



## CONFERENCE PROCEEDINGS

**ICSTR Jakarta – International Conference on Science & Technology Research, 23-24 November, 2018**

**23-24 November, 2018**

## CONFERENCE VENUE

**Universitas Al Azhar Indonesia, Komplek Masjid Agung Al Azhar, Jakarta, Indonesia**

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## **Preface:**

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**KEYNOTE SPEAKER**



**Dr. Ary Syahriar, DIC**

**Vice Rector IV for Innovation, Entrepreneur, and  
Development Section**

**Universitas Al Azhar Indonesia, Komplek Masjid  
Agung Al Azhar, Jakarta**



**Shafiq Ur Rehman**  
ERCICSTR1810051

**The Pakistan Proposed Model for Tremor Revealing and Communications System for South Asian Main Danger Coastal Areas**

**Shafiq Ur Rehman**  
Telecommunication Engineering Department, Sir Syed University of Engineering & Technology, Pakistan

**Abstract**

In this article we proposed the model of low cost early Warning System for Coastal areas of Murray rudge, Rann of Kuch and Makran Coast. Basically our earthquake detection and broadcasting system will use the previous data. In this detection we used different types of Pakistan Asian Hybrid technology algorithm that will predict and distinguish the earth level of major, minor and moderate earthquake level of magnitude and intensity. We resolve the problems of detection of seismic waves with the help these waves we can analyzed the waves and predict the future occurrence of electromagnetic seismic influences. The second part is the most important of part which broadcast the information to different communication channel of media to alert the people of world to what should they do.

**Keywords:** Earthquake Detection, Shock Waves, Broadcasting system, Seismic activity, Intensity, Magnitude

**Danlai Agadi Tonga**  
ERCICSTR1810053

**Development of GSM Based Control System for Electrical Appliances**

**Danlai Agadi Tonga**  
Electrical and Electronic Engineering, Hussain Adamu Federal Polytechnic, Kazaure, Jigawa State, Nigeria

**Abstract**

Fire incidence in Nigeria results from different sources, such as cooking gas, kerosene stove and above all, due to epileptic nature of electrical power supply and the user's negligence to switch OFF the appliances not in use. This paper explore the application of GSM communication integrated with electronics technology to control electrical appliances as a solution to reduce the rate of fire incidences at residential and office buildings. PIC16f887A microcontroller were programmed, simulated and constructed to control electrical appliances within the network coverage of the Nigerian GSM service providers. Source code was developed in C language and MIKRO C software was used to develop the microcontroller software while MPLAB were used to debug the program into the microcontroller. The interface between the GSM phone and the microcontroller was generated through the mobile SIM cards. The microcontroller circuit receives a command message in form of SMS from the GSM phone to switch ON and OFF the electrical appliances. The command are simple English capital letters L, F, C and T and small letters l, f, c and t to switch ON and OFF the appliances respectively. The finished product was tested in a laboratory to control a lamp, fan, laptop charger and a LED TV. The control system was successful and works in line with the design specifications. The system developed can be upgraded to control high current consumption appliances such air condition, refrigerator, immersion heater and electrical cooker.

**Keywords:** Global System for Mobile Communication, Microcontroller, Control System, Electrical Appliances and Fire Incidence

**George W. Kennedy**  
ERCICSTR1810054

**ICT in Technology Education and the World of Work: Implications for Graduates of Tertiary Institutions in Nigeria**

**George W. Kennedy**

	<p style="text-align: center;"><b>Department of Technical Education, Akwa Ibom State College of Education, Afaha Nsit, Nigeria</b></p> <p style="text-align: center;"><b>Abstract</b></p> <p>Teaching is the process of helping individuals to learn. In order to assess the effectiveness of teaching, teachers need skills in measurement and evaluation techniques. Measurement and evaluation techniques are very imperative to vocational-technical teachers because they teach knowledge and demonstrate skills, which must be eventually measured and evaluated within the context of educational success. To assist the vocational-technical teachers perform their task, teachers must be appropriately trained or retrained. Recommended efforts have been made toward this goal by the NCCE, NBTE and NUC, which have provided the syllabi for training vocational-technical teachers. In order to assist vocational and technical teachers developed measurement and evaluation skills. The researcher recommends pre-service, in-service and refresher courses as approaches to help vocational-technical teachers acquire skills for effective teaching in the world of work.</p> <p><b>Keywords:</b> Teaching and Evaluation, Retraining and Practices, Vocational-Technical Teachers</p>
 <p style="text-align: center;"><b>Syafitri Syafitri</b> <b>ERCICSTR1810055</b></p>	<p style="text-align: center;"><b>Identification Caprock in Solok Using Resistivity Method Wenner Array</b></p> <p style="text-align: center;"><b>Syafitri Syafitri</b> <b>Faculty of Mathematic and Natural Science, Andalas University, Padang, Indonesia</b></p> <p style="text-align: center;"><b>ABSTRACT</b></p> <p>The research has done to determine the caprock zone in Bukit Kili Gunung Talang, Solok by using wenner array resistivity method. The acquisition is done in the area of Cupak, Bukit Gadang and Bukit Sundi. There are 3 trajectory paths with a track length of 1050 m. The data is processed by using IP2WIN software that generated a 1D resistivity-crosssection to the depth of the rock layer. Based on the resistivity cross-section showing on track 1 there are 3 layers of rock. The conductive layer is characterized by a low resistance value of <math>&lt;20 \Omega m</math> located at depths below 109 m. This layer is interpreted to correlate with altered argillic volcanic rocks and serves as a caprock (mountain scarf) gutters. Track 2 shows 4 layers of rock. In this path there is no presence of caprock zone. But on the result of 1D modeling there is a decrease of resistivity value starting from depth 78,7 m. On track 3 shows 4 layers. In this trajectory there is also no indication of the existence of the geothermal caprock zone.</p> <p><b>Keywords:</b> caprock, bukit kili gunung talang, resistivity method, wenner array</p>
<p style="text-align: center;"><b>Rahmah Khairati Maiza</b> <b>ERCICSTR1810056</b></p>	<p style="text-align: center;"><b>Synthesis Activated Carbon from Banana Peels for Purification of Waste Water from The Gold Mine from Heavy Metals in Batang Palangki, Sijunjung Regency</b></p> <p style="text-align: center;"><b>Rahmah Khairati Maiza</b> <b>Physics, Andalas University, Padang, Indonesia.</b></p> <p style="text-align: center;"><b>ABSTRACT</b></p> <p>The purification of waste water from the gold mine from heavy metals in Batang Palangki, Sijunjung Regency has been carried out. Prior to the purification of this wastewater, water samples were first measured by heavy metal content using Inductively Coupled Plasma (ICP) and found</p>

