PROGRAM AND ABSTRACT BOOK

ICST 2018

UNIVERSITAS GADJAH MADA
BADAN PENERBIT DAN PUBLIKASI

ICST 2018

The 4th International Conference on Science and Technology

7–8 August 2018 | Yogyakarta, Indonesia

Computer and Information Technology

Electronics, Communication, Control, and Instrumentation

Environmental and Earth Science

Material Science and Chemistry

Mechanical and Industrial Engineering

Power and Energy

Remote Sensing and Geomatics

The 4th International Conference on Science and Technology
Program and Abstract Book

Computer and Information Technology Symposium

LOTUS ROOM

Code	Title and Authors
SYMPOSIUM SESSION 1 13:00 – 14:25	
CI1-425	Resource Endowments Strategy for Sustainable E-Government Nurdin
CI1-995	Context based-Tourism Recommender System: Towards Tourists' Context-Sensitive Preference Conceptual Model Kusuma Adi Achmad, Lukito Edi Nugroho, Achmad Djunaedi, and Widy Widyawan
CI1-920	Needs vs. Aspirations in Inter-Agency IT Alignment Haemiwan Z Fathony, Bobby Nazief, and Qorib Munajat
CI1-416	E-archives Implementation Readiness: A Case of the National Archives of the Republic of Indonesia Parno Nusantara, Bobby Nazief, Puspa Sandhyaduhita, and Haemiwan Z Fathony
CI1-922	Smart City for Development: Towards a Conceptual Framework Kusuma Adi Achmad, Lukito Edi Nugroho, Achmad Djunaedi, and Widy Widyawan
SYMPOSIUM SESSION 2 14:25 – 15:50	
CI3-689	Segmenting Retinal Vessels with a Multi-scale Modified Dolph-Chebyshev Type I Function Matched Filter Dhimas Arief Dharmawan and Boon Poh Ng
CI3-626	Multilevel Wavelet Packet Entropy and Support Vector Machine for Epileptic EEG Classification Inung Wijayanto, Achmad Rizal, and Sugondo Hadiyoso
CI3-958	Robust Pupil Localization Algorithm Based on Circular Hough Transform for Extreme Pupil Occlusion Muhammad Setiawan, Sunu Wibirama, and Noor Akhmad Setiawan

Code	Title and Authors
CI3-345	**EEG-Based Emotion Classification Using Wavelet Transform and K-Nearest Neighbor** Agfianto Eko Putra and Catur Atmaji
CI3-417	**Adaptive Threshold Determination Based on Entropy in Active Contour Without Edge Method for Malaria Parasite Candidate Detection** Faza Azif, Hanung Adi Nugroho, and Sunu Wibirama
	SYMPOSIUM SESSION 3 16:10 – 17:35
CI5-155	**A Review of Contrast Enhancement Techniques in Digital Image Processing** Dananjaya Ariateja, Igi Ardiyanto, and Indah Soesanti
CI5-686	**Three-Class Classification of EEG Signals Using Support Vector Machine Methods** Catur Atmaji and Agfianto Eko Putra
CI5-747	**Modification of Grey Level Difference Matrix (GLDM) for Lung Sound Classification** Achmad Rizal, Risanuri Hidayat, and Hanung Adi Nugroho
CI5-316	**Intra and Inter-Observer Comparison of Semi-Automated and Manual Methods Assessment by Non-Pathologist for Counting Cells Expressing P75 in Endometriotic Lesion** Agung Dewanto
CI5-552	**Do You See What I See Taking Perspective of Others Using Facial Images** Yustinus Eko Soelistio

SUNFLOWER ROOM

Code	Title and Authors
	SYMPOSIUM SESSION 1 13:00 – 14:25
CI2-894	A Persuasive Mobile Learning System for Informal Learning of Vegetable Farmers Abdurrahman Iskandar, Yusep Rosmansyah, and Albarda Albarda
CI2-636	Optimized Back-propagation Artificial Neural Network Algorithm for Smart Agriculture Applications Budi Cahyo Suryo Putro S, I Wayan Mustika, and Lukito Edi Nugroho
CI2-009	Real Time Face Recognition Comparison Using Fisherfaces and Local Binary Pattern Banu W Yohanes and Iwan Setyawan
CI2-885	The Implementation of Genetic Algorithm in Smote (Synthetic Minority Oversampling Technique) for Handling Imbalanced Dataset Problem Tince Tallo and Aina Musdholifah
CI2-497	Design of Fuzzy Simulation for Determining the Duration of Traffic Light Based on Vehicle Density Level and Carbon Monoxide Level Akhsin Nurlayli, Febrianto Alqodri, and Intan Sakkinah
	SYMPOSIUM SESSION 2 14:25 – 15:50
CI4-576	Analyzing the Performance of Machine Learning Algorithms in Anomaly Network Intrusion Detection Systems Pascal Maniriho and Tohari Ahmad
CI4-548	Security System Analysis in Combination Method: RSA Encryption and Digital Signature Algorithm Farah Jihan Aufa

Code	Title and Authors
CI4-727	**A Conceptual Model for Information Security Risk Considering Business Process Perspective** Eva Hariyanti, Arif Djunaidy, and Daniel Siahaan
CI4-887	**A Revisit on Blockchain-based Smart Contract Technology** Fengkie Junis, Faisal Prasetya, Farouq Lubay, and Anny Sari
CI4-688	**Prediction Learning Style with Prior Knowledge** Muhammad Said Hasibuan, Lukito Edi Nugroho, and Paulus Insap Santosa

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SYMPOSIUM SESSION 3
16:10 – 17:35

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Code	Title and Authors
CI6-728	**INARTE: An Indonesian Dataset for Recognition Textual Entailment** Abdiansah Abdiansah, Azhari Azhari, and Anny Sari
CI6-968	**Analyzing Employee Voice Using Real-Time Feedback** Andry Alamsyah and Dessy Monica Ginting
CI6-941	**An Ontology Model for Clinical Pathway Audit** Dhomas Hatta Fudholi and Lalu Mutawalli
CI6-969	**A Comparative Study of Employee Churn Prediction Model** Andry Alamsyah and Nisrina Salma
CI6-482	**Adaptive Synthetic-Nominal (ADASYN-N) and Adaptive Synthetic-KNN (ADASYN-KNN) for Multiclass Imbalance Learning on Laboratory Test Data** Adhistya Erna Permanasari, Yulia Ery Kurniawati, and Silmi Fauziati

DAY 1

Electronics, Communication, Control, and Instrumentation Symposium

DAHLIA ROOM

Code	Title and Authors
SYMPOSIUM SESSION 1 13:00 – 14:25	
EC1-768	An Output Feedback Controller in the Presence of Measurement Error Janghoon Yang
EC1-558	A New Blood Pressure Measurement Technology Based on the Flipping of Magnetic Dipole Moment Bambang Murdaka Eka Jati, Kusminarto Kusminarto, Agung Bambang Setio Utomo, and Guntur Maruto
EC1-961	Radio Frequency to Lightwave Signal Using Integrated Antenna and Optical Material for Electro Optic Alteration Yus Natali, Purnomo Priambodo, and Eko Tjipto Rahardjo
SYMPOSIUM SESSION 2 14:25 – 15:50	
I3	Prof. Riyanarto Sarno Institut Teknologi Sepuluh Nopember, Indonesia
EC2-098	Effect of the Receiver Coil Rotational Motion on Induction Voltage of Wireless Power Charging C. Bambang Dwi Kuncoro, Win-Jet Luo, and Yean-Der Kuan
EC2-673	Metal Oxide Semiconductor Based Electronic Nose as Classification and Prediction Instrument for Nicotine Concentration in Unflavoured Electronic Juice Trisna Julian, Shidiq Hidayat, and Kuwat Triyana
SYMPOSIUM SESSION 3 16:10 – 17:35	
EC3-164	Design of Simple ECU for LPG Fuel Injection on Conventional Generator Set I Wayan Adiyasa, Eka Firmansyah, and Adha Imam Cahyadi, and Anggito Kautsar

Code	Title and Authors
EC3-519	**Electronic Nose Coupled with Chemometrics for Monitoring of Tempeh Fermentation Process** Shidiq Hidayat, Tri Nuringtyas, and Kuwat Triyana
EC3-604	**Multiband Optically Transparent Antenna from Indium Zinc Tin Oxide Thin Films with Half-Circular Shaped** Yus Rama Denny, Teguh Firmansyah, Erfan Handoko, Isnaeni Isnaeni, Kangil Lee, and Channae Park
EC3-069	**Quality Classification of Chili Sauce Using Electronic Nose with Principal Component Analysis** Danang Lelono, Deny Permana, Fandy Achmad, Triyogatama Wahyu Widodo, Kuwat Triyana, and Muhammad Agung Bramantya
EC3-783	**Calibration of Capacitive Soil Moisture Sensor** Radi Radi, Murtiningrum Murtiningrum, Fajar Muzdrikah, and Ngadisih Ngadisih

