

International Conference on Engineering Technology (ETIC 2016)

MATEC Web of Conferences Volume 97 (2017)

Ho Chi Minh City, Vietnam
5 - 6 August 2016

Editors:

**M.A.B. Abdullah
S.Z. Abd Rahim
M.E. Muhammad Suandi**

**M.N. Mat Saad
M.F. Ghazali**

ISBN: 978-1-5108-3607-5

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

This work is licensed under a Creative Commons Attribution license:
<http://creativecommons.org/licenses/by/2.0/>

You are free to:

Share – copy and redistribute the material in any medium or format.

Adapt – remix, transform, and build upon the material for any purpose, even commercial.

The licensor cannot revoke these freedoms as long as you follow the license terms.

Under the following terms:

You must give appropriate credit, provide a link to the license, and indicate if changes were made.

You may do so in any reasonable manner, but not in any way that suggests the licensor endorses you or your use. The copyright is retained by the corresponding authors.

Printed by Curran Associates, Inc. (2017)

For additional information, please contact EDP Sciences – Web of Conferences
at the address below.

EDP Sciences – Web of Conferences
17, Avenue du Hoggar
Parc d'Activité de Courtabœuf
BP 112
F-91944 Les Ulis Cedex A
France

Phone: +33 (0) 1 69 18 75 75

Fax: +33 (0) 1 69 28 84 91

contact-edps@webofconferences.org

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2633
Email: curran@proceedings.com
Web: www.proceedings.com

TABLE OF CONTENTS

MATHEMATICAL DERIVATION OF SWITCHING ANGLES OF MULTILEVEL VOLTAGE SOURCE INVERTER BASED ON ALTERNATIVE PHASE OPPOSITION DISPOSITION (APOD)	1
<i>Ismail Mohd Alif, Abdul Aziz Mohd Junaidi, Idris Muhd Hafizi, Fadzail Noor Fazliana, Ahmad Mohd Saufi, Amirruddin Melaty, Abdullah Farrah Salwani, Mohd Mukhtar Nurhakimah</i>	
THE INFLUENCE OF SALT WATER ON CHLORIDE PENETRATION IN GEOPOLYMER CONCRETE	9
<i>Halim Like Novia, Ekaputri Januarti Jaya, Triwulan</i>	
THE EFFECT OF PULP INDUSTRIAL WASTE AS CHEMICAL ADMIXTURE TO COMPRESSIVE STRENGTH OF FLY ASH BASED ALKALI ACTIVATED MATERIALS	17
<i>Harmaji Andrie, Mahyarni Imran Aishah, Sunendar Bambang</i>	
A STUDY ON MARBLE-BASED GEOPOLYMER	23
<i>Cheng Ta-Wui, Ding Yung-Chin, Lee Wei-Hao, Lu Po-chang</i>	
THE EFFECT OF TEMPERATURE CURING ON GEOPOLYMER CONCRETE	30
<i>Triwulan, Ekaputri Januarti Jaya, Priyanka Nur Fadlilah</i>	
PROPERTIES OF PALM OIL FUEL ASH (POFA) GEOPOLYMER MORTAR CURED AT AMBIENT TEMPERATURE	36