	<p>24 heavy metal elements of which 8 of them were above the standard threshold of water quality standards. Purification of water using adsorption technique with adsorbent activated carbon from banana kepok skin. This study used activated carbon with concentration concentration of 20%, 25%, 30%, and 35% H<sub>2</sub>SO<sub>4</sub> activator. Activated carbons were added to the measuring cup containing 100 ml of gold mine waste water, stirred to homogeneous and allowed to settle to the bottom of the measuring cup, then filtered water using filter paper, measured pH, heavy metal content and electrical conductivity values. Based on the research results, activated carbon with the most optimal absorption is at concentration of 35% with the average pore size of activated carbon of 24.6 um. This data was obtained from the Inductively Coupled Plasma (ICP) tool by comparing the heavy metal content of wastewater before and after the activated carbon treatment. The purified water is in accordance with Minister of Health Regulation no. 416 / MENKES / PER / IX / 1990 on water quality requirements and Government Regulation no. 82 of 2001 on the Management of Water Quality and Control of Water Pollution.</p> <p><b>Keywords:</b> Heavy metals, banana peels, purification.</p>
<p><b>Anas Shehu</b> ERCICSTR1810057</p>	<p><b>The Szilard-Chalmers Reaction</b></p> <p><b>Anas Shehu</b> Physics, Sokoto State University, Sokoto State, Nigeria</p> <p><b>ABSTRACT</b></p> <p>The aim of this experiment is to study the annealing processes associated to the Szilard-Chalmers reaction that gives the proper way of taking out radioactive isotopes from the solution due to the differences in their chemistry, permanganate solution was expose to neutron by placing the solution near the AmBe source in a water tank, which gives an account that when the solution of potassium permanganate exposed to neutrons from the moderate neutron irradiator, most of the radioactive could be separated and leave with some percentage in the form of permanganate. For the first filtration, the percentage retention for the filtered solution is <math>32.8 \pm 0.6</math> % and the precipitate is 67.2% while for the second percentage retention for the filtered solution is <math>17 \pm 0.4</math> % and the precipitate is 83%. The 3.05 hours was determined using the table figured (4.2) as half-life of the isotope <sup>56</sup>Mn.</p>
 <p><b>Zeferino Soares Lopes</b> ERCICSTR1810058</p>	<p><b>Goodbye Conflict and Welcome Development in East Timor</b></p> <p><b>Zeferino Soares Lopes</b> Faculty of Civil Engineering, Narotama University of Surabaya Indonesia, Dili, Timor-Leste</p> <p><b>Abstract</b></p> <p>I had much significant experience that give big influence to me and I really really want this conference to further my studies in education. I want to improve myself to be a good leadership skills. I am a perfect student and my background is fantastic. I also have a eternal passion for learning, now I am still continuing my study at Narotama University Of Surabaya Indonesia, Now I am the 3rd Semester of the Department of Civil Engineering. I born in simple family, we are not rich, we are not poor. Grow up in education background family ( My father work at Ministry of health in Ainaro Distric Timor-Leste and my mother is a teacher Primary School make me give a highest place for education. I always try to improve myself in everything because I want to be a skilled person and I am very curious about something new and love to find it more and make me worthy to do many things in my hands. In front of</p>

others, I am known as a friendly, cheerful, and good person in public speaking. I like to meet people who are diverse, especially from different cultures and countries and are always eager to discuss, share, and dialogue that can improve my knowledge and perspective on differences and similarities. Those things led me to participate in some competitions or events as my university representatives.