CARNATION ROOM

Code	Title and Authors
	SYMPOSIUM SESSION 1 13:00 – 14:25
EE1-802	Environmental Economic Valuation of Cibodas Botanical Garden Using the Travel Cost Method Iwan Juwana and Muhammad Albar
EE1-163	Flood Insurance Rate Map for Non-Structural Mitigation Rasyikin Roslan and Rohayu Che Omar, and Badariah Solemon
EE1-642	Value Chain Analysis of Batik Wood Craft in Krebet Tourism Village Dyah Widiyastuti
EE1-907	Nett Present Value (NPV) Analysis for Projection of Feasibility of Coastal Sand Dune Tourism in Parangtritis Village Dicky Satria Dwiputra, Yan Abdi Rahmanu, Muhammad Naufal, Atikarosa Sih Tofani, Jundi Muhammad Bariq, and Khansa Sitostratufana Arsy An Nisa
EE1-967	Temporal-Spatial Analysis in Accordance with Gender Development Index on the Improvement of the Quality of Women in Central Kalimantan Province Prameswari Kusumaningrum, Ari Yulianto, Alviyah Daniati, Shinta Nurvitasari, and Ratih Putri
	SYMPOSIUM SESSION 2 14:25 – 15:50
EE3-012	Gravity Satellite Data Analysis for Subsurface Modeling in Mt. Merapi and Mt. Merbabu, Java, Indonesia Puspita Dian Maghfira and Sintia Niasari
EE3-070	Thermal Comfort and Settlements Quality for Ec0-settlement Based Management in Yogyakarta Djaka Marwasta
EE3-263	Spatial Analysis of Coral Reefs and Its Degradation Patterns in Bunaken National Park Nafil Attamimi

Code	Title and Authors
EE3-950	Landuse Change Monitoring and Population Density Analysis of Penjarngan, Cengkareng, and Cakung Urban Area in Jakarta Province Ratih Putri and Sunu Wibirama
EE3-054	Kite Aerial Photography (KAP) for Rip Current Identification in Parangtritis Beach Barandi Sapta Widartono, Muchsin Nur Wachid, Deha Agus Umarhadi, Anggini Nur Azizah, and Restu Dwi Cahyo

SYMPOSIUM SESSION 3
16:10 – 17:35

Code	Title and Authors
EE5-018	Analysis of Java Island's Ozone Layer and Ultra Violet Index Variability Based on Satellite Data Ninong Komala
EE5-621	The Tropopause Height Analysis in Equatorial Region Through the GPS-RO Rohaniza Mohd Zali
EE5-689	The Impact of Climate Variability on Tobacco Productivity over Temanggung Regency Andi Syahid Muttaqin, Utia Suarma and Emilya Nurjani, Faricha Kurniadhini, Ratna Prabaningrum, and Retno Wulandari
EE5-956	Sustainability of Rainwater Harvesting for Supplying Domestic Water Demand in Yogyakarta City Basyar Arijuddin, Setyawan Purnama, and Emilya Nurjani
EE5-857	The Nature of Carbon Flux in Various Ecosystem Types in the Biduk-Biduk Karst Region, Berau District, East Kalimantan Danardono Danardono, Eko Haryono, and Margaretha Widyastuti

TULIP ROOM

Code	Title and Authors
	SYMPOSIUM SESSION 1 13:00 – 14:25
EE2-361	Design of Coal Mine Drainage System Waterman Sulistyana Bargawa, Agus Panca Adi Sucahyo, and Hesti Farra Andiani
EE2-526	Bismuth/Hydroxyapatite-Modified Carbon Screen-Printed Electrode for Heavy-Metal Ion Detection in Aqueous Media Aamir Khan, Huma Ajab, Asim Yaqub, and Mohd Azmuddin Abdullah
EE2-588	Multi-channel Analysis of Surface Wave Method for Geotechnical Site Characterization in Yogyakarta, Indonesia Nwai Ngal
EE2-960	Design and Modification of Horizontal-Flow Roughing Filter as Watertreatment at UGM Retention Pond Niesa Hanum Mistoro and Sri Saraswati
EE2-823	Optimization of Operational Techniques in Waste Management Case Study: Lhokseumawe City Ade Widya Isharyati, Agus Prasetya, and Rochim Bakti Cahyono
	SYMPOSIUM SESSION 2 14:25 – 15:50
EE4-725	Sand Transport Characterization on the Foredune Area of Parangtritis, Indonesia Mukhamad Malawani, Djati Mardiatno, and Sunarto Sunarto
EE4-747	Relation of Lineaments and Volcano-Stratigraphy of Tertiary Volcanic Rock in Kulon Progo Mountains Area, Yogyakarta-Indonesia Asmoro Widagdo
EE4-359	Petrogenesis and Depositional Environment of Paleozoic Sedili and Pengerang Volcaniclastics in East Johor Basin, Peninsular Malaysia Sugeng Surjono, Shafeea Leman, Che Ali, and Fathan Mada

Code	Title and Authors
EE4-929	The Development of Cave Passage in Donomulyo, Malang, Indonesia Mohammad Labib, Eko Haryono, and Sunarto Sunarto
EE4-701	Assesment of New Geosites in Gunungsewu Karst Area, Wonogiri Regency, Central Java, Indonesia Trihandy Saputro, Rakyan Mahardhika, and Agus Hendratno
	SYMPOSIUM SESSION 3 16:10 – 17:35
EE6-072	Water Quality and Sustainability of Merdada Volcanic Lake, Dieng, Indonesia Sudarmadji Professor, Slamet Suprayogi, Sri Lestari, and Mukhamad Malawani
EE6-166	Macroinvertebrate Benthic Community as Rapid Quality Assesment in Winongo, Code, and Gajah Wong Streams Inside Yogyakarta City District Special Region of Yogyakarta Province Qisti Fauziyah
EE6-554	Spatial Distribution of Dominant Ions in the Groundwater in Banyumudal Groundwater Basin, Central Java, Indonesia Setyawan Purnama
EE6-531	The Hydrogeological Mapping of the Southwestern Part of Serang District, Banten, Indonesia Ahmad Cahyadi, Romza Agniy, Nurul Khakhim, Setyawan Purnama, Igor Bachtiar, and Wikan Prihantarto
EE6-989	Hydrograph Modeling with Rational Modified Method Mega Widasmara, Mohammad Hadi, and Nugroho Christanto
EE6-884	Clay Mineralogy of Landslide Occurrences in Hydrothermally Altered Area: A Case Study of Durensari Area Purworejo, Central Java Ilham Putra, Anastasia Titisari, and Hiznaiti Husna

HIBISCUS ROOM

Code	Title and Authors
SYMPOSIUM SESSION 2 14:05 – 15:50	
MC2-667	Synthesis of curcumin analogs under ultrasound irradiation for inhibiting α-amylase Lana Tantriasa D. T., Chairil Anwar, and Endang Astuti
MC2-720	Antioxidant activity of sweet swimming extract (Cinnamomum burmanii) to overcome rancidity on cooking oil Yufita Tuhuteru
MC2-857	In silico approach in evaluation of jack bean (Canavalia ensiformis) Canavalin protein as precursors of bioactive peptides with dual antioxidant and angiotensin I converting enzyme inhibitor Zulvana Anggraeni Harvian, Andriati Ningrum, Sri Anggrahini1, Widiastuti Setyaningsih
MC2-946	Ultrasound-assisted synthesis of some mono-carbonyl Curcumin analogs and their synergistic effect with ferulic acid on α-amylase inhibition Siti Khoiri Inayah, Chairil Anwar, and Harno Dwi Pranowo
MC2-965	Synthesis and Heme Polymerization Inhibitory Activity (HPIA) assay of chalcone, flavone, and flavanone derivatives Novia Suryani, Sabirin Matsjeh, and Respati Tri Swasono
SYMPOSIUM SESSION 3 16:10 – 17:35	
MC4-280	The Influence of Physico-chemical properties on Heavy Metals Content on the Illegal Land Fill Kadisoka, Sleman, Special Region of Yogyakarta Fitri Rizqi Amaliyah, Adhitasari Suratman, and Suherman
MC4-286	Comparison the effect of using different fatliqour to the formation of chromium (VI) in leather production Mustafidah Udkhiyati and Laili Rachmawati
MC4-445	Determination of risk of radioactive in chemical fertilizer using gamma ray spectrometry Rindi Genesa Hatika and Purwo Subekti

Code	Title and Authors
MC4-682	Enhancement of EAPR system using aeration process on the removal of heavy metal (Cu and Fe) in the wastewater and up-take by Vetiver grass (Vetiveira zizaniodes L) Rudy Syah Putra, Vivian Viani, Iis Setianingrum, Ega Dwi Sintadani, Durrotul Uuliyah, and Muhammad Faiq Faridani
MC4-990	Analysis of dexamethasone in "jamu" Indonesian traditional medicine using 1H NMR-based metabolomics Yulia Shara Br Sembiring, Respati Tri Swasono, Chairil Anwar, and Tri Rini Nuringtyas

IRIS ROOM

Code	Title and Authors
	SYMPOSIUM SESSION 1 13:00– 14:05
I1	Dr. Julius Motuzas The University of Queensland, Australia
I2	Prof. Cheon-Gyu Cho Hanyang University, South Korea
	SYMPOSIUM SESSION 2 14:05 – 15:50
MC3-011	Synthesis, characterization, and anticancer activity of N-acetyl pyrazolines from veratraldehyde Tutik Dwi Wahyuningsih, Artania Adnin Tri Suma, and Endang Astuti
MC3-012	The opportunities of oil palm fronds to become a commercial liquid smoke Seri Maulina and Fadhil Al Faruq Sinaga
MC3-014	Synthesis of dehydrozingerol and the activity test as fruit flies attractant Murdiah, Deni Pranowo, and Tri Joko Raharjo
MC3-963	Synthesis and biological evaluation of chalcone derivatives as antioxidant and sunscreen agents Damayanti Iskandar and Tutik Dwi Wahyuningsih
MC3-986	Extraction of condensed tannins from tropical plants as affected by leaves maturity, maceration time, and centrifugal force Awistaros Angger Sakti, Kustantinah, Raden Wisnu Nurcahyo, Lovy Perdani, and Melisa Ekaningrum
	SYMPOSIUM SESSION 3 16:10 – 17:35
MC5-039	Effect of silver concentration towards formation of AgPt nanofern films as SERS substrates Norhayati Abu Bakar, Nur Adliha Abdullah, Akrajas Ali Umar, Muhamad Mat Salleh, and Joseph George Shapter