<i>Olivia Monita, Mona Tambunan Lora, Saputra Edy</i>	
ON THE PHYSICO-MECHANICS, THERMAL AND MICROSTRUCTURE PROPERTIES OF HYBRID COMPOSITE EPOXY-GEOPOLYMER FOR GEOTHERMAL PIPE APPLICATION	43
<i>Firawati Ira, Jasruddin, Subaer</i>	
DEVELOPMENT OF NANO TiO₂-GEOPOLYMER FUNCTIONAL COMPOSITE AS ANTIFOULING BRICKS	52
<i>Kusuma Wardani Nurul, Ikhsan Maulana Andi, Nurfadilla, Subaer</i>	
DEVELOPMENT OF HYBRID COMPOSITE RICE HUSK ASH (RHA)-GEOPOLYMER FOR BRICKS BEARING BUILDINGS	60
<i>Ikhsan Maulana Andi, Kusuma Wardani Nurul, Syamsidar D, Ariani, Nurfadilla, Subaer</i>	
THE PROPERTIES OF NANO SILVER (AG)-GEOPOLYMER AS ANTIBACTERIAL COMPOSITE FOR FUNCTIONAL SURFACE MATERIALS	68
<i>Armayani. M, Akbar Pratama Muhammad, Subaer</i>	
THE EFFECT OF Si/Al ON MECHANICAL PROPERTIES AND FRACTURE BEHAVIOR OF STAINLESS STEEL MESH/CR_p REINFORCED GEOPOLYMER COMPOSITES	75
<i>Yuan Jingkun, He Peigang, Jia Dechang</i>	
EFFECT OF ALKALINE ACTIVATOR TO FLY ASH RATIO FOR GEOPOLYMER STABILIZED SOIL	82
<i>Abdullah Muhammad Sofian, Ahmad Fauziah</i>	
THE PROPERTIES OF NANO TiO₂-GEOPOLYMER COMPOSITE AS A MATERIAL FOR FUNCTIONAL SURFACE APPLICATION	90
<i>Syamsidar D., Nurfadilla, Subaer</i>	
THE POTENTIAL OF LATERITE SOILS DEPOSIT SOUTH SULAWESI AS A PRECURSOR FOR NA-POLY (FERRO-SIALATE) GEOPOLYMERS	98
<i>Subaer, Amalia Nursyamsih, Nurfadilla, Riska Andi, Sulfiana, San Fitria Pebriyanti</i>	
SYNTHESIS AND CHARACTERIZATION OF FUNCTIONAL COMPOSITE CARBON-GEOPOLYMERS FOR PRECAST PANEL APPLICATION	107
<i>Noor Afifah Kharisma, Bt.Sunardi Asrianti, Irfanita Resky, Subaer</i>	
A STUDY OF HYBRID COMPOSITE HYDROXYAPATITE (HA)-GEOPOLYMERS AS A MATERIAL FOR BIOMEDICAL APPLICATION	114
<i>Saleha, Riska Andi, Nisa Makmur Ainun, Ansar Fathurrakhman, Subaer</i>	
THE EFFECT OF DIFFERENT RATIO BOTTOM ASH AND FLY ASH GEOPOLYMER BRICK ON MECHANICAL PROPERTIES FOR NON-LOADING APPLICATION	122
<i>Mardiah Deraman Laila, Abdullah Mohd Mustafa Al Bakri, Yun Ming Liew, Hussin Kamarudin, Mastura Wan Ibrahim Wan, Victor Sandu Andrei</i>	
NATURAL FIBER FILAMENT WOUND COMPOSITES: A REVIEW	129
<i>Mohamed Ansari Suriyati, Ghazali Che Mohd Ruzaidi, Husin Kamarudin</i>	
PROPERTIES AND BEHAVIOR OF GEOPOLYMER CONCRETE SUBJECTED TO EXPLOSIVE AIR BLAST LOADING: A REVIEW	137
<i>Mohd Mortar Nurul Aida, Hussin Kamarudin, Abdul Razak Rafiza, Al Bakri Abdullah Mohd Mustafa, Hilmi Ahmad Humaizi, Sandu Andrei Victor</i>	