As a younger generation in Timor-Leste, I want to promote and show Timor-Leste's culture and heritage to the world as many people from all over the world. I look forward to making more contributions and dedication to my country as much as I can, so I can make my country, family and everyone around me proud of me as I am the next future leader. By giving me the opportunity to join the conference, I am sure I can take advantage of the experience I will gain in this Conference and combine my talents that I have. Furthermore, this Conference will greatly change my life and be a stepping stone for me to realize my desires. I think youth is the best investment from a country that can make changes and affect the world in the future. The role of youth is so important that they have to get out of their comfort zone and let's move to do something meaningful. Because the world is in the hands of young people, moving youth is the main way to make a difference for a better world and a better future.

For this conference application When I pass I hope to help me to seek a better science in my future as a successful person and I believe better for us to meet each other, so you can see all of the potency that I had.



**Hilal Arslan**  
ERCICSTR1810060

#### **Wind Speed Variability and Wind Power Potential In Turkey: A Case Study of Canakkale**

**Hilal Arslan**

**Department of Health Sciences, Istanbul Gedik University, Istanbul, Turkey**

#### **Abstract**

With the industrial revolution, energy production and consumption has become one of the most important problems of modern society. Gas wastes, especially resulting from energy production, are considered as one of the most important causes of climate change, which is one of the most serious environmental problems of our time. One of the best solutions to these environmental problems is the use of renewable energy resources. Among renewable energy sources, wind power is one of the options that have the least negative effects on the environment. In this study, variability of wind speed and its effects on electricity generation in Turkey between 1980 and 2013 were examined. Hourly wind data from 335 meteorological stations in Turkey for years between 1980 and 2013 were provided from Turkish State Meteorological Service (TSMS). Spatially well distributed and reliable data from 77 stations were included to this study by doing quality controls and checking missing days. Highest hourly average wind speed between 1980 and 2013 was found as 4.80 m/s at 50 meters altitude in Gökçeada which is located in Aegean Region and in Çanakkale which is located in Marmara Region. Wind power potential was analyzed by examining Weibull distributions. Seasonal power intensity analysis of Çanakkale was found highest in winter season with 108.63 W/m<sup>2</sup>. Results show that Çanakkale is one of the locations that have the highest wind power potential in Turkey and also has large rural areas available for possible wind farms.

**Key words:** Renewable energy, Wind speed and potential, Weibull distribution

Saket Verma  
ERCICSTR1810061

**An Experimental Comparison of Enriched Biogas and CNG on Dual Fuel Operation of a Diesel Engine**

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**Abstract**

Increasing the utilization of alternative and renewable fuels in the internal combustion engines (ICEs) is an important aspect towards energy security and environmental stability. In this context, compressed natural gas (CNG) is a suitable alternative to conventional petroleum fuels due to its rich natural resources and established infrastructure throughout the world. The biogas can be considered as a renewable route for the production of natural gas. Biogas is produced by the anaerobic digestion of organic matters and consists of methane (CH<sub>4</sub>), carbon dioxide (CO<sub>2</sub>), nitrogen (N<sub>2</sub>) and small traces of hydrogen sulfide (H<sub>2</sub>S), hydrogen (H<sub>2</sub>) and oxygen (O<sub>2</sub>). It is possible to remove the carbon dioxide (CO<sub>2</sub>) and other trace compounds to enrich the biogas with methane (CH<sub>4</sub>) which improves its properties as a fuel. In the present work CNG and enriched biogas (93% CH<sub>4</sub> by vol.) have been experimentally compared for performance and emissions characteristics in a dual fuel diesel engine.

In this work, diesel is used as the pilot fuel, which is directly injected into the engine cylinder. The CNG and biogas are used as the main fuels, which are inducted with the intake air in the intake manifold. The experimental observations are taken for steady state conditions at varying engine loads for maximum pilot fuel substitution conditions. The performance of the engine is evaluated based on energy and exergy analyses. The emission characteristics are shown for oxides of nitrogen (NO<sub>x</sub>), hydrocarbon (HC), carbon monoxide (CO) and smoke emissions. It was found that enriched biogas showed the performance similar to that with CNG, whereas slight variations in the emissions were observed. The exergy efficiencies of 27.8% and 26.9% were calculated for CNG and biogas dual fuel operations respectively at the full load. Similarly, maximum pilot fuel substitutions were found 72.8% and 71.4% for the above conditions respectively.

**Keywords:** Dual fuel, GTL, Biogas, Exergy, Irreversibility



Endang Tri Wahyuni  
ERCICSTR1810062

**Detoxifying Pb(II) ions in water by Photo-Fenton Method**

Endang Tri Wahyuni  
Chemistry, Faculty of Mathematics and Natural Sciences, Universitas Gadjah Mada, Yogyakarta, Indonesia

**Abstract**

Photo-Fenton as a novel method for removal of Pb(II) ions in the aqueous solution is studied. The photo-Fenton process was carried out by batch technique, by irradiating solution containing Fe<sup>2+</sup>, H<sub>2</sub>O<sub>2</sub>, and Pb<sup>2+</sup> with UV light. The influences of process operating parameters were evaluated. The results of the research demonstrated that by photo-Fenton process, the concentration of Pb(II) ions in the aqueous solution can be decreased. The decrease is found to be controlled by the irradiation time, Fe<sup>2+</sup> and H<sub>2</sub>O<sub>2</sub> concentrations, as well as the pH. The same trends are observed that are expanding time, increasing concentrations of Fe<sup>2+</sup> and H<sub>2</sub>O<sub>2</sub>, and elevating solution pH have improved the removal, but further enlargement of the operating parameters showed the negative effects on the effectiveness of the Pb<sup>2+</sup> removal. The optimum irradiation time, Fe<sup>2+</sup> and H<sub>2</sub>O<sub>2</sub> concentrations,