Code	Title and Authors
MC5-282	**Microstructures and Functional Group Properties of Nano-sized Chitosan Prepared by Ball Milling** Kartika Sari, Edi Suharyadi, Roto, and Kamsul Abraha
MC5-293	**The influence of Cu dopant concentration on the optical properties of Fe3O4/SiO2/TiO2 nanocomposite** Aisyiah Restutiningsih Putri Utami, M. Sulthon Nurharman Syah Putra, M. Miqdam Musawwa, Eko Sri Kunarti
MC5-645	**The role of reduced graphene oxide concentration as ablated material on optical properties of graphene quantum dots** Fiqhri Heda Murdaka, Ahmad Kusumaatmaja, Isnaeni, and Iman Santoso
MC5-718	**Selection of polyanions as complexation agent in the formation of nanochitosan by polyelectrolyte complex method** Al Dina Khoerunisa N., Prihati Sih Nugraheni, Mohammad Fahrurrozi, and Wiratni Budhijanto
MC5-947	**Antibacterial activity of TiO2- Ag-Nanoparticle under visible light** Endang Tri Wahyuni, Roto, and M. Prameswari

DAY 1 Mechanical and Industrial Engineering Symposium

MAGNOLIA ROOM

Code	Title and Authors
SYMPOSIUM SESSION 1 13:00 – 14:25	
MI1-827	Analysis of Fundamental Parameters on Zooming and Rotation Using Pinch Gestures Valentina Kunthi Bratadewi, Cheng-Jhe Lin, and Titis Wijayanto
MI1-919	A Study on the Visual Menu Design Using Pinch Gestures on Touchscreens Orchida Dianita, Cheng-Jhe Lin, and Titis Wijayanto
MI1-964	Investigation of Potential Impact Parameters to Be Used for Future Detection of Kopyor Coconut with Drop Test Method Alfian Kamil, Muhamad Bayu, Agung Shamsuddin Saragih, and Radon Dhelika
MI1-415	Transportation Cyber-Physical Systems: Impacts on Humans Fitri Trapsilawati, Matrissya Hermita, and Christopher Wickens
MI1-902	Design and Development of Wearable GPS Tracking Device by Applying the Design for Wearability Approach Teddy Sjafrizal, Yahya Muhyiddin, Andre Wijaya, and Rino Andias Anugraha
SYMPOSIUM SESSION 2 14:25 – 15:50	
MI3-493	Ergonomic Student Laptop Desk Design Using the TRIZ Method Hari Purnomo and Fikrihadi Kurnia
MI3-071	Analysis of Mental Workload in Human Resource Department Sri Indrawati and Suci Miranda
MI3-565	User Needs Analysis for Industrial Design of Kansei Engineering-based Sensor for Agroindustry (KESAN) Taufik Agassi, Mirwan Ushada, and Atris Suyantohadi
MI3-713	Analysis of Air Traffic Conflict Geometry on Brain Activity Fitri Trapsilawati, Agustyandini Nugraheni, and Muhammad K Kusumawan Herliansyah

Code	Title and Authors
	SYMPOSIUM SESSION 3 16:10 – 17:35
MI5-343	Basic Analysis of Logistics Cost for Indonesian Fishery Commodities Kuncoro Harto Widodo
MI5-365	Supply Chain Strategy of Catchment Sea-Fish Based on Logistics Cost Structure Adi Guritno
MI5-393	Risk Mitigation for Fresh Raw-Milk in the Rural Supply Chain Kuncoro Harto Widodo
MI5-472	Managing On-Time Delivery in Engineering-To-Order Supply Chain with Buffer Time Optimization Budhi Wibowo
MI5-637	Model of Warehouse Performance Measurement Based on Sustainable Warehouse Design Sri Indrawati and Suci Miranda

Mechanical and Industrial Engineering Symposium

ORCHID ROOM

Code	Title and Authors
SYMPOSIUM SESSION 1 13:00 – 14:25	
MI2-938	Free Expansion Behaviour of Coronary Stent Based on Strut Linker Geometry Rachmat Sriwijaya
MI2-958	The Comparison of Material and Force Difference on the Development of Lower Limb Exoskeleton Design for Post Stroke Patients Djoko Kuswanto, Ibnu Wicaksono, and Faiqoh Agustin
MI2-785	Numerical Investigation on Flexibility of Metal Cardiovascular Stent Alva Tontowi
MI2-909	The CFD Simulation of Cyclone Separator with the Counter-cone in the Updraft Gasification Process T. Firdani, H. Saputro, Riyadi Muslim, Sri Lasmini, and Khaniffudin Khaniffudin
MI2-303	Experimental Investigation on Air-Water Two Phase Flow and Transition Phenomenon in Capillary Channel Ardi Wiranata, Indro Pranoto, Muhammad Imaduddin, Sudarja Sudarja, Deendarlianto Deendarlianto, and Indarto Indarto
SYMPOSIUM SESSION 2 14:25 – 15:50	
MI4-440	Investigating the Temperature and Air Velocity Distribution of Split-Type Air Conditioners Using Computational Fluid Dynamics Yosua Heru Irawan, Daru Sugati, Harianto Harianto, Muhamad Abdulkadir, Yohanes Jayatun, and Dandung Hartana
MI4-117	Effect of Inlet Pressure, Size and Wind Speed of an Evaporator on Amount of Refrigerant Charge and Performance of a Portable Propane Air Conditioner Jeri Siang

Code	Title and Authors
MI4-176	Experimental and Simulation Study of the Vibration of a Rectangular Plate with a Vertical Clamped Midline Gandha Adi, Indraswari Kusumaningtyas, and Gea Parikesit
MI4-970	SEM PLS Models for Performance Analysis of Manufacturing Companies D. Baroroh and A H Mahardhika
MI4-973	Effects of Heat Treatments on Mechanical Properties, Specific Wear and Corrosion Rate of HQ 809 Steel for Machinery Components Application Viktor Malau and Wildan Fauzi
	SYMPOSIUM SESSION 3 16:10 – 17:35
MI6-905	Design and Hydrodynamic Test Propeller of Mini Submarine with High Efficiency and Low Cavitation Mahendra Indiaryanto, Nurwidhi Asrowibowo, Navik Puryantini, and Muhammad Utina
MI6-692	Simultaneous Optimization of Tensile Strength, Energy Consumption and Processing Time on FDM Process Using Taguchi and PCR-TOPSIS Andhy Rinanto, Hoedi Prasetyo, Adi Nugroho, and Eko Pujiyanto
MI6-760	Investigation of Agel Leaf Fiber/Unsaturated Polyester Composite Cutting Parameters Using CO_2 Laser Gesang Nugroho and Heryoga Winarbawa
MI6-675	Business Process Reengineering in a Sago Production Process Taufiq Immawan, Citra Asmarawati, and Winda Nur Cahyo
MI6-884	3D Printing for Fashion Development Djoko Kuswanto, Nike Jhorda Iftira, and One Media Hapinesa

Power and Energy Symposium

ANGSANA ROOM

Code	Title and Authors
	SYMPOSIUM SESSION 1 13:00 – 14:25
PE1-105	Cogeneration Power-Desalination in Small Modular Reactors (SMRs) for Load Following in Indonesia Muhammad Oktavian, Diana Febrita, and Mansur Arief
PE1-248	Experimental Study on Fuel Consumption and Energy Efficiency at Soymilk Cooking Using a Mini Boiler and Using a Gas Stove Umi Hanifah
PE1-943	Analysis of the Effects of Overflow Leakage Phenomenon on Archimedes Turbine Efficiency Ahmad Indra Siswantara, Muhammad Syafei, Budiarso Budiarso, Rudias Harmadi, Warjito Warjito, and Dendy Adanta
PE1-664	Simulation of Close-Open Standing Wave Thermoacoustic Engine Toward Variation of Resonator Diameter Sugiyanto Sugiyanto and Joko Waluyo, Adhika Widyaparaga, and Samsul Kamal
PE1-963	The Model of HVAC's Control Technique Based on Occupancy in Smart Building for Energy Saving Chairani Fauzi, Selo Sulistyo, and Widy Widyawan
	SYMPOSIUM SESSION 2 14:25 – 15:50
PE2-867	The Influence of Bucket Shape and Kinetic Energy on Performance Breastshot Waterwheel Budiarso Budiarso, Jonathan Sahat Sinaga, Dendy Adanta, Warjito Warjito, and Aji Prakoso
PE2-821	Design and Implementation of Solar Based Ice Block Machine in Remote Island. Case Study Maratua Island, Indonesia Bahrul Jalaali, Muhammad Arifin, Krisna Permana, Yunanto Yunanto, and Dyah Murniyati
PE2-793	Effect of Blades Number on Undershot Waterwheel Performance with Variable Inlet Velocity Warjito Warjito, Satrio Arifianto, Budiarso Budiarso, Dendy Adanta, and Sanjaya Nasution

