

**FOREWORDS**  
**CHAIRMAN OF THE ORGANIZING COMMITTEE**

First of all let's pray and say thanks to God for giving us His mercy and blessings.

The development of technology nowadays is growing up so fast. It aims to meet the necessary of the community to get a better life. Technological innovation which needed to develop technology products that can help people in improving their lives. Therefore the academics are not only required to implement the learning process, but also have to do research and community service to produce innovative scientific research.

Indonesian academics today are eager to involve in research activities. Therefore we required a scientific forum for mutual discussion, exchange information about the research that has been carried out especially related to Urban Engineering.

Faculty of Engineering, University of Tarumanagara conducts the second international conference to bring the academics, researchers to develop their knowledge and exchange ideas so that the researchers can improve the results of research that has been done. The conference called the 2<sup>nd</sup>International Conference on Engineering Tarumanagara, 2015, which is held on the Auditorium at the 8<sup>th</sup> floor of M Building, Campus I, University of Tarumanagara from 22 to 23 October 2015. The ICET 2015 conference theme is Urban Engineering for Future Generations. Future generations as the frontier of national development should be prepared from now on, along with the necessary infrastructure. The role of technology is to support the enhancement of the ability of future generations. This event includes to the presentation of scientific papers by keynote speakers, parallel sessions presenting papers of academics and research poster exhibition.

The more extensive the information obtained, the more knowledge that we gained. Some papers submitted by researchers and academics from different countries such as, Germany, Malaysia will enrich the science and technological development.

This conference proceedings contain the full text of all papers presented International Conference on Engineering of Tarumanagara 2015. Papers are categorized based on Engineering disciplines set by the organizing committee. Then, the presentation is divided into parallel sessions.

On this occasion I would like to thank to: Foundation of Tarumanagara, Rector of Tarumanagara University, Dean of Faculty of Engineering Tarumanagara University and Sponsors of ICET 2015, for the support and help that has been given. I also would like to thank the authors for their contributions.

Finally I would like to apologies if there are deficiencies in the activity. Thank you for all the attention.

**I Wayan Sukania, S.T., M.T.**  
Chairman of the Organizing Committee

**FOREWORDS**  
**DEAN OF FACULTY OF ENGINEERING**

I would like to warmly welcome all participants of the 2<sup>nd</sup> International Conference on Engineering of Tarumanagara (ICET 2015). This conference is organized by Faculty of Engineering, Tarumanagara University. The main aim of this conference was to respond the problem related to urban engineering for future generation. As this conference was designed to gather scientists, engineers, practitioners, and industries in engineering related disciplines, I expect intense discussion will happen among them so that some brilliant ideas to be used to improve the quality of human life can be produced.

I hope this conference will create an international networking and collaborating, especially in engineering research and publication.

I would like to congratulate the organizing committee of ICET 2015, for their outstanding efforts. I would also like to express my gratitude to the sponsors for their contributions in making this conference a resounding success.

I wish the International Conference on Engineering of Tarumanagara (ICET 2015) a very useful and fruitful occasion.

Thank you for your attention and contribution.

**Prof. Dr. Agustinus Purna Irawan**  
Dean of Faculty of Engineering

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## PROGRAM OVERVIEW

### Thursday, 22 October 2015

No	Time	Program
1	08.30-09.00	Registration
2	09.00-09.30	Opening Ceremony
		a) Balinese Welcome Dance
		b) National Anthem + Mars Tarumanagara
		c) Chairman Speech
		d) Opening by Vice Rector of Academics and Student Affairs, Untar
e) Photo Session (WRA, Dean, Chairman, Keynote Speakers, Presenters, Sponsors)		
3	09.30-09.40	Sponsorship Presentation
4	09.40-11.40	Keynote Speaker 1: Prof. Zaidi Mohd. Ripin University Sain Malaysia, Malaysia
		Keynote Speaker 2: Ir. Irwansyah. Industrial Estate Association of Indonesia (Himpunan Kawasan Industri) Head of Environmental and Spatial Planning
5	11.40-11.50	Appreciation to Keynote Speakers, Moderator, Sponsors)
6	11.50-12.00	Sponsorship Presentation
7	12.00-12.10	Technical Information
8	12.10-13.00	Lunch
9	13.00-15.00	Parallel Session I
10	15.00-15.30	Coffee Break
11	15.30-17.00	Parallel Session II