	<p>and the pH are measured to be 90 min, 200 mmole, 10 mmole and pH 3 respectively, for 25 mg/L Pb<sup>2+</sup> in the 100mL solution. The removal of Pb<sup>2+</sup> was confirmed to proceed through oxidation to form PbO<sub>2</sub> solid that was less toxic.</p> <p><b>Key words :</b> Photo-Fenton, Pb<sup>2+</sup>, oxidation, removal</p>
 <p><b>Wega Trisunaryanti</b> ERCICSTR1810063</p>	<p><b>Utilization of Gelatin from Catfish Bone as a Template of Mesoporous Silica Alumina</b></p> <p><b>Wega Trisunaryanti</b> Chemistry/ Faculty of Mathematics and Natural Sciences, Universitas Gadjah Mada, Yogyakarta, Indonesia</p> <p><b>Abstract</b> Mesoporous silica alumina (MSA) was prepared by using silica and alumina extracted from Lapindo mud and gelatin from catfish bone as a template. The Lapindo mud was refluxed in 6 M HCl solution at 90 °C for 5 h to separate alumina. The residue was then refluxed with 6 M NaOH solution at 90 °C for 5 h to extract silica. The catfish bone was pretreated using NaOH 0,1 M for 24 h followed by acid pretreatment using HCl 1.0, 1.5, and 2.0 M for 1 h. The gelatin was produced by hydrolyzing the pretreated bone with double distilled water at 70 °C for 5 h. The MSA was synthesized using autoclave at 100 °C for 24 h, followed by calcined at 550 °C for 4 h and characterized by FTIR spectrophotometer, XRD, and surface analyzer. The result showed the gelatin that pretreated using 1.5 M HCl produced the highest yield of 13.87 wt.%. The silica alumina showed mesoporous characters with specific surface area, and pore volume of 20.03 nm, 241.37 m<sup>2</sup>/g, and 1.07 cm<sup>3</sup>/g, respectively. <b>Keywords:</b> mesoporous silica alumina, gelatin, catfish bone, Lapindo mud.</p>
 <p><b>Indah Fasha Palingga</b> ERCICSTR1810064</p>	<p><b>Analysis of Factors Affecting Compliance to Implementing Standard Precautions on Dental Clinical Students in Dental Hospital of South Sumatera Province</b></p> <p><b>Indah Fasha Palingga</b> Department of Health Administrative and Public Health Policy, University of Sriwijaya, Palembang, Sumatera Selatan</p> <p><b>Abstract</b> <b>Background :</b> Dentist as dental health professionals have the obligation, ethical responsibility, and moral duty to ensure that they must obey standard precaution procedures to prevent the transmission of infectious diseases. The aim of this study is to analyze associated factors affecting compliance to implementing standard precautions on dental clinical students in Dental Hospital of South Sumatera Province. <b>Methods:</b> This was a cross sectional study which was conducted on dental clinical students at the Dental Hospital in South Sumatra Province. All dental clinical students becoming samples who is taken by total sampling with a total sample of 113 dental clinical students. Compliance was analyzed by compliance questionnaire. Data were analyzed by chi-square test and binary logistic. <b>Results:</b> Based on the research the proportion of clinical students who was comply with standard precautions was found to be 79.6%. Knowledge, attitude, work climate, management support, facilities, training, and obstacles were found to be statistically significant in chi square test (p value &lt;0,05). A significantly binary logistic test showed management support as dominant variable that affecting</p>