Code	Title and Authors
PE2-670	**Short-term Electric Load Forecasting Using Recurrent Neural Network** Muhammad Amri Yahya, Sasongko Pramono Hadi, and Lesnanto Multa Putranto
PE2-212	**Power Flow Analysis of Power System Topology Development for Advancing Electricity System of Local Interconnection** AN Afandi, Irham Fadlika, and Langlang Gumilar
	SYMPOSIUM SESSION 3 16:10 – 17:35
PE3-450	**Investigation Flow on Horizontal Axis Wind Turbine with Betz Chord Distribution, Twist, and Winglet** Nyoman Ade Satwika, Sarwono Sarwono, and Ridho Hantoro
PE3-848	**Blade Depth Investigation on Cross-flow Turbine by Numerical Method** Dendy Adanta, Richiditya Hindami, Budiarso Budiarso, Warjito Warjito, and Ahmad Indra Siswantara
PE3-971	**Characteristics of Gradual Discharging Process on a Thermosyphon SWH Tank Containing PCM** Muhammad Nadjib
PE3-429	**Study of Solar and Wind Energy Using as Water Pump Drive-Land for Agricultural Irrigation** Maidi Saputra
PE3-887	**State of Charge (SOC) Analysis and Modeling Battery Discharging Parameters** Moh. Iwan Wahyuddin, Purnomo Sidi Priambodo, and Harry Sudibyo

HELICONIA ROOM

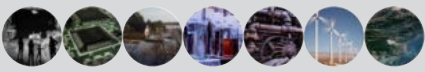| Code	Title and Authors
	SYMPOSIUM SESSION 1 13:00 – 14:25
RG1-941	Euler Poles Determination of Southern Sunda Microblocks Base on GNSS GPS Observations Dina Sarsito, Susilo Susilo, Dhota Pradipta, and Heri Andreas
RG1-949	Quality Analysis of the Geodetic Control Networks for Purposes of Geodynamics Study of Sangihe Island Leni Heliani, Adhy Kurniawan, Fuad Swastiko, and Mohamad Ghaly Kurniawan
RG1-203	Observation Duration and Multipath Analysis on Yogyakarta Opak Fault Monitoring Station Nurrohmat Widjajanti, Afradon Setyawan, Aris Sunantyo, and Parseno Parseno
RG1-771	Movement Detection of Sermo Dam Control Point Based on GNSS Observation Data in 2016 - 2017 Muhammad Iqbal Taftazani and Yulaikhah Yulaikhah
RG1-698	Combination of Gravity Disturbances and Gravity Anomalies for Geoid Determination a Case Study in Semarang City Central Jawa, Indonesia Laode M Sabri, Leni Heliani, Aris Sunantyo, and Nurrohmat Widjajanti
	SYMPOSIUM SESSION 2 14:25 – 15:50
RG2-486	Satellite-based Estimation of Above Ground Carbon Stock Estimation for Rubber Plantation in Tembir Salatiga Central Java Wenang Anurogo, Muhammad Zainuddin Lubis, Miratul Mufida, Luthfiya Sari, and Wikan Prihantarto
RG2-017	Multi-Sensors Remote Sensing for Mapping and Monitoring Canals on Tropical Peatland Ismail Ismail, Oka Karyanto, and Trias Aditya
RG2-803	Analysis of Consentration of Total Suspended Solid (TSS) in Porong Sidoarjo River Waters Teguh Hariyanto, Cherie Bhekti Pribadi, Akbar Kurniawan, Bangun Sukojo, and Muhammad Taufik

Code	Title and Authors
RG2-413	Cirrus Cloud Correction in Landsat 8 Image Using the Image-Based Approach: A Case Study in Sumba Island, Indonesia Ratna Prastyani and Abdul Basith
RG2-898	Application of IKONOS Imagery for Estimating Population Exposure to Landslide Hazard in Banjarmangu Sub District, Central Java, Indonesia Noorhadi Rahardjo and Hero Marhaento

SYMPOSIUM SESSION 3
16:10 – 17:35

Code	Title and Authors
RG3-102	The Implementation of LADM VersionedObject Class in Spatial Data Presentation of 4 Dimensional Cadastre Object (3D Cadastre + Time) Miranty N. Sulistyawati, Trias Aditya, and Purnama Santosa
RG3-179	Spatial Habitat Suitability Modeling of the Roti Snake-Necked Turtle (Chelodina Mccordi) Based on Landsat-8 Imagery and GIS Kurnia Latifiana, Hartono Hartono, Projo Danoedoro, Maslim As-singkily, and Andi Cahyana
RG3-752	Developing Android Application for Precise Geotagging Using RTK GPS Module Dedi Atunggal, Nuaim Ausi, and Catur Rokhmana
RG3-792	The Relationship Between Artificial Nighttime Light (ANTL) and Built-Up Area: a Remote Sensing Perspective Wahyu Nurbandi, Ruwanda Prasetya, and Muhammad Kamal
RG3-949	Testing Spatial Data Deliverance in SQL and NoSQL Database Using NodeJS Fullstack Web App Dany Laksono

DAY 2 Conference schedule
WEDNESDAY, 8 AUGUST 2018

Time	Program	Venue
08:00–08:30	REGISTRATION	Ballroom lobby
	PLENARY SESSION III	
08:30–10:00	Dr. Deendarlianto *Universitas Gadjah Mada, Indonesia*	Ballroom
	Prof. Azhar Zam *University of Basel, Switzerland*	
	Prof. Rohayu Che Omar *Universiti Tenaga Malaysia, Malaysia*	
	DISCUSSION	
10:00–10:30	COFFEE BREAK	Ballroom lobby
10:30–12:12	SYMPOSIA SESSION IV	Parallel rooms
12:12–13:27	LUNCH BREAK	Ballroom lobby
13:27–15:09	SYMPOSIA SESSION V	Parallel rooms
15:09–15:39	COFFEE BREAK	Ballroom lobby

Time	Program	Venue
	CLOSING CEREMONY	
15:39–16:34	TRADITIONAL DANCE PERFORMANCE *Universitas Gadjah Mada*	Ballroom
	BEST PAPER AWARDS	
	drg. Ika Dewi Ana, Ph.D. *Vice Rector for Research and Community Services*	
16:34–16:44	PHOTO SESSION	

LOTUS ROOM

Code	Title and Authors
	SYMPOSIUM SESSION 4 10:15 – 11:57
CI7-022	Analysis of Customers' Emotional Preferences Using Kansei Engineering and AHP Ana Hadiana and Abdurrohman P
CI7-074	A Review of Cloud Migration Strategies in the Developing Country Ridi Ferdiana and Guntur Dharma Putra
CI7-625	Data Preservation Process in Big Data Environment Using Open Archival Information System Krisostomus Nova Rahmanto and Mardhani Riasetiawan
CI7-742	Integrated Cloud Storage on Paperless Thesis Examination Fathi Nurdien Ali Rahman, Ridi Ferdiana, and Sri Suning Kusumawardani
CI7-007	Specify of Estimation Using C4.5 Algorithm of Software Project Estimation at the Point of Sales Application with Cocomo II Kadinar Novel, Sfenrianto Sfenrianto, Windu Gata, Kaman Nainggolan, and Mochamad Wahyudi
CI7-764	Numbered Musical Notation and LATEX Document Integration Yohanes Suyanto
	SYMPOSIUM SESSION 5 13:27 – 15:09
CI10-495	Real-Time GPU-based SPH Fluid Simulation Using Vulkan and OpenGL Compute Shaders Samuel Gunadi and Pujianto Yugopuspito
CI10-605	Performance of Human Motion Analysis: A Comparison Lyta Ly, Igi Ardiyanto, and Sunu Wibirama

Code	Title and Authors
CI10-866	**EEG Classification Using Elliptic Filter and Multilayer Perceptron Based on Gamma Activity Features** Rahmat Widadi, Indah Soesanti, and Oyas Wahyunggoro
CI10-406	**Performance Evaluation of Scalable High Efficiency Video Coding (SHVC) Transmission** Daerawi Daerawi, Kalvein Rantelobo, and Kalamullah Ramli

MAGNOLIA ROOM

Code	Title and Authors
	SYMPOSIUM SESSION 5 13:27 – 15:09
CI9-979	Evaluating Energy Consumption in a Different Virtualization Within a Cloud System I Made Murwantara and Pujianto Yugopuspito
CI9-481	The Architecture of Device Communication in Internet of Things Using Inter-Integrated Circuit and Serial Peripheral Interface Method Maemunah M and Mardhani Riasetiawan
CI9-951	Techno Economic Analysis of Spectrum License Price in Indonesia for NB-IoT Deployment Muhammad Rifki Nugroho and Gunawan Wibisono
CI9-569	Smart Traffic System: The Shortest Path to Reach the Location of Traffic Accidents Tati Erlina, Syafdia Okta, and Ratna Aisuwarya
CI9-400	The Implementation of Timestamp, Bitmap and RAKE Algorithm on Data Compression and Data Transmission from IoT to Cloud Kartika Sari and Mardhani Riasetiawan