### Friday, 23 October 2015

No	Time	Program
1	08.30-09.00	Registration
2	09.00-11.00	Parallel Session III
3	11.00-11.15	Closing Ceremony
4	11.15-12.00	Lunch

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### Invited Papers

Development of Low Frequency Electromagnetic Vibration Energy Harvester <i>Wan Masrurah Hairudin, M. Izudin Alisah, Chan Ping Yi, Tan Yee Hern, Zaidi Mohd Ripin</i>	1-8
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### List of Papers - Architecture

Paper ID	Title Author/Authors	pp
AE-01	Catholic Church: Influence of Liturgical Ritual in the Building Design (Studied on Four Catholic Churches in DKI Jakarta Area) <i>Rudy Trisno, Sugiri Kustedja</i>	1
AE-02	Performance Analysis in Home Industry Scale Production of Modified Traditional Brick as Green Building Material With Reed as Filler <i>Kurniati Ornam, Masykur Kimsan, La Ode Ngkoimani</i>	1-8
AE-03	The Study of Defense Space on Chinatown Petak Sembilan, West Jakarta <i>Nafi'ah Solikhah</i>	1
AE-04	Survey on the Fulfillment of the Construction Requirements for Non-Engineered Houses in North Sumatra <i>Darwin</i>	1
AE-05	Reveal Knowledge Pacitan Rural Java Architecture <i>Triyuniastuti, HB Satrio Wibowo, Sukirman</i>	1
AE-06	Uniqueness Omah Dudur Dawa Architecture <i>Satrio HB Wibowo, Sudaryono, E. Pradipto</i>	1
AE-07	Global and Local, at the Same Time <i>Franky Liauw</i>	1
AE-08	Conducting Smart Programs in the Old Kampoeng Beyond the Modern Era City of Surabaya <i>Danny Santoso Mintorogo Wanda K. Widigdo, Liliany S. Arifin, Anik Yuniwati</i>	1
AE-09	Adaptation to Climate Change as the Controller of Disaster Vulnerability in Coastal Settlements in Mempawah Hilir, West Kalimantan <i>Ely Nurhidayati</i>	1
AE-10	Study of Staircases Design and Visitors' Perception at Commercial Building <i>Siti Belinda Amri, Santi, La Ode Abdul Syukur, Aspin</i>	1-8

Paper ID	Title Author/Authors	pp
AE-11	Greenship Rating of Wood Materials in Building <i>James Rilatupa</i>	1-9
AE-12	Study of Bioclimatic Application to the Spatial Habitation Along the River Bank Ciliwung <i>Handajani Asriningpuri, Ratih Budiarti, Harlisa</i>	1-8
AE-13	Public Engagement in Public Space as the Elements of City Branding <i>Olga Nauli Komala</i>	1
AE-14	Bornean Long House: Cosmological Value in Socio-Cultural Transformation Stream <i>Klara Puspa Indrawati</i>	1-10
AE-15	Potential Tour Toward Village of Cultural Conservation of Baluwerti, Surakarta, Jawa Tengah, Indonesia <i>Naniek Widayati Priyomarsono</i>	1-10