THE EFFECT OF HIGH TEMPERATURE ON COMPRESSION STRENGTH OF GEOPOLYMER PASTE	146
<i>Bayuaji Ridho, Darmawan Sigit, Husin Nur Ahmad, Wibowo Boedi, Subekti Srie, Ekaputri Januarti Jaya, Abdullah Mohd Mustafa Al Bakri, Ruki Biyanto Totok</i>	
REVIEW ON VARIOUS TYPES OF GEOPOLYMER MATERIALS WITH THE ENVIRONMENTAL IMPACT ASSESSMENT	151
<i>Zain Hariz, Abdullah Mohd Mustafa Al Bakri, Hussin Kamarudin, Ariffin Nurliyana, Bayuaji Ridho</i>	
REVIEW ON CHARACTERIZATION AND MECHANICAL PERFORMANCE OF SELF-CLEANING CONCRETE	160
<i>Zailan Siti Norsaffirah, Mahmed Norsuria, Abdullah Mohd Mustafa Al Bakri, Victor Sandu Andrei, Shahedan Noor Fifiatasha</i>	
REVIEW ON ADSORPTION OF HEAVY METAL IN WASTEWATER BY USING GEOPOLYMER	167
<i>Ariffin Nurliyana, Abdullah Mohd Mustafa Al Bakri, Mohd Arif Zainol Mohd Remy Rozainy, Murshed Mohd Fared, Hariz-Zain, Faris Meor Ahmad, Bayuaji Ridho</i>	
SYNTHESIS AND CHARACTERIZATION OF FLY ASH GEOPOLYMER FOR WATER ABSORBENT MATERIAL	175
<i>Anggarini Ujafa, Sukmana Ndaru Candra, Prasetya Fandi Angga</i>	
CORRELATION BETWEEN COMPRESSIVE STRENGTH AND FIRE RESISTANT PERFORMANCE OF RICE HUSK ASH-BASED GEOPOLYMER BINDER FOR PANEL APPLICATIONS	181
<i>Mohd Basri Mohd Salahuddin, Mazlan Norkhairunnisa, Mustapha Faizal, Ridzwan Ishak Mohamad</i>	
EFFECT OF VARIABILITY OF FLY ASH OBTAINED FROM THE SAME SOURCE ON THE CHARACTERISTICS OF GEOPOLYMER	190
<i>Antoni, Satria Juan, Sugiarto Agung, Hardjito Djwantoro</i>	
OPTIMIZING HIGH PERFORMANCE SELF COMPACTING CONCRETE	196
<i>Raymond A Yonathan, Januarti Jaya Ekaputri, Triwulan</i>	
THE FATIGUE CRACK GROWTH RATE DUE TO SINGLE-STEP AUSTEMPERED HEAT TREATMENT IN NODULAR CAST IRON	203
<i>Andoko Andoko, Puspitasari Poppy</i>	
PROPERTIES OF $MN_{0.4}ZN_{0.6}FE_2O_4$ AND $MN_{0.6}ZN_{0.4}FE_2O_4$ AS NANOCATALYST FOR AMMONIA PRODUCTION	210
<i>Puspitasari Poppy, Andoko Andoko, Suryanto Heru, Risdanareni Puput, Ekaputri Januarti Jaya</i>	
FLEXURAL TEST OF FLY ASH BASED GEOPOLIMER CONCRETE BEAMS	220
<i>Nindyawati, Sri Ummiati B., Risdanareni Puput</i>	
CHEMICAL AND PHYSICAL CHARACTERIZATION OF FLY ASH AS GEOPOLYMER MATERIAL	227
<i>Risdanareni Puput, Puspitasari Poppy, Januarti Jaya Ekaputri</i>	
EXPERIMENTAL STUDY ON LATERAL LOAD CAPACITY OF BAMBOO RC BEAM COLUMN JOINTS STRENGTHENED BY BAMBOO MECHANICAL ANCHORS	235
<i>Sri Ummiati B., Dewi Sri Murni, Nindyawati, Susilo Gatot Adi</i>	
IMPROVING OF WATER RESISTANCE OF ASPHALT CONCRETE WEARING COURSE USING LATEX-BITUMEN BINDER	243
<i>Siswanto Henri</i>	
FIRE RELATED TEMPERATURE RESISTANCE OF FLY ASH BASED GEOPOLYMER MORTAR	250
<i>Jeyalakshmi R., Sivasakthi M., Revathi T., Rajamane N.P.</i>	
AN INVESTIGATION OF BOND STRENGTH OF REINFORCING BARS IN FLY ASH AND GGBS BASED GEOPOLYMER CONCRETE	259
<i>Boopalan C., Rajamane N.P.</i>	
THE EFFECT OF CORROSIVE ENVIRONMENT ON GEOPOLYMER CONCRETE TENSILE STRENGTH	271
<i>Bayuaji Ridho, Darmawan Sigit, Ahmad Husin Nur, Wibowo Boedi, Subekti Srie, Abdullah Mohd Mustafa Al Bakri, Ruki Biyanto Totok</i>	
ULTRA-LOW POWER CMOS RF MIXER FOR WIRELESS SENSOR NETWORKS APPLICATION: A REVIEW	275
<i>Murad S.A.Z, Ramli Muhammad M., Azizan A., Yasin M.N.M, Ishak I.S</i>	
DEVELOPMENT OF FLAT SLAB – COLUMN INTERACTION WITH DIFFERENT THICKNESS	283
<i>Binti Joohari Ilya, Binti Mohd Amin Norliyati</i>	
ANALYTICAL HIERARCHY PROCESS FOR NATURAL FIBER COMPOSITES AUTOMOTIVE ARMREST THERMOSET MATRIX SELECTION	288
<i>Rosli M.U, Jamalludin Mohd Riduan, Khor C.Y., Ishak Muhammad Ikman, Jahidi H., Yeop Wasir Norsyahadah, Faizal Wan Mohd, Wan Draman Wan Nur A'tiqah, Lailina NM, Ismail Ras Izzati</i>	