	<p>compliance in standard precautions (p-value = 0,0008) OR = 5,336 (95%CI: 1,561-18,242). Conclusion: Management support is the most significant predictor of compliance in standard precautions among clinical students</p> <p><b>Keywords :</b> Compliance, standard precautions, management support</p>
<p><b>Muslum Arici</b> ERCICSTR1810065</p>	<p><b>Enhancement in melting of phase change materials by Nanoparticles</b></p> <p><b>Muslum Arici</b> Engineering Faculty, Mechanical Engineering Department, Kocaeli University, Kocaeli, Turkey</p> <p><b>Abstract</b> Phase change materials (PCM) has drawn a great deal of attention of researches because of its several favorable features. The advantage brought by PCM is due to activating latent heat. Application of PCM can be found in many engineering fields. For instance, PCM is coupled to photovoltaic systems as a passive cooling system [1], is used for thermal management of electronic devices [2], is incorporated in the external wall of building structures [3] or window units to shaving the peak load of heating or cooling [4]. However, the relatively low thermal conductivity of the widely used PCM may cause problems for the applications when melting (charging) or solidification (discharging) rate is considerable. The method of incorporating nanoparticles with high thermal conductivities to PCM is one of the effective methods among the novel technologies [5, 6]. Although addition of nanoparticles to PCM increases the effective thermal conductivity, it also increases the viscosity. Therefore, there is a trade-off between increase in the heat transfer and viscous force. In this work, the melting process of PCM filled in enclosure is considered. The melting rate is obtained numerically for PCM dispersed with nanoparticles and compared to that of pure PCM. The governing equations are solved by a commercial bode based on finite volume method. The phase change is handled by porosity-enthalpy approach which does not require tracking of melting front explicitly. The computational results are presented and evaluated in terms of streamlines, isotherms and melting front at different instantaneous times.</p>
 <p><b>Tutuil Amrina</b> ERCICSTR1810066</p>	<p><b>Determinant Analysis of Public Perception in the Pharmaceutical Industry Environment PT.X Palembang City</b></p> <p><b>Tutuil Amrina</b> Department of Occupational Health and Safety and Environmental Health, Faculty of Public Health, University of Sriwijaya, Palembang, Indonesia</p> <p><b>Abstract</b> <b>Background:</b> The location and activities of the pharmaceutical industry which is near to the settlement of a negative impact on public health. The research objective to analyze public perception, especially related to public health nearest pharmaceutical industry PT.X in the Village 5 Ilir and Duku, District II East Ilir Palembang. <b>Methods:</b> The study was conducted in September 2018. The study population is 600 households. 128 sample households by means of random sampling is the people who live on the ring-I industry. Research used quantitative method with cross sectional design. Data collection instrument was a questionnaire based on the concept of health belief models, interviews and observations, the data were analyzed using multiple logistic regression. <b>Results:</b> The results showed that the public perception (55.5%) of the public health-related industries categorized as good. The results of multiple logistic regression</p>

	<p>showed that the variable length of stay (OR = 5.18); variable levels of education (OR = 3.16); knowledge variable (OR = 0.19); public health conditions (OR = 3.7) affect the public perception of the pharmaceutical industry. Conclusions: Multivariate analyzed showed that dominant risk factor of public perceptions is length of stay.  <b>Keywords:</b> Perception, Public Perception, Health Conditions, Pharmaceutical Industry.</p>
<p><b>Budi Setiadi</b>  <b>ERCICSTR1810067</b></p>	<p><b>Development of Navigation Visual Sensory Aids for Blind Persons to Pedestrian Using Camera</b></p> <p><b>Budi Setiadi</b>  <b>Department of Electrical Engineering, Bandung Polytechnic, Bandung, Indonesia</b></p> <p><b>Abstract</b>  Activities on foot on the pedestrian path for blind persons are a challenge. Need to use stick aids, sense of touch, or assistance from a companion (human, animal) to explore the pedestrian lane. Such a method requires that the device be touched by the object, disrupt the main function of the sense of touch, and always depend on the companion. This study maximizes the function of the camera as a navigation for blind persons in activities on the pedestrian path. The camera capture in the form of a standard RGB color image is converted to an XYZ color system to produce images that can better highlight the pedestrian path than other colors. A color filter is used to isolate the pedestrian path from other objects. Morphology close to highlight the pedestrian path as much as possible. The results of this process obtained images that contain many white objects with different widths, can certainly represent the pedestrian path. Using a moment of inertia formula against the x-axis <math>I_x</math>, y-axis <math>I_y</math>, and the inertia multiplication of the x-axis and y-axis <math>I_{xy}</math> is obtained by calculating the main axis and the angle. The angle <math>\theta</math> is calculated against the x-axis with counterclockwise direction used as navigation for the net disability going forward with a certain angle tilt. The results of measurement testing yield success accuracy of 85.8% in light intensity &lt;43200 lux.</p> <p><b>Keywords:</b> blind persons, image processing, RGB to XYZ conversion, color filter, morphology.</p>
<p><b>Amie Kusumawardhani</b>  <b>ERCICSTR1810068</b></p>	<p><b>Creative Industrial Development Framework in Semarang to Build Semarang Creative City</b></p> <p><b>Amie Kusumawardhani</b>  <b>Faculty of Economics and Business Diponegoro University, University of Diponegoro, Semarang, Indonesia</b></p> <p><b>ABSTRACT</b>  The creative industry contributes 7.05% (642 trillion rupiah) to the total GDP of Indonesia in 2015. There are 16 sectors listed at BEKRAF (Badan Ekonomi Kreatif). In Semarang, the creative industry is considered as a potential to the economic development as a creative city. This research aims to identify the potential activities of creative industry in Semarang and to develop a framework in developing this industry. The study applied qualitative methods in data collection and analysis. The informants in this study are the players of the creative industry and the institutions related with this industry in Semarang. The policy implications will be provided at the end of the study.</p> <p><b>Keywords:</b> Creative Industry, Creative City, Framework</p>