**List of Papers - Civil Engineering**

Paper ID	Title/Author/Authors	pp
CE-01	The Understanding and the Use of Motorcycle Special Stopping Space in Signalized Intersection <i>Leksmono Suryo Putranto, Minggaza Suhindra</i>	1-5
CE-02	Identification of Volcanic Rocks in Imogiri Yogyakarta Based on Subsurface Geologic Data <i>Winarti, Hill Gendoet Hartono</i>	1-9
CE-03	Model Test of Influence Groundwater Pumping to Decrease Surface of the Land <i>Nurnawaty, M. Selintung, M.Arsyad Thaha, F. Marikar</i>	1-5
CE-04	Analysis on the Needs of Bike Share in Institut Teknologi Sepuluh Nopember Surabaya <i>Siera Rozanah, Ervina Ahyudanari</i>	1
CE-05	Flexural Behavior of Bamboo Reinforced Concrete Beams <i>Ika Bali, Erianto Wijaya</i>	1-6
CE-06	Identification of Hazardous Road Sections Using Over Dispersion-Excess Zero Data of Vehicle Accident at Johor Federal Roads <i>Joewono Prasetijo, W Zahidah Musa, Zaffan Farhana Zainal</i>	1-6
CE-07	Speed Profile Based on Design Consistency <i>Joewono Prasetijo, Zaffan Farhana Zainal, W. Zahidah Musa</i>	1-6
CE-08	DAB as an Effective Dispute Resolution in Construction Industry <i>Purnomo</i>	1
CE-09	Analysis Energy Consumption and Price of Fuel Truck in Makassar <i>Mukhtar Lutfie, Lawalenna Samang, Sakti Adji Adisasmata, Isran Ramli</i>	1-9
CE-10	Influence of Economic External Factors on Construction Project Duration Identification <i>Basuki Anondho, Yusi Yusianto, Jemmy Wijaya</i>	1-6
CE-11	Analysis of the Influence of Longitudinal Beam Toward the Concrete's Nominal Shear Strength <i>Daniel Christianto, Fannywati Itang, Widodo Kushartomo, and Irene Natasha Kosasih</i>	1-6

Paper ID	Title/Author/Authors	pp
CE-12	Stabilization of Marine Dredged Sediment With Hydraulic Binders and Silica Fume <i>Ernesto Silitonga</i>	1

**List of Papers - Electrical Engineering**

Paper ID	Title/Author/Authors	pp
EE-01	Sentiment Classification for Academic Questionnaire Using NBC and SVM <i>Amir Hamzah, Naniek Widyastuti</i>	1-8
EE-02	GUI Applications on Ground Segment Research Rockets <i>Imam Sampurno Nugroho, Yahan Nuryad, Nanniek Andiani, Yohannes Dewanto</i>	1
EE-03	Document Subjectivity and Target Detection in Opinion Mining Using HMM Pos-Tagger <i>Amir Hamzah, Naniek Widyastuti</i>	1
EE-04	Analysis, Simulation and Implementation of Linear Block Codes Using a Microcontroller <i>Joni Fat</i>	1-7
EE-05	Visual Performance of Tunnel Lighting Along the Jakarta Outer Ring Road <i>Endah Setyaningsih, Jeanny Pragantha</i>	1-8
EE-06	Microcontroller Based Speed Controller of One Phase Induction AC Motor in Escalators <i>Hadian Satria Utama, Edward Naulibasa Lie, Pono Budi Marjoko</i>	1-8
EE-07	Implementation Hadoop on Private IaaS Cloud Computing <i>Edy Kristianto</i>	1-6

**List of Papers - Industrial Engineering**

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IE-01	Rapid Tooling Manufacturability Advanced Materials Using Automation Fuzzy-AHP Method for Injection Gyro-Magnetic Hot Mold <i>Moh. Hardiyanto</i>	1-6
IE-02	Workload Analysis of Manually Operator at Clean and Tidy Car Wash <i>Indra Suriyanto, I Wayan Sukania and Lamto Widodo</i>	1-10
IE-03	Designing a "Voice of Customer" Program to Support Knowledge-Based-QFD <i>Ronald Sukwadi, Mokh. Suef, Enny Widawati, Cynthia Giovany</i>	1-8
IE-04	The Strategy for Improving the Quality of Printing Film Production at PT X <i>Lithrone Laricha S, Delvis Agusman, Lucky</i>	1-8
IE-05	Research Comparison Among Business Incubator Research Sample and Analysis in the World <i>Lina Gozali, Maslin Masrom, Habibah @ Norehan Haron, Teuku Yuri M. Zagloel</i>	1-7



