP/ZrB₂ Composite M. Amiriyan, W.J.K. Chew, R. Singh, R. Tolouei, M.A. Hassan, A. Hossain, I. Sopyan and S. Meenaloshini	228
Experimental Study on Jute-Fiber-Epoxy Composite Plate Subjected to Impact Loading N. Omar, S.N.S. Mohd, Y. Aminanda, J.S.M. Ali and S.M. Kashif	232
Polyurethane/Clay Shape Memory Nanocomposites Based on Palm Oil Polyol S.A. Zubir, S.A. Ernie, S.H. Ahmad, N. Muhammad Zain and S.K. Wai	236
Shifting of X-Ray Diffraction Pattern Peak on BaFe₁₂O₁₉ Nanocrystalline Produced by Sol Gel Auto Combustion Method D. Suastiyanti and B. Soegijono	240
Evaluation of Maximum Percentage Glucose Conversion for Dilute Acid Hydrolysis of Kenaf Biomass Using Statistical Analysis M.N. Nur Aimi, M.K. Mohd Adlan, S.M. Nurhafizah, M.I. Ahmad Fitrie, H. Anuar, M. Mel and R. Othman	244

Production of Lactic Acid from Kenaf Core Hydrolysate by <i>Rhizopus oryzae</i> FTCC 5215	248
S.M. Nurhafizah, H. Anuar, M. Mel, R. Othman, M.N. Nur Aisyah and M.N. Nur Aimi	
Effect of Ultrasonication on Synthesis of Forsterite Ceramics	252
K.Y.S. Lee, K.M.C. Chin, R. Singh, C.Y. Tan, M.A. Hassan, J. Purbolaksono, W.D. Teng and I. Sopyan	
Application of Taguchi's Approach in the Optimization of Tensile Properties of Epoxy/Nanoclay/MWCNT Nanocomposites	256
K.Z. Ku Ahmad, S.H. Ahmad, M.A. Tarawneh, R. Rasid and P.R. Apte	
Structural Development of Expanded Austenite on Duplex Stainless Steel by Low Temperature Thermochemical Nitriding Process	260
L.H. Paijan, M.N. Berhan, M.S. Adenan, N.F.M. Yusof and E. Haruman	
The Effect of Cooling Rate in Molten Salt Electro-Carburisation Process	264
N.J. Siambun, W.Y.H. Liew, G.Z. Chen, D.A. Jewell and Y.K. Beng	
Characterization on Surface Modification of Kenaf Biomass via Microbial Fermentation	268
M.I.A. Fitrie, H. Anuar, M.N. Nur Aisyah, M.N. Nur Aimi, S.M. Nurhafizah, M. Mel, R. Othman and S.B. Abdul Razak	
Effect of Silver Colloid on Chemical and Physical Properties of Cotton Fabric for the Application of Antimicrobial Textiles	272
R.A. Arain, Z. Khatri and M.H. Memon	
The Effect of PE-g-MAH Plus γ-GPS on Shear Strength of the Aluminium/LLDPE/Aluminium (APEA) Laminate Composite	276
M.Z. Muzakkar, S.H. Ahmad, M.A. Yarmo, A. Jalar and M. Bijarimi	
Effect of Fibre Size on the Tensile Properties of Oil Palm Empty Fruit Bunch Fibre Composites	280
N.W. Abdul Razak and A. Kalam	
Taguchi Method Approach to Optimize Manufacturing Process Parameters of Aluminum-5 % Fly Ash Alloy Using Powder Metallurgy	284
F. Arifin, Iskandar and A. Azharuddin	
The Study of Glycerol Plasticized Thermoplastic Sago Starch	289
A. Zuraida, A.R. Nur Humairah, A.W. Nur Izwah and Z. Siti Naqiah	
An Assessment of the Physico-Chemical Properties of Melon Seed (<i>Citrullus lanatus</i>) Oil as Base Material for Oil-in-Water Emulsion Cutting Fluid	293
S.A. Lawal, I.A. Choudhury and N. bin Yusoff	
Thermal Conductivity, Thermal Diffusivity and Specific Heat of TPNR Hybrid Nanocomposites at Different Temperatures	296
M.A. Tarawneh, S.H. Ahmad, K.Z. Ku Ahmad and H. Norita	
Evaluation of Wrinkle Recovery Angle & Color Fastness Properties of Ionic Crosslinked Hospital Green Vat Dyed Cotton Fabric	300
U. Saleem, Z. Khatri and M.H. Memon	
The Surface Morphology and Electrical Properties of Nanostructured CuI Thin Films by Intermittently Sprayed Solution Concentration	305
M. Nur Amalina, N.A. Rasheid and M. Rusop Mahmood	
Influence of MgO Molar Concentration to the Properties of Multilayer ZnO/MgO Films Using Sol-Gel Method	309
Z. Habibah, N.S. Rahman, M.H. Wahid, L.N. Ismail, R.A. Bakar, M.H. Mamat and M. Rusop Mahmood	
Impact of Chemical Modification on the Physical and Mechanical Properties of Tropical Wood Material	314
S. Hamdan and M.S. Islam	
Mechanical Properties and Environmental Stress Cracking Resistance of Rubber Toughened Polyester/Clay Composite	318
B. Noor Najmi, S.H. Ahmad, S. Siti Norasmah, S.S. Nurul, N.A. Hassan and H. Anuar	
Effect of Melt-Blending Conditions on the Properties of HDPE/NR-Blends/Organoclay Nanocomposites	322
E.Z.E. Zawawi, S.H. Ahmad and R. Rasid	
Effects of Calcination Parameters on the Microstructure and Morphology of PZT Nanoparticles Prepared by Modified Sol-Gel Method	326
A. Shakeri, H. Abdizadeh and M.R. Golobostanfar	