SUNFLOWER ROOM

Code	Title and Authors
	SYMPOSIUM SESSION 4 10:15 – 11:57
CI8-238	A Study on Communication System in VANET Ronald Adrian, Selo Sulistyo, and I Wayan Mustika
CI8-727	An Improved Implementation of Discretization Algorithm for Markov Reward Models Inez Sutanto and Reza Pulungan
CI8-252	Development of Kartini Reactor Code to Support Nuclear Training Center and Safety Analysis Sutanto Sutanto, Ardina Suryana, and Syarip Syarip
CI8-692	Improving Road Traffic Management by A Model-Based Simulation Erwin Harahap, Janaka Wijekoon, Pupung Purnamasari, Deni Darmawan, Rakhmat Ceha, and Hiroaki Nishi
	SYMPOSIUM SESSION 5 13:27 – 15:09
CI11-100	Toward Modern IT Audit- Current Issues and Literature Review Bayu Aditya, Ridi Ferdiana, and Paulus Insap Santosa
CI11-699	E-Learning Implementation on Clinical Rotation Nursing Education: a Case Report of Universitas Gadjah Mada Totok Harjanto, Dimas Septian Eko Wahyu Sumunar, and Kintan Ayu Kartika Putri
CI11-725	Drop Out Detection Using Non Academic Data Tio Dharmawan, R. V. Hari Ginardi, and Abdul Munif
CI11-930	The Requirements Analysis of eLisa Business Architecture with Education Enterprise Architecture Perspective Gunadi Emmanuel, Sri Suning Kusumawardani, and Ridi Ferdiana

Code	Title and Authors
CI11-393	A Framework for Improving Recommendation in Adaptive Metacognitive Scaffolding Indriana Hidayah, Teguh Bharata Adji, and Noor Akhmad Setiawan
CI11-578	Software Startup Ecosystem in Indonesia: A Conceptual Framework Anung Asmoro, Lukito Edi Nugroho, and Selo Sulistyo

DAY 2 Electronics, Communication, Control, and Instrumentation Symposium

DAHLIA ROOM

Code	Title and Authors
	SYMPOSIUM SESSION 4 10:15 – 11:57
EC4-633	Resource Allocation in Cognitive Radio Networks Based on Modified Ant Colony Optimization Muh. Bagus Satria and I Wayan Mustika
EC4-646	Implementation of Digital Signage Based on Embeded System and IoT Using Mac Address as Identifier on Laboratory In-Out Announcer Board Heruwanto Suharto, I Wayan Mustika, and Selo Sulistyo
EC4-974	Regression Analysis for Estimated Distance in Fingerprinting-Based WLAN Outdoor Localization System Sutiyo Sutiyo, Risanuri Hidayat, I Wayan Mustika, and Sunarno Sunarno
EC4-629	A Modified Genetic Algorithm for Resource Allocation in Cognitive Radio Networks Niki Robbi,I Wayan Mustika, and Widy Widyawan
EC4-808	Waterfilling Power Control on Proportional Fair Algorithm to Maintain Fairness and Saves Power for MIMO-OFDMA 2X2 Roy Ginting, Arfianto Fahmi, Nur Andini and Vinsensius Prabowo (Telkom University, Indonesia)
	SYMPOSIUM SESSION 5 13:27 – 15:09
EC5-855	Linear Oscillation Diagnosis of Process Variable in Control Loop Based on Variational Mode Decomposition Gilang R.R. Dewa, Awang N. I. Wardana, and Singgih Hawibowo

Code	Title and Authors
EC5-916	**Stock Control of Single Product Inventory System with Imperfect Delivery by Using Robust Linear Quadratic Regulator** Muhammad Luthfi, Sutrisno Sutrisno, and Widowati Widowati
EC5-696	**Battery Current Estimation Based on Simple Battery Model with Parameter Update Strategy** Bobby Dewangga, Samiadji Herdjunanto, and Adha Imam Cahyadi
EC5-759	**Fault Detection on the Battery SOC-OCV by Using Observer** Yohannes Chrysostomos Hendro Yuwono, Bobby Dewangga, Adha Imam Cahyadi, and Samiadji Herdjunanto
EC5-794	**Optimal Fractional-Order PID for DC Motor: Comparison Study** Syaiful Ardy Gunawan, Yohannes Chrysostomos Hendro Yuwono, Gilang Nugraha Putu Pratama, Adha Imam Cahyadi, and Bondhan Winduratna

ORCHID ROOM

Code	Title and Authors
SYMPOSIUM SESSION 5 13:27 – 15:09	
EC6-944	Auto VTOL System on Quadrotor Using Madgwick Quaternion Kalman Filter and LQR Andi Dharmawan, Angela Aprilia, Ariesta Handayani, and Ahmad Ashari
EC6-932	Moving Robot Path Planning Algorithm Analysis on Dynamic Environment Based Global Difference Method Update on Ant Colony Algorithm Tri K Priyambodo and Tonny Suhendra
EC6-955	An Overview of Fundamental Step Using Wi-Fi Communication for Flight Formation Quadrotors Muhamad Fikri, Ahmad Ashari, Andi Dharmawan, and Bakhtiar Sumbada
EC6-555	Array of Eight Circularly Polarized Microstrip Antennas for IEEE 802.11Ac MIMO WLAN Aloysius Adya Pramudita, Sholihin Sholihin, and Dyonisius Dony Ariananda

CARNATION ROOM

Code	Title and Authors
	SYMPOSIUM SESSION 4 10:15 – 11:57
EE7-187	Seismic Microzonation Based on Microseismic Data and Damage Distribution of 2006 Yogyakarta Earthquake Radhitya Perdhana and Budi Nurcahya
EE7-946	Comparative Analysis of Disaster Information Website Based on Web Usability Evaluation and Quality Content of Disaster Information Indra Riyanto, Ratri Sholihah, and Ahmad Cahyadi
EE7-655	Tsunami Hazard Mapping and Loss Estimation Using Geographic Information System in Gunungkidul Coastal Area, Yogyakarta, Indonesia Hendy Fatchurohman and Muh Aris Marfai
EE7-891	Accident Risk Management Strategy at Un-signalized Intersection Don Gaspar Noesaku da Costa, Siti Malkamah, and Latif Budi Suparma
EE7-911	Modeling (Im)Mobility: The Decision to Stay in Disaster Prone Area Amongst Fishermen Community in Semarang Choirul Amin, Sukamdi Sukamdi, and Raden Rijanta

CARNATION ROOM

Code	Title and Authors
	SYMPOSIUM SESSION 5 13:27 – 15:09
MC8-010	A DFT study on the corrosion inhibition performance of dibenzo-diaza-15-crown-5 and its heterocyclic analogs Saprizal Hadisaputra, Islah Hasanah Rohimah, Saprini Hamdiani, and Nuryono
MC8-016	Quantitative Structure-Activity Relationship (QSAR) analysis of 3-substituted 4-anilino coumarin derivatives as anti-tumor Daratu Eviana K. P., Harno Dwi Pranowo, and Winarto Haryadi
MC8-036	Density-functional-theory calculations of vacancies in monolayer hexagonal boron nitride (h-BN) Wardah Amalia, Sholihun, Dian Putri Hastuti, and Pekik Nurwantoro
MC8-037	First principle calculation of mono- and di-vacancies in germanene Dian Putri Hastuti, Sholihun, Wardah Amalia, and Pekik Nurwantoro
MC8-811	Study of glucose binding protein encapsulated gold nanoclusters by molecular dynamic simulation Boy Marsaputra Panjaitan, Karina Kubiak-Ossowska, David Birch, and Yu Chen
MC8-977	Adsorption of oxigen and nitrogen molecules on monolayer germanene: the density-functional-theory study Sholihun, Savira Hanandita, Dhea Amanda, Arief Hermanto, Muhammad Rifqi Al Fauzan, Romy H. S. Budhi, and Ari Dwi Nugraheni

HIBISCUS ROOM

Code	Title and Authors
	SYMPOSIUM SESSION 4 10:15 – 11:57
MC6-289	The effect of blending condition on mechanical properties of cellulose microfiber extraction from bagasse using a modified kitchen blender Romi Sukmawan, Muhammad Waziz Wildan, Lestari Hetalesi Saputri, Rochmadi, and Heru S. B. Rochardjo
MC6-637	Degradation of mechanically surface treated AZ31B magnesium alloy in 3.5 Wt.% NaCl solution Budi Arifvianto, Suyitno, and Muslim Mahardika
MC6-670	Effects of fiber contents on wear resistance of Salacca zalacca Frond fiber reinforced phenolic Heru S. B. Rochardjo and Muhammad Ridlo
MC6-961	Preparation of Cr metal supported on sulfated zirconia catalyst Latifah Hauli, Karna Wijaya, and Ria Armunanto
MC6-973	Characterization of hydrothermal liquid product of Red Meranti (Shorea leprosula Miq.) sawdust for wood preservative Indah Astieningsih Mappapa, Reinaldo Salim, Ahmad T. Yuliansyah, and Arief Budiman
MC6-999	An interplay role between ammonium and halide anions as additives in Perovskite CH3NH3PbI3 Mulya Supianto, Suyanta, and Indriana Kartini
	SYMPOSIUM SESSION 5 13:27 – 15:09
MC9-646	The characterization of structure and chemical composition of semiconductor material Sn(Se0.8 Te0.2) prepared by Bridgman technique for solar cell Anggraeni Kumala Dewi and Ariswan

Code	Title and Authors
MC9-659	A comparison of sodium lignosulfonate (SLS) synthesis from black liquor lignin and commercial lignin Nita Ariestiana Putri, Muhammad Mufti Azis, and Suryo Purwono
MC9-663	Chitosan-pectin-stearic acid film for controlled-release of Curcumin Dwi Siswanta, Fithriya Hasanah, and Mudasir
MC9-665	Rapid synthesis of MCM-41 from rice husk using ultrasonic wave: optimation of sonication time Suyanta, Eko Sri Kunarti, Bambang Rusdiarso, Dritta Anies Cahaya, Efa Radnawati, and Mika Kusuma
MC9-977	Application of coal bottom ash zeolite on lignin and methylene blue adsorption Galuh Yuliani, Siska Mutiara, and Agus Setiabudi
MC9-998	Influence of calcium/silica ratio on the formation belite cement clinker from geothermal sludges Cynthia Clarizka, Agus Prasetya, and Indra Perdana