Paper ID	Title/Author/Authors	pp
IE-06	Developing Algoritm to Design Jig & Fixture in SME Supporting Industry Based on Quality Function Deployment Methods (Case Study: Design Assy Machine and Leakage Testing Machine for Air Brake Coupling Hose) <i>Cucu Wahyudin, Aan Mintarsih</i>	1-7
IE-07	Comparison of Modular Layout and Distributed Layout Using Simulation Approach <i>Trifenaus Prabu Hidayat, Andre Sugioko</i>	1-8
IE-08	Optimization Replacement Schedule of Chisels Based on Quality Cost With Exponentially Increasing Failure Rate <i>Dadang Arifin</i>	1-6
IE-09	Re-Design The High of Handlebar on Semarang's Bus Rapid Transit Using Anthropometry and Ergonomy Approach <i>Annissa Lutfiah Hatuwe, Annisa Nindya Putri, Hanung Kurniawan, Reza Prisman</i>	1-6
IE-10	Optimization of Production Planning Using Goal Programming Method (Study in a Cement Plant) <i>Syamsul Anwar, Lonny Afrizalmi</i>	1
IE-11	Risk Assessment of Distal Upper Extremity by Strain Index Method in a Small Shoes-Making Industry <i>Syamsul Anwar, Yuri Fandi Tanjung</i>	1
IE-12	The Effect of Working Environment Conditions on Employees' Job Satisfaction in a Palm Oil Industry <i>Elsa Febriani, Musdirwan, Syamsul Anwar</i>	1
IE-13	Improvement of Service Performance in PO. Sandy Putra by Implementation of Safety Management System for Public Transport <i>Hanung Kurniawan</i>	1-7
IE-14	Designing a Closed Loop Tutelage System to Support Student in Preparing and Executing the Study Plan <i>Andrijanto</i>	1-8
IE-15	Design of Eco-Friendly Dairy Farm Business Plan Using Business Canvas Model <i>Meity Martaleo, William Bobby Susanto, Marcellia Susan</i>	1
IE-16	Heuristic Model With Discritized Time Horizon for Solving Alternative Machine Scheduling Problem on Single Operation <i>Irwan Sukendar</i>	1-6
IE-17	Simulator of Pitot Tube, Using The Sensor MPX5100 in an Aircraft Model <i>Joko Sugiarto, Dwijati, Hendardi, Yohannes Dewanto</i>	
IE-18	Ergonomic Aspect of Physical Environment in Junior High School (Between Individual Comfort and Saving Energy Behavior) <i>Lamto Widodo, Fransisca Iriani, Endah Setyaningsih</i>	1-12
IE-19	Embodiment Design of High Capacity Mixer (Case Study : Steamed Sponge Cake Production at "M" Home Industry) <i>Adrian Christiady, Vivi Triyanti</i>	1-9
IE-20	The Comparison of MTM-1 and MOST in Predicting Work Element Time <i>Ioana Theresia Libardus, Vivi Triyanti</i>	1-8