CONCEPTUAL DESIGN OF AUTOMOTIVE COMPRESSOR FOR INTEGRATED PORTABLE AIR CONDITIONING SYSTEM.....	292
<i>Ishak Muhammad Ikman, Khor C.Y., Jamalludin Mohd Riduan, Rosli M.U., Shahrin Suhaimi, Yeop Wasir Norsyahadah, Zakaria M.S., Yamin A.F.M., Dahlan Noor Diyana, Wan Draman Wan Nur A'tiqah</i>	
ANALYSIS OF SIGNAL PROPAGATION IN AN EXPERIMENT ROOM WITH EPOXY COVERED FLOOR FOR WIRELESS SENSOR NETWORK APPLICATIONS.....	297
<i>Harun A., Murad S.A.Z., Ramli M.F., Kamarudin L.M., Ndzi D.L., Hambali N.A.M.A., Mohyar S.N., Isa M.N.</i>	
METHACRYLIC ACID AS CHEMICAL TREATMENT ON THE PROPERTIES OF KAPOK HUSK FILLED LINEAR LOW DENSITY POLYETHYLENE ECO-COMPOSITES	305
<i>Arshad Nurul Fatin Syazwani, Husseinsyah Salmah, Ying Lim Bee</i>	
MICROSTRUCTURAL STUDY OF THE INTERFACIAL TRANSITION ZONE IN CONCRETE USING OPTICAL MICROSCOPY	312
<i>Ismail Khairul Nizar, Let Hui Tan</i>	
PREPARATION AND MECHANICAL PERFORMANCE OF CF-SICF-(AL₂O₃P) REINFORCED GEOPOLYMER COMPOSITES.....	317
<i>Yan Shu, He Peigang, Jia Dechang, Wang Jinyan, Yang Zhihua, Duan Xiaoming, Zhou Yu</i>	
OPTIMIZATION FSO PERFORMANCE UNDER STRONG TURBULENCE EFFECT BY ENHANCED NEW CARRIER DATA TRANSMISSION TECHNIQUE.....	326
<i>Ummul K.R., Anuar M.S., Rahman A.K., Rashidi C.B.M., Aljunid S.A.</i>	
LOW POWER CMOS OPERATIONAL AMPLIFIER WITH INTEGRATED COMMON-MODE FEEDBACK FOR DATA CONVERTER	331
<i>Murad S.A.Z., Ramli Muhammad M., Azizana A., Isa M.N.M., Ishak I.S.</i>	
DUCTILE BEHAVIOR OF POLYETHYLENE FIBRE REINFORCED GEOPOLYMER COMPOSITE.....	339
<i>Ahmed Shaikh Faiz Uddin, Ronnie Zammar</i>	
VARIATIONS OF GROUND-LEVEL OZONE CONCENTRATION IN MALAYSIA: A CASE STUDY IN WEST COAST OF PENINSULAR MALAYSIA	346
<i>Hashim Nur Izzah Mohamad, Noor Norazian Mohamed</i>	
SCREENING FOR DIRECT PRODUCTION OF LACTIC ACID FROM RICE STARCH WASTE BY GEOBACILLUS STEAROTHERMOPHILUS.....	352
<i>Kunasundari Balakrishnan, Zulkeple Mohamad Faizul, Teoh Yi Peng</i>	
SOLVENT EXTRACTION CHARACTERIZATION ON INJECTION MOLDING OF MG ALLOY.....	358
<i>Zainon Nooraizedfiza, Husseinsyah Salmah, Omar Mohd Afian, Marzuki Marina</i>	
RADIATION INDUCED GRAFTING OF ACRYLATE ONTO WASTE RUBBER: THE EFFECT OF MONOMER TYPE.....	366
<i>Shirajuddin Siti Salwa M., Ghazali Che Mohd Ruzaidi, Theyy Ratnam Chantara, Husin Kamarudin, Shukri Nor Azwin, Othman Nur Azizah Fatimah</i>	
COMPRESSING TURBULENCE EFFECT IN FSO USING NEW MODULATION TECHNIQUE	371
<i>Mohamed Nawawi Norizan, Mat Safar Anuar, Rahman Kram Abdul, Rashidi C.B.M., Mohd Nordin Junita</i>	
THE EFFECTS OF BOTTOM ASH FROM MSWI USED AS MINERAL ADDITIONS IN CONCRETE	378
<i>Che Amat Roshazita, Ismail Khairul Nizar, Mohamed Noor Norazian, Mohamad Ibrahim Norlia</i>	
ENHANCING GROWTH AND YIELD OF GREY OYSTER MUSHROOM (PLEAROTUSSAJORCAJU) USING DIFFERENT ACOUSTIC SOUND TREATMENTS.....	384
<i>Ibrahim Roshita, Mohd Jamil Ahmad Azmil Irfan, Hasan Sayed M. Zain, Mat Arshad Adzemi, Zakaria Zarina</i>	
EFFECT OF DIFFERENT CURRY FLAVOR CONCENTRATIONS ON THE FERMENTATION PROCESS AND LACTIC ACID BACTERIA OF LAYANG SCAD (DECAPTERUS MACROSOMA)	393
<i>Ibrahim Roshita, Balakrishnan Kunasundari, Musa Norsaliha</i>	
KEY PERFORMANCE INDICATORS FOR MAINTENANCE MANAGEMENT EFFECTIVENESS OF PUBLIC HOSPITAL BUILDING	402
<i>Farhana Omar Mardhiah, Aswad Ibrahim Fazdliel, Mohd Sabki Wan Omar Wan</i>	
LOOP MIRROR MULTI-WAVELENGTH BRILLOUIN FIBER LASER UTILIZING SEMICONDUCTOR OPTICAL AMPLIFIER AND FIBER BRAGG GRATING	408
<i>Iris N. A., Ahmad Hambali N. A. M., Wahid M.H.A., Ariffin N. A., Shahimin M. M., Azidin M. A. M.</i>	
ABSORBANCE AND TRANSMITTANCE CAPABILITY OF MANGOES, GRAPE AND ORANGE IN NIR REGION	414
<i>M. Hussin M. Ariff, A.Wahid M.Halim, M. Ahmad Hambali N. Azura, Shahimin M. Mukhzeer, Hasanuddin N.Hafika, M. Azidin M.Azarul</i>	
INFLUENCE OF MATERIAL PROPERTIES ON THE FLUID-STRUCTURE INTERACTION ASPECTS DURING MOLDED UNDERFILL PROCESS.....	419
<i>Khor C.Y., Ishak Muhammad Ikman, Rosli M.U., Jamalludin Mohd Riduan, Zakaria M.S, Yamin A.F.M., Abdul Aziz M.S., Abdullah M.Z.</i>	