IRIS ROOM

Code	Title and Authors
	SYMPOSIUM SESSION 4 10:15 – 11:57
MC7-283	An Attempt to Establish the Lipase Gene Sequence of Alcaligenes sp. JG3 Using Internal Primer Norman Yoshi Haryono, Winarto Haryadi, and Tri Joko Raharjo
MC7-664	Macro and micronutrients profile of five locally black rice cultivars in Indonesia (Oryza sativa L.) Muh. Nashrurrokman, Ayu Safitri, Puspa Restu Sayekti, Rarastoeti Pratiwi, and Yekti Asih Purwestri
MC7-894	Oviposition-deterrent activity of chitosan/lemongrass essential oil composite film against Bactrocera carambolae Drew & Hancock Aswindu Mukti Kurnia W., Suputa, and Deni Pranowo
MC7-932	AFB1 antibody encapsulation in silica gel as matrix of immunoaffinity column Deni Pranowo, Nuryono, Endang Astuti, Respati Tri Swasono, Ali Agus, and F. M. C. S. Setyabudi
MC7-953	Rapid diagnostic test of Red Sea Bream Iridoviral Disease (RSIVD) in grouper Epinephelus sp. based on serological co-agglutination and molecular study Dwi Sulistiyono, Surya Amanu, Kurniasih, and Yuli Purwandari Kristianingrum
MC7-978	Chemical synthesis of monosaccharide fatty acid esters as antibacterial and antifungal agents Mutmainah, Jumina, and Bambang Purwono

Code	Title and Authors

Code	Title and Authors
MC10-281	**The Revised Method of Quantitative Detection of Animal-origin Bovine and Porcine Gelatin DifferenceUsing Surface Plasmon Resonance Based Biosensor** Devy Pramudyah Wardania, Muhammad Arifin, and Kamsul Abraha
MC10-722	**Highly sensitive safrole sensor based on chitosan modified electrospun polyacrylonitrile nanofibers** Novalia Nurbaiti, Siti Astuti Hasanah, Aditya Rianjanu, Trisna Julian, Shidiq Nur Hidayat, Ahmad Kusumaatmaja, Roto, and Kuwat Triyana
MC10-727	**Polyethylenimine-modified quartz crystal microbalance and its characteristics for detecting acetic acid** Dewi Purwati, Trisna Julian, Shidiq Nur Hidayat, Ahmad Kusumaatmaja, Kuwat Triyana, and Roto
MC10-728	**Characteristic of chitosan-coated quartz crystal microbalance for alcohol sensors** Agustinus Sembiring, Riowirawan, Trisna Julian, Shidiq Nur Hidayat, Ahmad Kusumaatmaja, Roto, and Kuwat Triyana
MC10-729	**Polyacrylamide coated on quartz crystal microbalance electrodes for highly sensitive sensor of acetic acid** Ahmad Rizani, Sulis Setyawati Winingsih, Trisna Julian, Shidiq Nur Hidayat, Ahmad Kusumaatmaja, Roto, and Kuwat Triyana
MC10-969	**Synthesis and activity test of coumarin-chalcone derivative as a colorimetric sensor for chicken spoilage indicator** N. Hidayati Dehani Dwi Linggayani, Bambang Purwono, and Idham Darussalam Mardjan

TULIP ROOM

Code	Title and Authors
	SYMPOSIUM SESSION 5 13:27 – 15:09
MC11-284	The Utilization of Chitosan as Natural Antibacterial for Vegetable Tanned Leather Mustafidah Udkhiyati and Fitrilia Silvianti
MC11-651	Fabrication of copper nanowire coated by silver nanocrystal for protection of oxidation transparent conductive electrode Dedi Mardiansyah, Dyah Uswatun Khasanah, Kuwat Triyana, and Harsojo
MC11-733	Effect of seed amounts on the synthesis of zeolite zsm-5 using coal bottom ash and rice husk as sources of silica and alumina by using seeding method Anggun Lestari, Simparmin Br. Ginting, and Hens Saputra
MC11-868	Synthesis and characterization of Mg(OH)2-impregnated activated carbon adsorbent from coconut shell Andri Saputra, Hary Sulistyo, and Deni Swantomo
MC11-975	Slow release NPK fertilizer preparation from natural resources Windia Hanifah, Chandra Wahyu Purnomo, and Suryo Purwono
MC11-979	The effect of zeolite addition on the mechanical properties of bioplastics based on carboxymethyl cellulose-urea Indriana Kartini, Kukuh Handaru Iskandar, Chotimah, Eko Sri Kunarti, and Rochmadi

MAGNOLIA ROOM

Code	Title and Authors
SYMPOSIUM SESSION 4 10:15 – 11:57	
MI7-169	**Proposed Natural Fiber Bag Design Meeting Customers' Needs** Andrean Emaputra, Mega Rif'ah, and Dian Sekarini
MI7-103	Strategic Formulation of a Higher Education Institution Using Balance Scorecard Rahmat Nurcahyo, Ratih Kusuma Wardhani, Muhammad Habiburrahman, and Ellia Kristiningrum
MI7-188	Model Development of Lean Action Plan Selection to Reduce Production Waste in Batik Industry Sri Indrawati, Alfina Khoirani, and Riadho Shinta
MI7-645	Reliability Centered Maintenance on Critical Component in Indonesian Commercial Trains Sri Indrawati, Alfina Khoirani, and Riadho Shinta

ORCHID ROOM

Code	Title and Authors
	SYMPOSIUM SESSION 4 10:15 – 11:57
MI8-501	Improvement of Shewhart Control Chart for Autocorrelated Data in Continuous Production Process Hasan Bisri and Moses Singgih
MI8-653	Water Tunnel Flow Visualization Due to Canard Deflection Effect on Aircraft to Improve Stall Delay Performance Setyawan Bekti Wibowo, Sutrisno Ir, and Tri Agung Rohmat
MI8-375	A Proposed Model for Aligning Maintenance Strategy to Business Strategies in Engineering Asset Management Winda Nur Cahyo
MI8-308	A Gap Analysis on Implementation of Safety Management System in Airport: A Case Study Susatyo Pramono, Muhammad Mujiya Ulkhaq, Ridwan Raharjo, and Fahmi Ardi
MI8-437	The Implementation of Digital Image Processing Technique to Analyze the Air-Water Stratified Flow Characteristics in a Horizontal Pipe Sugiyanto Sugiyanto, Akmal Irfan Majid, Arif Widyatama, Akhmad Zidni Hudaya, and Deendarlianto Deendarlianto

ANGSANA ROOM

Code	Title and Authors
	SYMPOSIUM SESSION 4 10:15 – 11:57
PE4-092	Energy Saving Potency and Maintenance Costs Reduction in Water Treatment Plant (WTP) Pengok PDAM Tirtamarta Yogyakarta Luqvi Rizki Syahputra, Rachmawan Budiarto, and Wahyu Wilopo
PE4-730	Investigation of the Reliability of CF3CHCl2+N2 Gas Mixture as a Potential Substitute for SF6 Tedy Juliandhy and T Haryono
PE4-156	A Study of Harmonic Spreading Against Distribution Network Reconfiguration in Passive Radial Distribution Systems Muhira Faraby and Ontoseno Penangsang
PE4-168	Life Expectancy of Transformer Insulation System by Reconditioning Yuli Rodiah
PE4-973	Analysis of PLN's Electrical Energy Demand in the Area of Batam-Indonesia Using the Linear Regression Method Husein Mubarok and Ryan Septyawan
PE4-828	Stepper Motor Drived Solar Tracker System for Solar Panel Fahmy Rinanda Saputri and Singgih Hawibowo

HELICONIA ROOM

Code	Title and Authors
	SYMPOSIUM SESSION 4 10:15 – 11:57
RG4-835	Geospatial Information Utilisation in Indonesian Local Government Heri Sutanta, Diyono Diyono, and Deva Swasto
RG4-836	Progo Watershed Deliniation and River Network Analysis Using DEM SRTM and DEM Contour Hypography of RBI 25000 Bungaran Tambunan and Purnama Santosa
RG4-953	Geospatial Analytics of Pedestrian Safety in Tanah Abang Deny Saputra Yusuf, Kurniawan Pradana, Trias Aditya, Jong Gun Lee, Imaddudin Amin, and Muhammad Rheza Muztahid
RG4-688	The Comparison of Canopy Density Measurement Using UAV and Hemispherical Photography for Remote Sensing Based Mapping Deha Agus Umarhadi, Projo Danoedoro, Pramaditya Wicaksono, Prima Widayani, Wahyu Nurbandi, and Anwar Juniansah
	SYMPOSIUM SESSION 5 13:27 – 15:09
RG5-946	Temporal Gravity Gradient of South Kalimantan Region Rendra Fauzi and Leni Heliani
RG5-714	Redefinition of the Indonesia Land Agency's GNSS CORS Coordinate for Cadastral Survey Control Points Margaretha Elya Lim Putraningtyas, Leni Heliani, and Nurrohmat Widjajanti
RG5-721	Study of Sea Level Rise Using Tide Gauge Data Year 1996 to 2015 at Semarang and Prigi Stations Maritsa Faridatunnisa and Leni Heliani