**List of Papers - Mechanical Engineering**

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ME-01	Study of the Phenomenon of Collapse and Buckling the Car Body Frame <i>Didik Sugiyanto, Audri Deacy Cappeberg</i>	1
ME-02	Model Reduction Methods for Cracked Rotor Dynamics Analysis <i>Rugerrri Toni Liong</i>	1-8
ME-03	Design and Construction of a Prototype of Screw Press for the Collection of Coconut Milk <i>I Wayan Surata, Tjokorda Gde Tirta Nindhia, Davied Budyanto, Ahmad Eko Yulianto</i>	1-6
ME-04	Assessment of Outside Air Supply for Split AC System. Part B: Experiment <i>K. D. Putra, A. Bimaridi, E. Djunaedy</i>	1
ME-05	Assessment of Outside Air Supply for Split AC System. Part A: Affordable Instrumentation <i>A. Bimaridi, K. D. Putra, E. Djunaedy</i>	1
ME-06	Analysis Energy Usage and OTTV in the University Building <i>Suci, Ery Djunaedy, M. Ramdhan Kirom</i>	1
ME-07	Effect of Tool Nose Radius on Surface Roughness for Machining ST 60 Steel Using Carbide Inserts <i>Sobron Lubis, Erwin Siahaan, Teguh Imam Suyatno</i>	1-7
ME-08	Design Can Cover for Feeding Conveyor for Closing Cans in Cans Machine Maker <i>Gusti Ryandi Arief, Agung, Wina Libyawati, Yohannes Dewanto</i>	1
ME-09	Design of Cessna Aircraft Model JD - 010 Use Scale 8:1 Based Radio Control <i>Muhammad Ahda, Ahmad Ilham Firdaus, Erick H.K., Yohannes Dewanto</i>	1
ME-10	Magnet for Generate Electric Power Applications <i>Dzulfi S Prihartanto, Alva Abdul Ganis, I.G.Eka Lesmana</i>	1
ME-11	Dynamic Analysis on Conditions For Stay off Airfoil, Flying and Landing <i>Bismil Rebetta, Aprilia Sakti, Erick H.K.</i>	1
ME-12	Simulation of Non-Newtonian Fluid Flow Through Encapsulation of 3-Dimensional Stacked Flip-Chip Package Using Lattice Boltzmann Method <i>M.H.H. Ishak, M.Z. Abdullah, Aizat Abas, M.I. Ismail, M.S. Mohamad</i>	1-6
ME-13	Cyclone Turbine Ventilator as a Power Source Lamps for Home Lighthing <i>Jenny Delly, Welly Liku Padang, Baso Mursidi, Budiman Sudia</i>	1-9
ME-14	Finite Element Analysis of Modified In-Wheel Electric Motor for Hybrid Electric Motorcycle <i>Didi Widya Utama</i>	1-6
ME-15	Pathological Tremor Measurement and Reproduction <i>Ping Yi Chan, Zaidi Mohd Ripin</i>	1-8
ME-16	FSI Analysis on the Effect of Membrane Rigidity on Laminar Flow Separation Over NACA 64 <sub>3</sub> -218 Airfoil <i>M.S. Abdul Aziz, M.Z. Abdullah, S.M. Firdaus, H. Yusoff, K.A. Ahmad, M. Zubair</i>	1-8

<b>Paper ID</b>	<b>Title/Author/Authors</b>	<b>pp</b>
ME-17	Analysis Ethyl Ester in Biodiesel of Raw Material Waste Coconut Oil and Arak <i>I Wayan Bandem Adnyana, Ni Made Suaniti</i>	1-4
ME-18	Design and Development of Quadcopter Prototype <i>Riyan Fenaldo Alphonso, Agustinus Purna Irawan, Frans Jusuf Daywin</i>	1-7
ME-19	Experimental Investigation on Electronic Cooling Performance Using Porous Medium Heat Sink <i>Muhammad Zaakir Angsoommuddin, Mohd Zulkifly Abdullah, Third Author</i>	1-6
ME-20	Tensile Strength Polymer Matrix Composite With Reinforcement Gigantochloa Apus <i>Sofyan Djamil, Mohamed Azlan Suhot, Mohd Zaki Hasan</i>	1-7
ME-21	Effectivity of Heat Exchanger Using Coolant Fluid <i>Harto Tanujaya</i>	1-4
ME-22	Alitizing Process of Low Alloy Steel Emergency Doors in High Rise Building <i>Erwin Siahaan</i>	1-8

**List of Papers - Urban Engineering**

<b>Paper ID</b>	<b>Title/Author/Authors</b>	<b>pp</b>
UE-01	Decision Design Support System of Urban Landscape Planning Using 3D Interactive Visualization <i>Herry Santosa, Shinji Ikaruga, Takeshi Kobayashi</i>	1
UE-02	Sustainability Level of Settlement in Gajah Wong Riverside Area, Kotagede, Yogyakarta <i>Abraham Bhaskara Singgih</i>	1
UE-03	Urban Sprawl Effect to Sustainable City <i>Andas Budy</i>	1-3
UE-04	Arrangement Model on the Sustainable Coastal Settlement in Makassar <i>Naidah Naing, Asdar Djamereng, Bulgis</i>	1-8
UE-05	Implementation for Optimizing the Turnkey Project Scheme in Highrise Buiding/Flat Development Base on Duration and Interest Rate <i>Sylvie Wirawati, Ricky Pittra Halim</i>	1-13
UE-06	Spatial Articulation and Coexistence of Mode of Production in the Dynamics of Development at the Urban Fringe of Makassar City <i>Batara Surya</i>	1-11