**Tengku Fara Kamilia**  
**ERCICSTR1810052**

**Pam Fluorometer: A Non-Invasive Technique for Photobiology Research in Marine Ecosystem**

**Tengku Fara Kamilia**  
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**Abstract**

Coral reefs is an essential part of the marine ecosystem, but they are facing a crucial situation which mostly affected by anthropogenic impacts, such as coastal development, tourism activities and sewage pollution besides natural disturbances, such as global warming. The causes can affect the coral's health which make the corals more susceptible to bleaching problem and diseases. Thus, to study the health of the corals, PAM fluorometer is used for gathering information on coral's stress. It is a non-invasive technique which had been used since 1980s for studying the photosynthesis in vivo. The aim for this study is to provide a baseline of the yield values in normal state and after-stress state for three species tropical hard corals (*Stylophora pistillata*, *Montipora digitata* and *Seriatopora hytrix*) by studying its photosynthetic performance. Physical changes of the corals (by paling colours and mortality) also had been recorded after the stress treatments. To achieve this, the corals were exposed to three set of stress levels experiments of high temperature with high light, high temperature with normal light and normal temperature with high light. It was found that different corals have different stress responses based on the maximum quantum yield after stress treatments and after recovery stage. The combination of high stress of temperature and light only can cause the bleaching effect for *S. hytrix*. These quantum yield data can help the researchers to understand the coral's condition by species in a bleaching event caused by temperature and light stress in Malaysia.

**Keywords:** PAM, chlorophyll fluorescence, hard corals, zooxanthellae, stress, coral bleaching.

**Zhangjian Lei**  
**ERCICSTR1810078**

**Experiment on determining CMT parameters of 2A12 aluminum alloy material arc additive based on ABB robot control**

**Zhangjian Lei**  
**School of Mechanical Engineering, Nanjing University of Science and Technology, Nanjing, China**

**ABSTRACT**

This paper introduces the methods of arc addition and CMT welding. Through reasonable experimental design and intuitive experimental results, combined with 2A12 aluminum alloy material, This paper provides a feasible method for determining the CMT parameters of 2A12 aluminum alloy arc additive, and gives a set of CMT parameters.

**Younes Benarioua**  
**ERCICSTR1810079**

**Structural and Mechanical Properties of Thin Nitriding Layers Produced on Low Alloy Steel**

**Younes Benarioua**  
**Mechanical Engineering Department, Faculty of Technology, University of M'sila, M'sila, Algeria**

**Abstract**

Nitriding treatment is a thermochemical process which can be applied to improve the mechanical and chemical properties of steels. The purpose of this technique is to enrich the surface of a work piece with nitrogen in

order to increase the mechanical and chemical resistance of parts against wear and corrosion. The purpose of this work is to characterize the microstructure and mechanical properties of thin iron nitride layers obtained on low alloy steel by plasma ion nitriding. The produced layers present two zone, the first one which called a compound layer forms the phases of  $\gamma$  and  $\epsilon$  rich in nitrogen. The rate profile of nitrogen takes a decreased value in the second zone which called diffusion layer. In this study, the low alloy steel was nitrided under both rate activation of plasma, the structure, the morphology of nitriding layers were investigated by using optical microscopy, scanning electron microscopy, X-rays diffraction analysis, the hardness of layers was measured by a Vickers microhardness tester with different loads.

**Keywords:** Nitriding, steel, nitrogen, diffusion



**Ratih**  
ERCICSTR1810080

**Effectiveness of Use Web based Learning Media for Information and Communication Technology in Senior High School**

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**Abstract**

This research is motivated by the impact of the implementation of Curriculum 2013, with limited learning time for the guidance of ICT (Information and Communication Technology). Based on observations, the condition of schools that already have Internet network, wifi and the ability of learners who are familiar with the technology strongly supports the web-based learning media. The purposes of this study were: 1) To generate a web-based learning media for the Guidance of ICT in Senior High School. 2) To determine the validity, the practicalities and the effectiveness of web-based learning media for the Guidance of ICT in in Senior High School. The type development method used is a Research and Development (R & D). Development model used is the Instructional Development Institute (IDI). The principle approach applied IDI system consists of three stages, namely the determination, the development, and the evaluation. The results showed that the web-based learning media for guidance ICT declared valid and practice for use by the teachers and the learners. It means that web-based learning media for guidance on ICT "effective" to use.

**Keywords:** Media Education, Guidance, ICT, Web-Based Learning



**Al Munawir**  
ERCICSTR1810083

**Potential of Alliinase-lectin Complex as Carcinogenic Component from Fresh Garlic**

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**ABSTRACT**

A brief exposure to fresh garlic, which can be encountered from our eating habits, can induce cytotoxic injury. The high M.W. (>10 kDa) but not the low M.W. (<10 kDa) contains cytotoxic components. Using SDS-PAGE, the proteins of FGE were separated and found the molecular weights of about 70, 45, 35, 23 and 10 kDa, which proteins are major components. Garlic has been known to contain lectin proteins, which are comprised of subunits of M.W. 11.5 and 12.5 kDa and are mannose-specific. In the present study, proteinous components were isolated from the bulbs of fresh garlic (*Allium sativum*) using a serial process of extraction with distilled water, 30~80 % ammonium sulfate precipitations, and size exclusion chromatography (Sephadex G-75). Alliinase and lectin were identified by MALDI/TOF Mass Spectrometer.