Code	Title and Authors
RG5-903	**Vertical Accuracy of a Ground Filtered UAV-derived DEM Using Cloth Simulation Filtering Algorithm** Muhammad Adnan Shafry Untoro, Ahmad Faizan Bustomi, Deha Agus Umarhadi, and Ridho Dwi Dharmawan

Proposed Natural Fiber Bag Design Meeting Customers' Needs

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Abstract—Natural fiber bag products require innovation in order to compete with similar products made from plastic and leather. Therefore, these products need further developments to fit the market needs. This paper has two objectives, (1) to know the importance factors that determine the success of *Corypha utan* natural fiber bag and (2) to find out the relationship between the fulfillment level of the quality attribute of the natural fiber bag with the costumer satisfaction based on Kano model. The results of the survey of the importance level of product attributes become inputs in the Kano model survey. The women bag attributes are divided into 3 categories. The first category attributes have high importance levels, such as a zipper must be durable, neat stitching and wicker, and bags material are not easily moldy. The second category attributes have moderate importance levels, like the bag creating an impression of expensive, flat-shaped bags, and convex bag shape. The third category attributes have low importance levels such as heavy bag materials, striking bag colors, and a busy bag design. The design of the women bag that needs to be developed is the bag design number 4, 10, 14 because the design goes into the attractive category that will increase consumer satisfaction exponentially if developed.

Keywords—women bag, Corypha utan natural fiber, Kano model

I. INTRODUCTION

Small and medium enterprises (SMEs) grow rapidly in Special Province of Yogyakarta, Indonesia. SMEs make kitchen utensils, home decorations, clothes, vehicles accessories etc. These conditions should be supported by the good product design so that the SMEs' product could compete with other products in the marketplace. There are SMEs producing natural bag products in Salamrejo, Special Region of Yogyakarta. The product can be seen in Fig. 1. The products are made from *Corypha utan* natural fiber.

Fig. 1.   Several kinds of *Corypha utan* bag products.

The *Corypha utan* bag has some competitive advantages. First, the bag uses raw material that can be found easily in Indonesia. Second, the product can be degradable easily in the soil after the usage life. Third, the bag can be used for opening a new work field especially for the citizens living in Kulon Progo, Special Region of Yogyakarta.

The *Corypha utan* bag must compete with other bag products. They must compete with bag products made from leathers, plastics, and other materials. Therefore, the *Corypha utan* bag needs to be innovated to make them meet the customer need and get higher customer satisfaction.

Kano model can be used for evaluating the relationship between the fulfillment of the customer need and the customer satisfaction. The SMEs can find the key features through the attractive quality attribute in the Kano classification model. The Kano model can be depicted in the Fig. 2. While Kano evaluation model can be seen in Table 1.
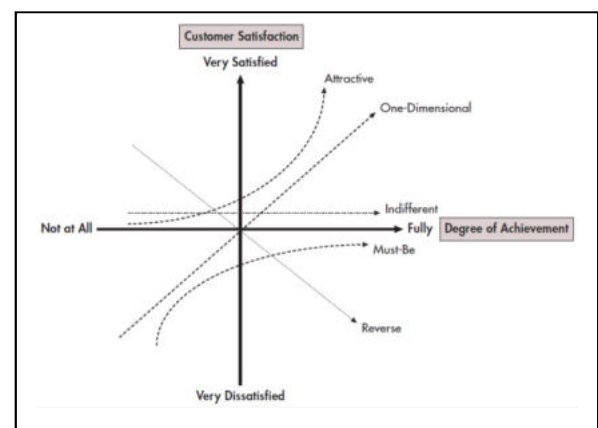

Fig. 2.   Kano model [1]

The Kano model has been widely used in many areas to identify the relationship between the customer satisfaction and the given customer requirements. The areas include campus ([3]-[8]) tourism ([9]-[15]), travel agent ([16], [17]) bank ([18]-[20]) and health care ([21]-[22]).

TABLE I. KANO EVALUATION [2]

Functional Form of the Question	Dysfunctional Form of the Question				
	Like	Must-be	Neutral	Live with	Dislike
Like	Q[a]	A[b]	A	A	O[c]
Must-be	R[d]	I[e]	I	I	M[f]
Neutral	R	I	I	I	M
Live with	R	I	I	I	M
Dislike	R	R	R	R	Q

[a] questionable quality attribute
[b] attractive quality attribute
[c] one-dimensional quality attribute
[d] reverse quality attribute
[e] indifferent quality attribute
[f] must-be quality attribute

Garvin [23] identifies 8 quality dimensions using for explaining the basic attributes of product quality. The basic quality attributes are performance, features, reliability, durability, serviceability, aesthetics, and perceived quality.

The Kano model classifies the product quality attributes into 5 classifications. The first classification is an **attractive quality attribute (A)**. The attractive quality attribute is also called as surprise and delight attributes [1]. The satisfaction of the attributes will increase exponentially in accordance with the increment of the fulfillment of the customer requirement. The quality attribute is often unspoken [1] and is amazing surprises [24]. The attractive quality attribute is the main item for customer-driven innovations and breakthroughs [24].

The second classification is a **one-dimensional quality attribute (O)**. When a product quality attribute is categorized as the one-dimensional quality attribute, the customer satisfaction would go up or go down proportionally with the rising or dropping of the fulfillment of the customer requirements. The one-dimensional quality can be identified as a performance quality representing spoken, basic, and current customer needs [24].

The third classification is a **must-be quality attribute (M)**. The must-be quality attribute is a quality attribute that a product must have. The quality is taken for granted [1]. The customer would feel neutral or indifferent when the requirements of this attribute are fulfilled, but if the requirements of this attribute are not gotten by the customer, the customer would be very angry or disappointed, so must-be quality attribute is also called as a basic attribute ([1], [24]).

The fourth classification is an **indifferent quality attribute (I)**. The indifferent quality attribute should not be developed by the producers. It is not bad and not good aspects of the product so that this attribute does not make the customer satisfaction and the customer dissatisfaction [1].

The last classification is a **reverse quality attribute (R)**. The reverse quality attribute has a contradictory effect. The fulfillment of this attribute requirement would make customer dissatisfaction but the unfulfillment of this attribute requirement would make customer satisfaction or customer delight.

One of the methods for evaluating the final decision about which classification of the quality attributes would be given to a quality attribute is comparing ABS value and Q-statistic ([21], [22]). The ABS is absolute difference frequencies between the two most voted quality attributes, while *Q-statistic* can be seen in (1). A classification given to a quality attribute is significant statistically when the ABS value is more than the Q-statistic value ([21], [22]). Value a is the frequency number of the first most voted quality attribute classification, while value b is the frequency number of the second most voted quality attribute classification in Kano model. Value n is the total number of the respondents. The quality attribute classifications of the Kano model are transformed into scales for quantitative analysis. The transformation scales can be seen in TABLE II.

$$Q = 1.65\sqrt{\frac{(a+b)(2n-a-b)}{2n}}$$

(1)

TABLE II. KANO MODEL CLASSIFICATIONS AND VALUES TRANSFORMED TO THEM [25]

Kano Classification	Transformed Value
A	5
O	4
M	3
I	2
Q/R	1

II. IDENTIFYING THE IMPORTANCE LEVEL OF BAG QUALITY ATTRIBUTES

The objects of this research are women wearing bags in their daily activities. The samples are taken randomly from the population. The demography data of the respondents are shown in TABLE III and TABLE IV. The respondent number is 68 women and 85.3 % of them have ever used a bag made from *Corypha utan* natural fiber. The samples of the research are taken from Indonesian people living in Indonesia territory because they are expected to become the customer of *Corypha utan* bag products. Most of them come from West Java, Central Java, Yogyakarta, and East Java. The samples of the research are also taken from various jobs because the *Corypha utan* bag products could be used by women having different activities. Most of them work as a teacher, private employee, college student, housewife, and entrepreneur.

TABLE III. THE RESPONDENT RESIDENCE IN THE IMPORTANCE LEVEL SURVEY OF THE BAG QUALITY ATTRIBUTE

Residence	Respondent Number	Percentage
West Java	18	26%
Central Java	18	26%
Yogyakarta	12	18%
East Java	10	15%
Jakarta	2	3%
Riau	2	3%
Not available	2	3%
East Kalimantan	1	1%
West Sumatra	1	1%
Bali	1	1%
Banten	1	1%
Total	68	100%

TABLE IV.   THE RESPONDENT OCCUPATION IN THE
IMPORTANCE LEVEL SURVEY OF THE BAG QUALITY ATTRIBUTE

Occupation	Respondent Number	Percentage
Teacher	10	15%
Private employee	9	13%
College student	9	13%
Housewife	8	12%
Entrepreneur	8	12%
Employee	4	6%
Lecturer	3	4%
Employee of state-owned enterprises	2	3%
Government employee	2	3%
Announcer	1	1%
Factory worker	1	1%
In game observer	1	1%
Cashier	1	1%
Employee	1	1%
Student	1	1%
Researcher assistant	1	1%
Teacher	1	1%
Freelance writer	1	1%
Flight attendance	1	1%
Private worker	1	1%
Waiters	1	1%
Not mentioned	1	1%
Total	68	100%

The quality attributes of the bag that have been identified are presented in a questionnaire. The quality attributes can be seen in the TABLE V. The respondents were asked to give their importance level to the proposed bag quality attributes. The questionnaire uses 10 scales of Likert scale, i.e., value 1 shows a very unimportant quality attribute, while value 10 shows a very important quality attribute.