EFFECT OF MOISTURE SORPTION BEHAVIOR ON COLOR QUALITY OF CASSIA ALATA LEAVES	425
<i>Razak Norawanis Abdul, Shaari Abdul Razak, Shariff Nur Ain Mohd, Leng Lee Yit</i>	
CHEMICAL CHARACTERIZATION OF PINEAPPLE LEAF RESIDUE CHARS GENERATED BY CONTROLLED COMBUSTION AND BY OPEN BURNING	430
<i>Leng L.Y., Husni M. H. A., Samsuri A. W., Abdul Razak Norawanis, Lailina N. M., Ismail Ras Izzati</i>	
COMPARING VARIOUS TYPE OF NATURAL FIBERS AS FILLER IN TPU: MECHANICAL PROPERTIES, MORPHOLOGICAL AND OIL ABSORPTION BEHAVIOR	436
<i>Ahad Nor Azwin, Mohd Radzi Nur Fatin Hidayu, Sadli Nor Suhaida, Seng Tan Jia</i>	
SPATIAL PATTERNS OF PUBLIC FACILITY SERVICES BASED ON GRID/CELL SUPPLY APPROACH (CASE STUDY: ELEMENTARY SCHOOL IN MALANG, SURAKARTA & BANJARMASIN CITY)	443
<i>Agus Setyono Deni, Hariyani Septiana, Dwi Cahyono Denny, Helmy Masdar</i>	
APPLICATION OF AGENT-BASED MODEL SIMULATION FOR TSUNAMI EVACUATION IN PACITAN, INDONESIA	454
<i>Usman Fadly, Murakami Keisuke, Dwi Wicaksono Agus, Setiawan Eko</i>	
INVESTIGATE THE EFFECTIVENESS OF SEAWALL CONSTRUCTION USING CADMAS SURF 2D	470
<i>Usman Fadly, Effendi Rahim Supli</i>	
SOIL LOSS PREDICTION ON MOBILE PLATFORM USING UNIVERSAL SOIL-LOSS EQUATION (USLE) MODEL	478
<i>Effendi Rahim Supli, Affandi Supli Ahmad, Damiri Nurhayati</i>	
PROPOSAL FOR THE RISK MANAGEMENT IMPLEMENTATION PHASE IN OIL FIELD DEVELOPMENT PROJECT BY ADDING VALUE ON THE REFURBISHMENT OF CRITICAL EQUIPMENT	486
<i>Hamid Abdul, Bin Baba Ishak, Sani Winardi</i>	
THE EFFECT OF HLRS ON NITROGEN REMOVAL BY USING A PILOT-SCALE AERATED STEEL SLAG SYSTEM	491
<i>Hamdan R., Mohd. Razi M.A., Zulkafli Nurul Farhana</i>	
PARAMETER ESTIMATION AND VERIFICATION OF UNMANNED AIR CUSHION VEHICLE (UACV) SYSTEM	497
<i>Ab Rashid Mohd Zamzuri, Mohd Shah Hairol Nizam, Othman Md Nazri, Ali Alandoli Esmail ali, Mohd Aras Mohd Shahrheel, Sulaiman Marizan, Abdul Latif Mohd Faruq</i>	
RIVER DEBRIS MANAGEMENT SYSTEM USING OFF-GRID PHOTOVOLTAIC MODULE	504
<i>Saadon Intan Mastura, Windiarti Herlanda, Othman Md Nazri, Ahmad Emy Zairah, Mohd Annuar Khalil Azha</i>	
OPTIMIZATION OF STIFFENED SQUARE PLATE TOPOGRAPHICALLY UNDER UNIFORM DISTRIBUTED PRESSURE	512
<i>Eman U.N., Firdaus H.M.S., Halyani M.Y., Hasan Zulhasnizam, Farhana R.F.</i>	
DEVELOPMENT OF MAGNETORHEOLOGICAL ENGINE MOUNT TEST RIG	518
<i>Md Yunos Mohd Razali, Harun Mohamad Hafiz, Sariman M.Z., Mat Yamin A.K.</i>	
PROCESS OPTIMIZATION OF EDM CUTTING PROCESS ON TOOL STEEL USING ZINC COATED ELECTRODE	523
<i>Hanizam H., Mohamad N., Azlan U.A.A., Qamaruddin M.</i>	
A DESIGN METHOD OF METASURFACE USING CCSR	528
<i>Ezanuddin A.A.M, Ismail A.H</i>	
STUDY ON SURFACE INTEGRITY OF AISI 1045 CARBON STEEL WHEN MACHINED BY CARBIDE CUTTING TOOL UNDER WET CONDITIONS	534
<i>Tamin N. Fauzi, Azlan U.A.A., Hadzley M., Remle N.S., Osman M. Hairizal, Yusoff M. Rahimi, Noriman N.Z.</i>	
OBSERVATION OF BUILT-UP EDGE FORMATION ON A CARBIDE CUTTING TOOL WITH MACHINING ALUMINIUM ALLOY UNDER DRY AND WET CONDITIONS	539
<i>Azlan U.A.A., Hadzley M., Tamin N. Fauzi, Noor F.M., Azhar A.A., Yusoff M. Rahimi, Noriman N.Z.</i>	
NUMERICAL SIMULATION OF DIFFERENT MODELS OF HEAT PIPE HEAT EXCHANGER USING ACUSOLVE	544
<i>Zainal Nurul Amira, Sulaiman Saiful Naim, Shamsudin Mohd Afdhal, Waini Iskandar</i>	
ALIGNED MAGNETIC FIELD EFFECTS ON FLOW AND HEAT TRANSFER OF THE UPPER-CONNECTED MAXWELL FLUID OVER A STRETCHING/SHRINKING SHEET	552
<i>Waini Iskandar, Zainal Nurul Amira, Khashi'ie Najiyah Safwa</i>	
THE INFLUENCE OF TOOL GEOMETRY TOWARDS CUTTING PERFORMANCE IN MACHINING ALUMINIUM 7075	562
<i>Muhammad Syafik Jumali, Mohd Razali Muhammad, Syahrul Azwan Sundi</i>	