Synthesis of ZnO Complex Structures at Different Molar Ratio of Zn (NO₃)₂ and KOH by Precipitation Method	330
N.Y. Zayana and M. Rusop	
Characteristics of Hydrolysis Resistant Polycaprolactone/Palm Kernel Oil Based Polyol	334
N. Muhammad Zain, S.H. Ahmad, S.A. Ernie, S.A. Zubir and N.A. Ahad	
Morphological Study of Superabsorbent Polymer Hydrogels from Sago Starch	338
O. Nurizan, A. Zuraida and N. Norhuda Hidayah	
Thermal Properties of PLA/Kenaf Green Nanocomposite: Effect of Chemi-Mechanical Treatment	
W.N.R. Wan Jaafar, S. Siti Norasmah, N.N. Azmi, B. Noor Najmi, H. Anuar, N.A. Hassan and S.B. Abdul Razak	342
Solvothermal Synthesized of TiO₂ Microspheres and their Characterization	345
M.N. Asiah, M.F. Achoi, S. Abdullah and M. Rusop	
Synthesis of Carbon Nanotubes Using Zinc Nitrate as a Catalyst by Aerosol-Assisted Catalytic Single Furnace CVD	349
M. Maryam, A.B. Suriani, S.A.M. Zobir and M. Rusop Mahmood	
Annealing Effect on the Surface Morphology and Photoluminescence Properties of ZnO Hexagonal Rods by Immersion Method	353
A.A. Azlinda, Z. Khusaimi, M.H. Fadzilah Suhaimi, N.I. Nasruddin, S. Abdullah and M. Rusop	
Unconventional Method for Monitoring of Waste Cooking Oil Transesterification	357
N.A. Adeyemi, A.K.M. Mohiuddin, M.E.S. Mirghani and A.T. Jameel	
Thermogravimetric Analysis of OMMT Filled HDPE/EPDM Treated EB Irradiation	362
N.A. Jamal, H. Anuar, N.A. Hassan and S.B. Abdul Razak	
Development of High Strength Ductile Iron with Niobium Addition	366
S.K. Alias, B. Abdullah, A. Jaffar, A.H. Abdullah and N. Jenal	
Aluminum-Silicon Carbide Composites for Enhanced Physio-Mechanical Properties	370
D. Sujan, C.W. Yeo, M.E. Rahman, M.M. Reddy, M.A. Maleque and Y.A. Mohammad	
Zn/MCM-41/MnO₂ Leclanché Button Cell R2025 for Low Rate Applications	374
N.L. Mohd Zawi, R. Othman and M.H. Ani	
Effect of Sn Addition on Mechanical Properties of Zinc-Based Alloy	378
F.M. Azizan, H. Purwanto and M.Y. Mustafa	
Effect of Holding Time on the Corrosion Potential of SS304	382
H. Purwanto and H. Manshor	
Corrosion Behavior of Fe-Mn-C Alloy as Degradable Materials Candidate Fabricated via Powder Metallurgy Process	
S. Harjanto, Y. Pratesa, B. Suharno and J. Syarif	386
Effect of Coupling Agent on Mechanical Properties of Composite from Microcrystalline Cellulose and Recycled Polypropylene	
J. Awanis, S. Anis Sofia and N. Samat	390
Physical and Mechanical Properties of Thermoplastic Natural Rubber (TPNR) Nanocomposites	
N.A. Hassan, H. Norita, S.H. Ahmad, R. Rasid, H. Anuar, B. Noor Najmi and S. Siti Norasmah	394
Characterization and Stability Monitoring of Maghemite Nanoparticle Suspensions	
I. Nurdin, I.Y. Iskandar, M.R. Johan and B.C. Ang	398
Facile Processing of γ-Alumina for Potential Energy Storage	
H. Misran, F.A.M. Zini, M.A. Salim and R. Singh	402
One-Dimensional ZnO Nanostructures by Wet-Chemistry Technique for Dye Sensitized Solar Cell Application	
A.H. Yuwono, N. Sofyan, S. Harjanto, D. Daneswara, A. Ferdiansyah, H. Dharma and O. Hammerstein	406
Thermal Stability of Nickel Molybdenum Electrodeposits	
Suryanto and M.H. Ani	413
Effect of TiO₂ Nanofiller on Nanocomposited PMMA/TiO₂ Thin Film	
N.N. Hafizah, I. Llyl Nyl, M.Z. Musa and M. Rusop Mahmood	417
Mechanical Performance and Water Absorption Resistance of HIPS/MWCNTs Nanocomposite	
A.S. Al-Ghamdi and Y.A. Mohammad	421
Aluminium-Copper-SiC_p Composite Materials Corrosion in Biodiesel	
M.A. Maleque	425