	<p>The alliinase-lectin complex and alliinase shows a potent cytotoxicity on INT-407 intestinal epithelial cells (LD50=83.43 µg/mL, LD50=1 052 µg/mL), but lectin have less cytotoxicity. Also, the cell morphology was changed with a round shape and induced the formation of cytosolic vacuole at high dose of lectin (300 µg/mL). This result suggests that the proteinous cytotoxic component in fresh garlic is alliinase-lectin complex.  <b>Key words:</b> alliinase-lectin complex; Alliinase; lectin; INT-407 cells.</p>
<p><b>Tresnadi Hikmat</b>  <b>ERCICSTR1810084</b></p>	<p><b>Performance Measurement in State Owned Enterprise: A Literature Review and Proposed Guidelines</b></p> <p><b>Tresnadi Hikmat</b>  <b>Management, Sekolah Tinggi Ilmu Ekonomi (STIE) Ekuitas, Bandung, Indonesia</b></p> <p><b>Abstract</b>  <b>Performance Measurement in Management has always been an interesting field to study. The reason is that the are organization's top priority agenda is how to improve its short term and long term organizational results. Therefore knowledge on how to improve them are crucial. State owned enterprises (SOE) are entities are usually potential resource to provide revenue for a government but has also has a strategic role as the catalyzer for the development of a nation. This paper discusses the theoretical backgrounds and current research in the field of performance measurement and management affecting state-owned enterprise's performance and study what variables are related which could be used later for further research. The methodology used in this study is conducting literature study on the subject of performance measurement and management for the last couple of years, and conducting a systematic literature review of the papers to discover empirical and theoretical findings surrounding state-owned enterprises in Asia and the rest of the world. There are several findings of this paper such as that state-owned enterprise are unique in each country and the level of governance can differ and affects the performance. Some governments utilize SOE only as a revenue machine for political interest however some are managed professionally to compete in their market and industry respectively. Limitations of this study are that the study is based on accessible journals by the writer and each study has their own limitations respectively such as the amount of unit analysis which will further limit generalization. This study will contribute to the field of performance measurement system and management hopefully pave guidelines and ground theory to researchers regarding the possible correlating variables that are eligible for further study.</b></p> <p><b>Keywords:</b> performance measurement and management; state owned enterprise; literature review; affecting variables</p>
	<p><b>Experimental Investigation and Modeling of Modification Agent on Surface Property of Aerogel Produced via Ambient Pressure Drying</b></p> <p><b>Israa Al-sharuee</b>  <b>Department of Physics, College of Science, Mustansiriyah University, Baghdad, Iraq</b></p> <p><b>Abstract</b>  <b>A crucial properties for hydrophobic silica aerogels such as surface free energy surface tension contact angle has been determines experimentally and theoretically in the present work, the modification was by hexamethyldisilazane (HMDZ) and trimethylchlorosilane (TMCS) with different concentration from 5% to 15% , two step acid base catalysis</b></p>



**Israa Al-sharuee**  
**ERCICSTR1810082**

followed in preparation, using (TEOS) ethanol and [0.001M] hydrochloride acid with molar ratio was 1:2.8:0.19\*10<sup>-3</sup> respectively , the effect study upon analysis of FTIR spectra and the degree of hydrophobicity was estimated by contact angle measurements. The results refer that the contact angle of aerogel from 130 to 151 by modifying by HMDZ and from 122 to 153 by modifying by TMCS, Neumann’s and Young’s equation of state depend to determine surface free energy and surface tension of samples, while the specific surface area is measured by using the "Brunauer –Emmett–Teller (BET) method. Here, we have confirmed that the surface free energy of samples can be regulated in varied range from 4.4997 to 0.3115 and 4.1419 to 0.5112 mJ/m<sup>2</sup> by adjusting their surface by TMCS and HMDZ. From results the modification with TMCS is best from HMDZ, theoretical part give a good results to estimate the important information about hydrophobic silica aerogel.

**Keywords:** Aerogel, Silylating agent, superhydrophobic silica, Surface free energy, Contact angle.



**Samin**  
**ERCICSTR1810085**

**Accumulation of Leachate Generation at Final Landfill Sites of Domestic Waste Indonesia**

**Samin**  
**Civil engineering, Engineering Faculty, University of Muhammadiyah Malang, Malang, Indonesia**

**Abstract**

Municipal solid waste management in Indonesia still relies on the existence of a Final Processing Site, which is generally not in accordance with the Law of the Republic of Indonesia No. 18 of 2008 which caused a lot of environmental problems such as pollution because had not been good in handling leachate. The existence of a leachate pond is needed to regulate the leachate flow rate to be channeled to the processing facility so that a constant load is created so that the processing process operates according to the plan. The amount of volume or accumulation of leachate generation to be treated must be determined when designing the installation. Although the accumulation of leachate can be estimated by previous equations, the magnitude varies with time. Research and observations have been conducted on water balance on lysimeter or a laboratory scale landfill with open dumping type (OD) and sanitary landfill (SL-2 and SL-3). It is expected to contribute to the development of leachate processing models especially in determining the volume of leachate or the production of leachate produced in the landfill. The results showed that the accumulation of leachate generation each month in all lysimeters was fluctuative, where the accumulation of leachate generations in OD was 390 mm/month, SL-2 was 314 mm/month and SL-3 was 351 mm / month that occurred in the month February. While the smallest accumulation of leachate generations occurred in August, on OD lysimeters of 58 mm / month, SL-3 was 3 mm / month and sanitary SL-2 was 26 mm / month, because in August the rainfall was also relatively small at 109 mm /month. In addition, the percentage of accumulation leachate generation at the end of the observation in the OD lysimeter type is 60%, SL3 type is 45% and SL2 type is 50% of actual rainfall. Furthermore, the accumulation of leachate generations at each lysimeter showed a significant difference, where the leachate generation in OD lysimeters was always greater than the other lysimeters. This indicates that the amount of accumulation leachate is highly influenced by the amount of rainfall that occurs and type of a landfill.