THE MANAGEMENT OF HUMIDIFYING TREATMENT FOR LOW CONTAMINATION RISKS DURING INDOOR CULTIVATION OF GREY OYSTER MUSHROOM (PLEUROTUS PULMONARIUS)	567
<i>Islam Md. Tariqul, Zakaria Zarina, Hamidin Nasrul, Bin Mohd Ishak Mohd Azlan, Shi Fern Chong</i>	
DEVELOPMENT OF SOLAR BIOMASS DRYING SYSTEM	574
<i>Atnaw Samson Mekbib, Bin Che Ku Yahya Che Ku Mohammad Faizal, Jama Oumer Abduaziz</i>	
IN-SITU TRANSESTERIFICATION OF JATROPHA CURCAS L. SEEDS FOR BIODIESEL PRODUCTION USING SUPERCRITICAL METHANOL	581
<i>Ishak M.A.M., Ismail K., Nawawi W.I., Jawad Ali H., Ani A.Y., Zakaria Z.</i>	
SPREADSHEET SIMULATION-BASED OPTIMIZATION FOR PERSONNEL CAPACITY REQUIREMENT IN BREAKDOWN MAINTENANCE	587
<i>Hauw Sen Tan, Wan Mahmood Wan Hasrulnizam, Dolah Siti Shahara</i>	
ISOLATION AND MOLECULAR CHARACTERIZATION OF LOCAL GOAT MILK CASEIN FOR NUTRACEUTICAL VALUE	595
<i>Azhar Mohd Akmal, Salim Norshafiq</i>	
APPLICATION OF ELECTROPORATION TECHNIQUE IN BIOFUEL PROCESSING	600
<i>Yousuf Abu, Khan Maksudur Rahman, Islam Amirul, Monir MdMinhaj Uddin, Ab Wahid Zularisam, Pirozzi Domenico</i>	
IMPROVED SOUND ABSORPTION PERFORMANCE OF NONWOVEN FABRIC USING FABRIC FACING AND AIR BACK CAVITY	605
<i>Ismail Ahmad Yusuf, Omar Muhamad Rafi, Anuar Hashim Muhamad Arif, Md Radzi Muhamad Ridzuan</i>	
PRELIMINARY STUDY ON NON-FATAL OCCUPATIONAL INJURY AMONG OPERATIONAL WORKERS IN MALAYSIA PALM OIL MILL	611
<i>Ruslan Rumaizah, Baba Ishak, Leman Abdul Mutalib</i>	
NOTCHED STRENGTH OF WOVEN FABRIC KENAF COMPOSITES WITH DIFFERENT FIBER ORIENTATIONS	618
<i>Ahmad Hilton, Rahim Safwan</i>	
ROOF BOX SHAPE STREAMLINE ADAPTATION AND THE IMPACT TOWARDS FUEL CONSUMPTION	623
<i>Abdul Latif M.F., Hashim M.N., Rashid M.Z.A, Azhari M.A., Othman M.N.</i>	
STUDY OF SOLID-LIQUID RATIO OF FLY ASH GEOPOLYMER AS WATER ABSORBENT MATERIAL	629
<i>Angga Prasetya Fandi, Candra Sukmana Ndaru, Anggarini Ufafa</i>	
TOOL WEAR ANALYSIS ON FIVE-AXIS FLANK MILLING FOR CURVED SHAPE PART – FULL FLUTE AND GROUND SHANK END MILL	634
<i>Syahrul Azwan Sundi, Mohd Razali Muhamad, Mohd Shahir Kasim, R. Izamshah R. Abdullah</i>	
3D MINIATURE ANTENNA DESIGN FOR RFID APPLICATIONS IN IOT ENVIRONMENT	639
<i>Mohamed A.Nasir, Azemi S.N, Suhaيمي S.A, Ezanuddin A.A.M.</i>	
GRAVITATIONAL WAVE & RELATIVITY IMPACT ELECTRONIC COMMUNICATION & ENGINEERING	646
<i>Zakaria Shahrudin, Abd Razak Norazlina, Baharudin Zikri Abadi</i>	
PREPARATION AND CHARACTERIZATION OF FORM-STABLE PARAFFIN/POLYCAPROLACTONE COMPOSITES AS PHASE CHANGE MATERIALS FOR THERMAL ENERGY STORAGE	651
<i>Aludin M.S., Akmal S. Saidatul</i>	
VALIDATION OF VEHICLE MODEL RESPONSE WITH AN INSTRUMENTED EXPERIMENTAL VEHICLE	656
<i>Harun Mohamad Hafiz, Md Yunos Mohd Razali, Azhari Muhamad Azwar</i>	
PRELIMINARY APPLICATION OF A HELICOPTER TOY FOR ENVIRONMENT MONITORING	661
<i>Kadir Abdul</i>	
APPLICATIONS OF FOAMED LIGHTWEIGHT CONCRETE	666
<i>Mohd Sari Kamarul Aini, Mohammed Sani Abdul Rahim</i>	
SMART GARBAGE MONITORING SYSTEM FOR WASTE MANAGEMENT	671
<i>Mohd Yusof Norfadzlia, Jidin Aiman Zakwan, Rahim Muhammad Izzat</i>	
LOCATION TRACKING SYSTEM USING WEARABLE ON-BODY GPS ANTENNA	676
<i>Sabapathy Thennarasan, Mustapha Mohd Amirudin, Jusoh Muzammil, Mat Salleh Shakhirul, Soh Ping Jack</i>	
EFFECTIVE DESIGN FOR OPTICAL CDMA BASED ON RADIO OVER FIBER (ROF) TECHNIQUE	681
<i>Rashidi C. B. M., Aljunid S. A., Aljunid S. A, Anuar M.S, Yaakob S</i>	