Internal Oxidation of Ni-Cr-Al Alloys under Various Oxygen Partial Pressures at 1273 K	429
M.H. Ani, S.H. Herman, Suryanto and R. Othman	
Biodegradability Analysis of KBF Reinforced Poly(lactic Acid) Biocomposites	434
M. Othman, I. Nor Azowa, C.M. Ruzaidi, Z. Mohd Nazarudin and Z. Halim	
Effect of NaVO₃ Concentration on Corrosion Resistance of Conversion Coating on AZ91D Magnesium Alloy	438
N.F.W.M. Sidik, M.Z.M. Zamzuri, M. Mat Salleh and K.A. Ismail	
The Effects of Mo Addition on the Structure of Scales Formed in High Si Steel at 1150°C	442
A.Z. Mohd Zainal and K. Kurokawa	
Evaluation of Elastic Modulus and Hardness of Polylactic Acid-Based Biocomposite by Nano-Indentation	446
H.A. Lutpi, H. Anuar, N. Samat, S.N. Surip and N.N. Bonnia	
The Crystallinity and Hardness Properties of Al-Cu/SiC_p New Composite Materials	450
A. Arifutzzaman, M.A. Maleque and D. Sujan	
Improving Structural and Micro-Raman Properties of Camphor-Grown Pristine Carbon Nanotubes with Special Focus on Single-Stage Thermal Annealing System	454
M.S. Shamsudin, I.A. Lahori, S. Abu Bakar, S. Abdullah, S.Y.S. Yahya and M. Rusop Mahmood	
Microstructure-Hardness Relationship of Inconel 718 Compressor Blade Heat Treated at Different Conditions	459
F. Ismail and S. Mridha	
Composite Coating on Steel Surfaces by Adding TiC and h-BN Particulates under TIG Torch Melting	463
S. Mridha, N.I. Taib and A.N. Idriss	
Microstructure of TIG Melted Composite Coating on Steel Produced Using 1.0 and 1.5 mg/mm² TiC at an Energy Input of 2640 J/mm	467
A.N. M. Idriss and S. Mridha	
Flexural and Impact Properties of Kenaf-Glass Hybrid Composite	471
M.A. Maleque, A. Afdzaluddin and M. Iqbal	
Crystalline and Structural Properties Dependence on RF Power and Deposition Temperature of Sputtered Nanocrystalline Silicon Thin Films on Teflon and Glass Substrates	475
N.H. Mahzan, S.B. Hashim, S.H. Herman and M. Rusop	
Properties of Sago Starch-Nanoclay Biocomposites Film	480
A.R. Nur Humairah and A. Zuraida	
Effect of Bath Formulation and Plating Current Density on Electrodeposited Zinc Anode's Capacity in Zinc-Air Cell	484
R. Othman, F. Ahmat, M.A. Ibrahim, A.L. Nor Hairin and M.H. Ani	
Thermal Analysis of Kenaf Sandwich Core Panel	488
S.K.A. Rahman and Z. Halim	
Morphology and Water Absorption Analysis on Single Fibre and Leaf of <i>Typha latifolia</i>	492
M. Othman, G. Ruzaidi, K. Khalisanni and Z. Nazarudin	
Influences of Grain Refining Conditions on Sensitization in 16 wt% Chromium Ferritic Stainless Steel Welds	496
M.O.H. Amuda and S. Mridha	