**Keywords:** Accumulation, Landfill, Leachate Generation, water balance.

**Budi Setiadi**

**Pedestrian Lane Navigation for Blind Persons using Camera**

<p><b>ERCICSTR1810086</b></p>	<p><b>Budi Setiadi</b>  <b>Elektrical Engineering, Bandung State Polytechnic, Bandung, Indonesia</b></p> <p><b>Abstract</b>  Blind person walking independently along the pedestrian lane is a challenge. Requires a stick, a sense of touch, or assistance companion (human, animal). This method requires that the stick be touched by an object, interfere with the main function of the sense of touch, and depend on the companion. This research functions the camera as navigation. The camera captures in the form of RGB color images are converted to XYZ colors to produce images that can further highlight the pedestrian lane rather than other colors. Color filters to isolate pedestrian lane from other objects. Morphology close to highlight the pedestrian lane as much as possible. The results of the process, obtained images that contain many white objects with different widths (representing pedestrian lane). The formula for moment of inertia with x-axis, y-axis, and inertial multiplication of the x-axis and y-axis of <math>I_{xy}</math>, the calculation of the main axis and its angle is obtained. The angle <math>\theta</math> calculated against the x-axis with counterclockwise direction used as navigation for blind person goes forward with a certain angle of slope. The test results measured at lux &lt;4320, resulting in a success of 85.8%.</p> <p><b>Keywords: blind persons, image processing, navigation</b></p>
<p><b>Korry Azrina</b>  <b>ERCICSTR1810074</b></p>	<p><b>Design VLC with DCT and m- Ary PAM in Xilinx System Generator</b></p> <p><b>Korry Azrina</b>  <b>University of Al Azhar Indonesia, Jakarta, Indonesia</b></p>
<p><b>Wulan Meiniar</b>  <b>ERCICSTR1810070</b></p>	<p><b>Electro Pneumatic System with DSP</b></p> <p><b>Wulan Meiniar</b>  <b>University of Al Azhar Indonesia, Jakarta, Indonesia</b></p>
<p><b>Maratus Sholikhah</b>  <b>ERCICSTR1810072</b></p>	<p><b>Detecting Vibration Level of Dynamic Spindle System on CNC Lathe Using Accelerometer</b></p> <p><b>Maratus Sholikhah</b>  <b>University of Al Azhar Indonesia, Jakarta, Indonesia</b></p>
<p><b>Muhammad Rangga</b>  <b>ERCICSTR1810076</b></p>	<p><b>Designing for Displaying GUI FFT Output Power Spectrum in LabVIEW 2013</b></p> <p><b>Tyan Permana</b>  <b>University of Al Azhar Indonesia, Jakarta, Indonesia</b></p> <p><b>Muhammad Rangga</b>  <b>University of Al Azhar Indonesia, Jakarta, Indonesia</b></p>
<p><b>Rayza Al Khensha</b>  <b>ERCICSTR1810073</b></p>	<p><b>Handling Imbalanced Datasets in Credit Card Fraud Detection</b></p> <p><b>Rayza Al Khensha</b>  <b>University of Al Azhar Indonesia, Jakarta, Indonesia</b></p>
<p><b>Riny Alfina</b>  <b>ERCICSTR1810071</b></p>	<p><b>Modelling and Analysis of Servo Hydraulic Position Control System Simulation Using PI-Fuzzu Logic Controller Method</b></p> <p><b>Riny Alfina</b>  <b>University of Al Azhar Indonesia, Jakarta, Indonesia</b></p>
<p><b>Yusri Octariansyah</b>  <b>ERCICSTR1810075</b></p>	<p><b>Logistics Cost Grouping at PT.XYZ Using The K Means Clustering Method</b></p> <p><b>Yusri Octariansyah</b>  <b>University of Al Azhar Indonesia, Jakarta, Indonesia</b></p>

# LISTENERS

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## Upcoming Conferences

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- 2nd ICSTR Dubai – International Conference on Science & Technology Research, 26-27 December 2018
- ICSTR Bali – International Conference on Science & Technology Research, 29-30 December 2018
- 2nd ICSTR Bangkok – International Conference on Science & Technology Research, 07-08 February 2019
- 3rd ICSTR Dubai – International Conference on Science & Technology Research, 26-27 February 2019
- 2nd ICSTR Singapore – International Conference on Science & Technology Research, 15-16 March 2019
- ICSTR London – International Conference on Science & Technology Research, 11-12 April 2019
- ICSTR Rome – International Conference on Science & Technology Research, 03-04 May 2019

- ICSTR Prague – International Conference on Science & Technology Research, 06-07 June 2019
- 2nd ICSTR Malaysia – International Conference on Science & Technology Research, 28-29 June 2019