EVALUATION OF ANTIOXIDANT ACTIVITY FROM DIFFERENT PLANT PARTS OF SENDUDUK HERB: EXTRACTION CONDITIONS OPTIMIZATION OF SELECTED PLANT PART	687
<i>Kamaludin Nor Helya Iman, Jaafar Nor Syahida Adila</i>	
SULPHURIC ACID RESISTANT OF SELF COMPACTED GEOPOLYMER CONCRETE CONTAINING SLAG AND CERAMIC WASTE	697
<i>Shafiq I., Azreen M., Hussin M.W.</i>	
UTILIZATION OF ORGANIC FERTILIZER ON SWEET CORN (ZEA MAYS SACCHARATA STURT) CROP AT SHALLOW SWAMP LAND	704
<i>Midranisiah, Marlina Neni, Rahim S.E, Hawayanti Erni</i>	
WARPAGE OPTIMISATION ON THE MOULDED PART WITH CONFORMAL COOLING CHANNELS USING RESPONSE SURFACE METHODOLOGY (RSM) AND GLOWWORM SWARM OPTIMISATION (GSO)	712
<i>Hazwan M.H.M., Shayfull Z., Sharif S., Nasir S.M., Rashidi M.M.</i>	
WARPAGE OPTIMISATION ON THE MOULDED PART USING RESPONSE SURFACE METHODOLOGY (RSM) AND GLOWWORM SWARM OPTIMISATION (GSO)	724
<i>Hazwan M.H.M., Shayfull Z., Sharif S., Nasir S.M., Rashidi M.M.</i>	
ORGANIC AND INORGANIC FERTILIZERS APPLICATION ON NPK UPTAKE AND PRODUCTION OF SWEET CORN IN INCEPTISOL SOIL OF LOWLAND SWAMP AREA	735
<i>Marlina Neni, Amir Nurbaity, Aminah R. Iin Siti, Nasser Gamal Abdul, Purwanti Yani, Nisfuriah Laili, Asmawati</i>	
EFFECT OF FLOW RESISTANCE IN OPEN RECTANGULAR CHANNEL	746
<i>Ahmad Noor Aliza, Saiful Bahry Saiful Iswal, Md Ali Zarina, Mat Daud Azra Munirah, Musa Sabariah</i>	
CORN OIL CONCENTRATIONS DETECTION FOR FOOD INDUSTRY RESEARCH DEVELOPMENT BY USING APPLICATION OF FIBER OPTIC LIQUID SENSOR CONCEPT	752
<i>Md Johari Md Ashadi, Mohd Azize Aziean, Mohd Said Rahaini, Ngatiman Nor Azazi, Zaine Noradila</i>	
DEVELOPMENT OF ACETONE LIQUID CONCENTRATION DETECTION SENSOR BY USING FIBER OPTIC FOR DIABETIC LEVEL DETECTION	757
<i>Md Johari Md Ashadi, Mohd Azize Aziean, Mohd Said Rahaini, Ngatiman Nor Azazi, Blaise Carvyn</i>	
ANCHOR BOLT POSITION IN BASE PLATE IN TERMS OF T AND J ANCHOR BOLT	762
<i>b Osman Mohamad Hairi, bin Imran Luqmanalhakim, binti Tami Hannifah, bt Abdul Rahman Nor Azira, bin Salim Salman</i>	
DESIGN AND IMPLEMENTATION OF BATTERY MANAGEMENT SYSTEM FOR ELECTRIC BICYCLE	768
<i>Mohd Rashid Muhammad Ikram, Anak Johnny Osman James Ranggi</i>	
THE EFFECT OF SURFACE FINISH ON SCULPTURED SHAPE UTILIZING SCANNED DATA – REVERSED ENGINEERING (CATIA V5 & DELCAM)	775