Chapter 5: High Energy Beam Processing

Laser Cutting Characteristic on the Laminated Carbon Fiber Reinforced Plastics (CFRP) Composite of Aerospace Structure Panel	503
M.S. Wahab, E.A. Rahim, N.A. Rahman and M.F. Uyub	
Application of Focused Ion Beam Micromachining: A Review	507
N. Atiqah, I.H. Jaafar, Y.A. Mohammad and B. Asfana	
Influence of Etching Time on Surface Structural Properties of p- and n- Type Porous Silicon Nanostructures by Photo-Electrochemical Anodic Etching	511
N.A. Asli, M.A. Zubaidah, S.F.M. Yusop, K. Ahmad Sekak, M. Rusop and S. Abdullah	

Chapter 6: Precision Engineering and Nanotechnology

I-V and Surface Topography Study of Nanostructure Porous Silicon Layer Prepared by Electrochemical Etching		
M.H. Fadzilah Suhaimi, M.A. Zubaidah, S.F.M. Yusop, R.M. Mohamad and S. Abdullah	519	
Assessment on Copper C194 Mechanical Properties Variations in Typical Semiconductor Assembly Production Line		
A.R. Amirul, S. Nor Hayati and B. Abdullah	523	
Influence of Energy Parameters of Micro WEDM on Kerf		
Y.A. Mohammad, W.Y.H. Liew, S.A. Gure and B. Asfana	527	
Diamond Coated End Mills in Machining Silicon Carbide		
M. Konneh, M. Iqbal and N.M.A. Faiz	531	
High Speed Milling of Silicon Carbide with Diamond Coated End Mills		
M. Konneh, M. Iqbal, M.A.B. Kasim and N.B.M. Isa	535	
Diamond Grit Size Prediction in Surface Grinding Silicon Carbide		
M. Konneh	539	
Room-Temperature Deposition of Silicon Thin Films by RF Magnetron Sputtering		
S.B. Hashim, N.H. Mahzan, S.H. Herman and M. Rusop Mahmood	543	
Optimization of Inconel 600 Alloy Micro Turning Process Using Grey Relational Analysis		
M. Durairaj and S. Gowri	548	
Optimization of Wire Cut Electrical Discharge Machining of Inconel 800 Using Grey Relational Analysis		
M. Durairaj, S. Gowri, M.H. Gauthamkumar, M.A. Kumar and R. Aishwarya	552	