The questionnaire is valid and reliable. All of the questions in the questionnaire are valid with $\alpha = 0.05$ ($t_{table} = 1.6697$). The Spearman-Brown reliability coefficient of the questionnaire is 0.9384. The needed sample number of the research is calculated using $\alpha = 0.05$ and error level = 0.7.

There are bag quality attributes that have high importance level and low importance level (TABLE V). The bag quality attributes having high importance level (the importance level mean is more than 6) need to be developed by the SMEs, such as a zipper that is not easily broken, a neat stitching and woven, strong material and stitching to hold a load, a material that is not easily moldy, etc. On the other hand, bag quality attributes having low importance level (the importance level mean is less than 6) need not be applied by the SMEs, i.e. a convex design, heavy material, striking color, and many small accessories.

TABLE V. BAG QUALITY ATTRIBUTES AND THE IMPORTANCE
LEVEL OF THE QUALITY ATTRIBUTES

Bag Quality Attribute	Importance Level Mean	Sample Number Needed
A zipper that is not easily broken	9.62	3.99
Neat stitching and woven	9.38	9.13
Strong material and stitching to hold a load	9.28	8.15

Bag Quality Attribute	Importance Level Mean	Sample Number Needed
The material that is not easily moldy	9.24	11.26
A convenient rope used for carrying a bag directly on hand or for hanging the bag on the shoulder	9.10	13.61
A long adjustable rope lengthened and shortened easily	8.88	19.78
A metal cover that is not easily corroded	8.79	20.73
A zipper as a lid	8.76	23.66
Waterproof material	8.65	17.50
Neutral color	8.56	15.54
Light material	8.56	15.30
A metal cover could close tightly	8.44	25.36
Many compartments for organizing goods easily	8.38	21.54
A hidden additional compartment	8.37	23.38
Elegant impression	8.16	30.33
Simple design	8.15	19.72
Calm color	8.09	18.19
Big size for accommodating many goods	7.87	29.70
High art impression	7.82	36.96
Rope can be reattached	7.59	37.03
Eco-friendly material	7.44	37.77
Unique design	7.37	32.04
Compliance with a standard, such as Indonesian National Standard (SNI)	7.29	36.05
A rope as a lid	6.44	46.19
Expensive impression	6.28	65.73
Thin or flat design	6.21	41.09
Convex design	5.47	42.70
Heavy material	3.79	40.38
Striking color	3.62	39.09
Many small accessories	3.41	48.97

III. BAG QUALITY ATTRIBUTES CLASSIFICATION USING KANO MODEL

The bag quality attributes are classified using Kano model for identifying the key quality attributes that should be developed by the SMEs. So, the SMEs' bags would have better customer satisfaction affecting their future success. The importance level of the quality attributes from the previous section used for developing the bag quality attributes offered to the respondents.

The objects of this research are women wearing bags in their daily activities. The samples are taken randomly from the population. The demography data of the respondents are shown in TABLE VI and TABLE VII. The respondent number is 61 women and 52.5 % of them have ever used a bag made from *Corypha utan* natural fiber. The respondents of the research come from Indonesian people staying in the country and abroad because they would be the customer of the products. Most of them come from Yogyakarta and West Java. The respondents of the research are also from many kinds of occupation because the natural bag would be used by female acting in varied places. Most of them work as a private employee, housewife, and lecturer.

TABLE VI.   THE RESPONDENT RESIDENCE IN THE KANO MODEL SURVEY OF THE BAG QUALITY ATTRIBUTE

Residence	Respondent Number	Percentage
Yogyakarta	34	56%
West Java	11	18%
Jakarta	4	7%
Central Java	3	5%
North Sumatra	2	3%
Bali	1	2%
Brisbane	1	2%
East Java	1	2%
West Kalimantan	1	2%
Lampung	1	2%
Papua	1	2%
USA	1	2%
Total	61	100%

TABLE VII. THE RESPONDENT OCCUPATION IN THE KANO MODEL SURVEY OF THE BAG QUALITY ATTRIBUTES

Occupation	Respondent Number	Percentage
Private employee	15	25%
Housewife	13	21%
Lecturer	14	23%
College student	3	5%
Doctor	2	3%
Employee	2	3%
Teacher	3	5%
Unemployed	1	2%
Abacus coach	1	2%
Customer service	1	2%
Government employee	1	2%
Employee of state-owned enterprise	1	2%
Banker	1	2%
Student	1	2%
Private sector	2	3%
Total	61	100%

TABLE VIII shows the classification of the natural fiber bag quality attributes using Kano model. Quality attributes number 14 should be developed by the SMEs because this attribute would make customer satisfaction rise exponentially as the quality attribute is categorized as the attractive quality attribute. The bag design number 14 has natural color (no added color), slim design, the high shape which could be used to bring more load, twisted fibers and a button made from coconut shell.
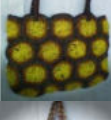
Besides that, quality attributes number 4 and 10 could be used as good alternatives for product development by the SMEs since these two quality attributes can be grouped as the attractive quality attribute. The bag design number 4 and number 14 have similar shapes. The bag design number 4 combines purple color and white-dotted color, and uses brown handles. In contrast with the bag design number 14, the bag design number 4 has a zipper to lock and unlock the bag and uses untwisted fibers (normal shape).

The bag design number 10 also offers prospective design to the customers. The bag design number 10 has a similarity with the number 14 bag design in the kind of used fiber, i.e. twisted design, but the fiber is colored brown. The bag design number 10 uses leather handles as in the bag design number 4. In differentiation with the bag design number 4 and 14, the bag design number 10 appears embroidered flowers on the two sides and has a short and convex shape.

On the other hand, others bag designs categorized in indifferent quality attributes are not recommended to be further developed by SMEs. Because the quality attributes do not give amazing customer satisfaction. The numbers of bag design classified into indifferent quality attributes are 1-3, 5-9, and 11-13. The bag designs are colorful, unsimple, and too small loading capacity.

TABLE VIII.   KANO CLASSIFICATION OF THE NATURAL FIBER BAG QUALITY ATTRIBUTES

No.	Quality Attributes	X	S	n needed	A	O	M	I	R	Q	ABS	Q-Statistic	Kano Class.
1		2.79	1.38	45.71	16	1	1	40	3	0	24	9.08	I
2		2.67	1.51	55.00	17	0	1	32	11	0	15	8.93	I
3		2.87	1.51	54.80	19	1	1	33	6	1	14	9.01	I
4		3.25	1.63	63.75	27	1	0	26	5	2	1	9.03	A/I

No.	Quality Attributes	X	S	n needed	Respond Number						ABS	Q-Statistic	Kano Class.
					A	O	M	I	R	Q			
5		2.72	1.53	56.13	18	0	0	33	8	2	15	8.99	I
6		2.82	1.48	52.43	18	1	0	36	5	1	18	9.05	I
7		2.62	1.54	56.95	17	0	0	31	11	2	14	8.90	I
8		2.66	1.52	55.13	17	0	0	33	11	0	16	8.96	I
9		2.62	1.54	56.95	17	0	0	31	9	4	14	8.90	I
10		3.25	1.69	68.55	27	3	0	20	8	3	7	8.87	A/I
11		2.89	1.58	60.10	21	0	0	31	8	1	10	9.01	I
12		2.80	1.57	59.08	19	1	1	29	10	1	10	8.90	I
13		2.33	1.43	49.40	12	1	0	30	15	3	18	8.66	I
14		3.54	1.62	62.89	32	2	0	21	4	2	11	9.03	A

IV. CONCLUSIONS

The research has two conclusions. First, the bag quality attributes which should be available are the bag quality attributes having importance level mean that is higher than 6. Some of them are a zipper that is not easily broken, neat stitching and woven, strong material and stitching to hold a load, material that is not easily moldy, a convenient rope used for carrying a bag directly on hand or for hanging the bag on the shoulder, a long adjustable rope lengthened and shortened easily, a metal cover that is not easily corroded, waterproof material, neutral color, light material, and a metal cover that can close tightly.

Second, the relationship between the fulfillment level of the requirements of the natural fiber bag with the customer satisfaction based on Kano model shows that there are natural fiber bag designs should and should not be developed. *Corypha utan* natural fiber bag design included in attractive quality attributes would be developed because the design would give the amazing customer satisfaction, i.e. the bag design number 4, 10, and 14. On the other hand, *Corypha utan* natural fiber bag design included in indifferent quality

attributes should not be developed since the designs would not affect the customer satisfaction.

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No.: 259 /ST/FTI/VI/2018

Dasar   :   Surat dari Jurusan Teknik Industri perihal Permohonan Surat Tugas.

Ditugaskan kepada :

Andrean Emaputra, ST., M.Sc

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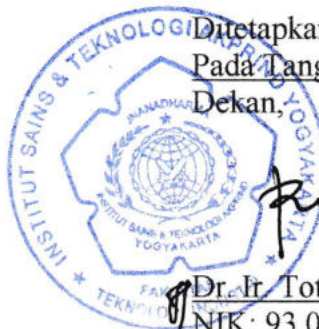Hari/Tanggal : Selasa – Rabu, 7-8 Agustus 2018
Tempat   : Eastparc Hotel Yogyakarta

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Ditetapkan di : Yogyakarta
Pada Tanggal : 26 Juni 2018
Dekan,

Dr. Ir. Toto Rusianto, MT.
NIK: 93 0166 466 E

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