<i>Syahrul Azwan Sundi, Muhammad Syafik Jumali, Hassan Attan, R. Izamshah R. Abdullah</i>	
INVESTIGATION ON HEAVY PRECIPITATION EFFECTS OVER FSO LINK	781
<i>Talib M.F., Rahman A.K., Anuar M.S., Rashidi C.B.M., Aljunid S.A.</i>	
MULTI RESPONSES OPTIMIZATION OF DECARBOXYLATION PROCESS OF FREE FATTY ACID (FFA) INTO BIODIESEL USING GREY RELATIONAL ANALYSIS (GRA)	787
<i>Oktariani Erfina, Istikowati Rita</i>	
DROUGH TOLERANCE ESTIMATION OF SEVERAL RAINFED RICE (ORYZA SATIVA L.) OF LOKAL VARIETY USING POLYETHYLENE GLYCOL (PEG)	795
<i>Diana Susanti, Novriani, Sakalena Firnawati, Nurshanti Dora Fatma, Rahim Supli Effendi</i>	
ASSESSMENT OF FUNCTIONAL AND DYSFUNCTIONAL ON IMPLANT STABILITY MEASUREMENT FOR QUALITY OF LIFE	808
<i>Nordin Norshahrizan, Al Bakri Abdullah Mohd Mustafa, Mat Fauziah, Abdullah Muhammad, Che Razak Razli, Adom Abdul Hamid</i>	
DESIGN OF ELECTRIC VEHICLE RACING CAR CHASSIS USING TOPOLOGY OPTIMIZATION METHOD	815
<i>bin Ab Razak Mohd Suffian, bin Hasim Mohd Hudairee, bin Ngatiman Nor Azazi</i>	
A NOVEL STUDY ON USING VIETNAM RICE HUSH ASH AND CULLET AS ENVIRONMENTAL MATERIALS	820
<i>Trung Kien Pham, Thi Thien Ly Tran, Thi Lan Thanh Pham, Pham Quang Nguyen Tran, Hoc Thang Nguyen, Abdullah Mohd Mustafa Al Bakri</i>	
LIGHTWEIGHT HEAT RESISTANT GEOPOLYMER-BASED MATERIALS SYNTHESIZED FROM RED MUD AND RICE HUSK ASH USING SODIUM SILICATE SOLUTION AS ALKALINE ACTIVATOR	826
<i>Hoc Thang Nguyen, Kien Pham Trung, Abdullah Mohd Mustafa Al Bakri</i>	

EFFECT OF GRINDING TREATMENT OF FLY ASH ON COMPRESSIVE STRENGTH OF HARDENED GEOPOLYMERS USING WARM PRESS METHOD	832
<i>Hashimoto Shinobu, Kubota Kosuke, Ando Kotaro, Diko Yusuke, Honda Sawao, Iwamoto Yuji</i>	
UTILIZATION OF RICE HUSK ASH AS PARTIAL REPLACEMENT WITH CEMENT FOR PRODUCTION OF CONCRETE BRICK	840
<i>Minh Le Tuan, Tram Nguyen Xuan Thanh</i>	
STRATEGIES TO REDUCE WATER FOOTPRINT IN PALM OIL PRODUCTION: A CASE OF PTP MITRA OGAN, BATURAJA, SOUTH SUMATRA	846
<i>Dara Kospa Herda Sabriyah, Lulofs Kris R.D., Asdak Chay, Rahim Supli E.</i>	
EFFECTS OF FERTILIZATION AND SUBMERSION ON MORPHOLOGICAL CHANGES AND PRODUCTION OF TWO RICE VARIETIES WITH SUBMERSION STRESS CONDITIONS	858
<i>Gribaldi, Nurlaili, Effendi Rahim Supli</i>	
Author Index	