Chapter 7: Surface Engineering

Dry Sliding Behaviour of AlCrN and TiN Coatings		
W.Y.H. Liew, S. Dayou, M.A.B. Ismail, N.J. Siambun and J. Dayou	559	
Effect of Time Depositions on Electrodeposited Cobalt-Iron Nanocoating		
W.N.R. Abdullah, K.M. Hyie, N.A. Resali and C.W. Tong	565	
Effect of Voltage and Suspension Medium on Titania (TiO_2) Film Prepared by Electrophoretic Deposition (EPD)		
S.A.A. Aziz, M.N. Tumiry and H. Taib	569	
Synthesis and Characterization of Zinc Oxide Nanostructured by Electrochemical Deposition Method		
A.S. Rodzi, M.N. Berhan and M. Rusop	573	
Effect of RF Power on the Formation and Morphology Evolution of ZnO Nanostructured Thin Films		
N.D.M. Sin, M.H. Mamat, M.Z. Musa, S. Ahmad, A. Abdul Aziz and M. Rusop Mahmood	577	
Dielectric Properties of PVDF-TrFE/PMMA: TiO_2 Multilayer Dielectric Thin Films		
I. Lyly Nyl, M.H. Mohd Wahid, Z. Habibah, S.H. Herman and M.R. Mahmood	582	
Effect of Deposition Voltage on Microstructure and Optical Properties of TiO_2 Thin Film via Electrophoretic Deposition		
S. Ghannadi, H. Abdizadeh and M. Golobostanfar	586	
Friction Coefficient of Polymer and Composite Materials Sliding against Stainless Steel		
D.M. Nuruzzaman and M.A. Chowdhury	590	
Deposition on SS 316 at Different Gas Flow Rates Using Thermal CVD		
M.A. Chowdhury and D.M. Nuruzzaman	594	
Structural Properties of Deposited ZnO Thin Films on Flexible Substrates at Various Substrate Temperatures and RF Power		
N.S.M. Sauki, S.H. Herman, M.H. Ani and R.M. Mohamad	598	
Influence of Post Annealing Temperature on the Properties of ZnO Films Prepared by RF Magnetron Sputtering		
S. Ahmad, N.D.M. Sin, M.N. Berhan and M. Rusop Mahmood	602	
Structural, Optical and Electrical Characterization of Mo Doped In_2O_3 Thin Films Prepared via Sol-Gel Spin Coating Technique		
S. Mohammadi, H. Abdizadeh and M.R. Golobostanfar	607	
The Effect of Camphor Oil Amounts on the Properties of Amorphous Carbon Thin Films by Thermal Chemical Vapor Deposition		
D. Kamaruzaman, A.N. Fadzilah and M. Rusop	611	

Fundamental Study on the Carbonization Characteristics of Low Rank Coal Under Low Temperature and its Application on Traditional Blacksmith	615
Khairil, I. Irwansyah, H.S. Edhy and S. Rizal	
Initial Stage Oxidation of Cr in Dry and Wet Environment at 1073 K and the Significant Differences of FT – IR Spectra Produced Thereof	619
A. Kaderi, S.R. Meskon, M.H. Ani and R. Othman	
TiO₂/Solid State Polymer Junction for Photovoltaic Application	623
I. Alaei and S.A.M. Al-Bat'hi	
Acid Pretreatment of WC-Co Prior to CVD Diamond Coating	626
M.Y. Noordin, A.S. Noor Adila, S. Izman and D. Kurniawan	

Chapter 8: Computer Aided Engineering

The Application of Reverse Engineering Tools and Rapid Prototyping Technology in Developing Automotive Components	633
Y. Way, M.R. Kamarudin and N.I.M. Salimi	
Laser Sintering for the Fabrication of Architectural Models	637
D.R. Evers, S.P. Soe and W.A. Yusmawiza	
Moisture and Humidity Effects on the ABS Used in Fused Deposition Modeling Machine	641
S.N.A. Mohd Halidi and J. Abdullah	
Fragmentation Analysis of OG-7 Warhead Using AUTODYN SPH Solver	645
M.A. Abdalla	
Experimental and Numerical Simulation of Hollow Structure under Compression Loading	651
K.A. Abdullah, J.S. Mohamed Ali and Y. Aminanda	
Monitoring of Fatigue Damage Using Ultrasonics and Finite Element Analysis	655
M. Hrairi, M. Mohammad and S.M. Ismail	
Modeling of a Turning Tool Holder with Finite Elements and Simulation of its Free Vibration Frequencies	659
I.H. Jaafar, M.S. Dawood, I.A. Wazir, A.K.M.N. Amin and Q.H. Shah	
Vibration Investigation of a Quarter Car with Nonlinear Shock Absorber Model	665
F.J. Darsivan and W.F. Faris	

Chapter 9: Environmental Issues and Management in Manufacturing

A Method for Predicting the Chemical Composition of Recycled Aluminum Alloys	671
M. Mahfoud and P. Ayyagari	
Eco-Friendly Machining of T6061 Aluminium Alloy Using Titanium Carbonitride (TiCN) Coated Tools	675
T.F. Ariff, M.Y. Sabiyah, M.A. Adam and M.A. Nor	
Dynamic Modeling and Simulation of Waste Energy Harvesting System for Urban Car	679
A.R. Fadhilah and A. Rahman	

Chapter 10: Manufacturing Systems and Engineering

“321” Program in Bandung State Polytechnic for Manufacturing for Better Operations Management Understanding	685
G. Ananto	
A Comparative Study of an Aircraft Radome Closed Mold through Vacuum Infusion Technique	690
M.Y. Haris, D. Laila, A. Zahir, F. Mustapha and K.D. Mohd Aris	
Preliminary Investigations on the Reduction of Foot Pressure Measurement and Muscle Activity with Different Insole Materials	695
A. Ahmad, R. Jaafar, A.R. Omar, M. Hasim, M.A.M. Ali and I. Halim	
Productivity Study and Line Balancing of GGMG & CALICO Production Line	700
H. Mustafa, A.R. Yusoff and M.Y. Ismail	

Workforce Assignment into Large-Sized Virtual Cells Using Learning Vector Quantization (LVQ) Approach	705
R.V. Murali	
Optimization of Forecasting Moving Average Error in Probabilistic Demand Using Genetic Algorithm Based Fuzzy Logic	710
C. Saleh, M.R. Andi Purnomo and H. Mukti Asih	
The Study on Production Performances of Part Transporter in Flexible Manufacturing System by Using Simulation Method	714
M. Iqbal, M.R.A. Purnomo, M.A.B.M. Imra, M. Konneh and A.N.M. Karim	
Solving Multiple Routes Travelling Salesman Problem Using Modified Genetic Algorithm	718
M.R. Andi Purnomo, M. Iqbal and M.F. Sufa	
Economic Scenario of Cellulase Enzyme Production Using Palm Oil Mill Effluent (POME)	723
A.N.M. Karim, M.A.H. Hamdan, M.Z. Alam and M. Iqbal	
Applying Value Stream Mapping for Productivity Improvement of a Metal Stamping Industry	727
A.N.M. Karim, A.A.B. Jaafar, M.A.I. Abdullah, M. Haque, Y.A. Mohammad and S.A. Azline	
The Implementation of Lean Manufacturing in Malaysian Automotive Industry	731
S.A. Fakhri, J.M. Hafiz and M.A. Rahman	

Chapter 11: Value Analysis and Value Engineering

Reducing Non-Value Added Process for an Automotive Component Using Finite Element Modeling	737
R. Jaafar, F. Mohd Salleh, I. Tharazi and A.R. Omar	
Cost Based Process Optimization by Incrementally Changing the Cutting Data during Sustainable Machining	742
F. Schultheiss, B. Lundqvist and J.E. Ståhl	

Chapter 12: Fatigue and Fracture Mechanics

Analysis of End Crack in Boiler Tube	749
S. Begum, A.N.M. Karim, M.A.M. Nainar and S. Sevah	
Design and Fabrication of Active Vibration Isolation System for Free Space Optics Communication	753
K.K. Turahim, A.G.A. Muthalif and S.A. Rahim	
A Study of Fatigue Life of Kenaf Fibre Composites	757
A.H. Abdullah, S.K. Alias, K. Abdan and A. Ali	
Tensile Strength of Weld Joint Produced by Spinning Friction Welding of Round Aluminum A6061 with Various Chamfer Angles	761
Y.S. Irawan, M. Wirohardjo and M.S. Ma'arif	
Analysis of Thermal Stress Intensity Factors for Edge Cracked Bimaterial System	766
M. Hrairi, A. Ali and A.E.F. Rizk	

Chapter 13: Other Related Topics

Diode Characteristics of Nanocomposited MEH-PPV: I-MWNTs with Different Types of Metal Contact Organic Solar Cells	773
P.S.M. Saad, F.S.S. Zahid and M. Rusop	
Parallel Manipulator for Auto Tracking System: Virtual Prototyping Using LabVIEW-Solidworks	777
Z. Ramli, A.G.A. Muthalif, A.A. Shafie and H. Antong	
Design and Develop the Jig and Fixtures for HLV 30 Piercing Machine	781
M.R. Haji Che Daud and M.F.B. Abdul Nasir	
Carbon-Based Solar Cell from Amorphous Carbon with Nitrogen Incorporation	785
A.N. Fadzilah, D. Kamaruzaman and M. Rusop	

Residual Stresses and Deformations in Electron Beam Melting process Using Finite Element Analysis

A.M. Hosseini, S.H. Masood, D. Fraser and M. Jahedi

789