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Basic & Applied Sciences

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# CONFERENCE PROCEEDINGS

## BOOK OF ABSTRACTS ECBA-2016

**International Conference on  
“Engineering & Technology, Computer, Basic & Applied  
Sciences”  
(ECBA-2016), Manila Philippines**

# **Book of Abstracts Proceeding**

**International Conference on  
“ENGINEERING & TECHNOLOGY, COMPUTER, BASIC &  
APPLIED SCIENCES”  
(ECBA-2016)  
Manila Philippines**

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# TABLE OF CONTENTS

<b>ORGANIZING COMMITTEE .....</b>	<b>V</b>
<b>CONFERENCECHAIR MESSAGE.....</b>	<b>V</b>
<b>CONFERENCE PROGRAM .....</b>	<b>VII</b>
<b>TRACK A: ENGINEERING &amp; TECHNOLOGY, COMPUTER, BASIC &amp; APPLIED SCIENCES.....</b>	<b>11</b>
1. GENOMICS AND TRANSCRIPTOMICS TO IDENTIFY GENETIC MECHANISMS UNDERLYING THE TOLUENE-RESISTANT STAPHYLOCOCCUS EPIDERMIDIS.....	12
<b>TRACK B: BUSINESS, ECONOMICS, SOCIAL SCIENCES &amp; HUMANITIES .....</b>	<b>13</b>
2. THE INFLUENCE OF ENTREPRENEURSHIP CHARACTERISTIC AND MARKET ORIENTATION ON THE COMPETITIVE ADVANTAGE AND ITS EFFECT TOWARDS BUSINESS PERFORMANCE (CASE STUDY AT SENTRA RAJUT BINONG JATI BANDUNG).....	14
3. ACTIVE INVOLVEMENT IN ACTIVITIES TO REDUCE PASSIVE BEHAVIORS PROBLEM AMONG CHILDREN WITH AUTISME15	
4. SCHOOL HEADS' TRANSFORMATIONAL LEADERSHIP BEHAVIOURS ON TEACHERS' WORKING PATTERNS IN THE DIVISION OF BILIRAN, PHILIPPINES .....	16
5. APPLICATION OF GSTAR MODEL ON THE EXCHANGE RATE DATA OF ASEAN-5 COUNTRIES PER US DOLLAR .....	17
6. ANALYSIS OF FACTORS INFLUENCING LITERACY RATE IN THE COUNTRIES WITH HIGH, MODERATE, AND LOW LITERATE POPULATION PERCENTAGE (CASE STUDY: AFRICAN COUNTRIES) .....	18
7. INSTITUTIONAL READINESS ON K TO 12 IMPLEMENTATION: EMPHASIS ON COMMITMENT AND EFFICACY .....	19
8. FROM TRASH TO CASH: A POLYETHYLENE TEREPHTHALATE PROJECT RECYCLES STRATEGEM .....	20
9. FUTURE EDUCATORS' PERCEPTIONS ON TECHNOLOGY AND LIVELIHOOD EDUCATION STATUS AND DEVELOPMENT OF WORK SKILL .....	21
10. ROAD ACCIDENTS CAUSED BY SLEEPY DRIVERS AND DRIVER BEHAVIOR: A CASE STUDY IN RIAU PROVINCE INDONESIA.....	22
<b>FUTURE EVENTS.....</b>	<b>23</b>

**International Conference on  
“Engineering & Technology, Computer, Basic &  
Applied Sciences”  
Manila Philippines**

**Venue: Century Park Hotel Manila Philippines**

ORGANIZING COMMITTEE

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## **PRORAM COORDINATOR MESSAGE**

**Ms. Ani Wahyu**

International Conference on Engineering & Technology, Computer, and Basic & Applied Sciences” serves as platform that aims to help the scholarly community across nations to explore the critical role of multidisciplinary innovations for sustainability and growth of human societies. This conference provides opportunity to the academicians, practitioners, scientists, and scholars from across various disciplines to discuss avenues for interdisciplinary innovations and identify effective ways to address the challenges faced by our societies globally. The research ideas and studies that we received for this conference are very promising, unique, and impactful. I believe these studies have the potential to address key challenges in various sub-domains of social sciences and applied sciences.

I am really thankful to our honorable scientific and review committee for spending much of their time in reviewing the papers for this event. I am also thankful to all the participants for being here with us to create an environment of knowledge sharing and learning. We the scholars of this world belong to the elite educated class of this society and we owe a lot to return back to this society. Let’s break all the discriminating barriers and get free from all minor affiliations. Let’s contribute even a little or single step for betterment of society and welfare of humanity to bring prosperity, peace and harmony in this world. Stay blessed.

Thank you.

**Ms. Ani Wahyu**

Program Coordinator

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ECBA-2016

# CONFERENCE PROGRAM

**DAY 01 Friday (February 26, 2016)**

**Welcome Reception & Registration**

**8:30– 9:00 am**

**Opening Ceremony (09:00 – 09:30 am)**

**Venue: Room 1**

09:30 – 9:40 am	Introduction of Participants
09:40 – 9:50 am	Welcome remarks- <b>Ms Hendarati Diwi</b> - Conference Coordinator Academic For a
09:50 – 10:00 am	Group Photo Session

**Grand Networking Session and Tea Break (10:00- 10:30 am)**





**DAY 01 Friday (February 26, 2016)**

**Session 1 (10:30 am – 12:00 pm)**

**Venue: Room 1**

**Session Chair: Atsirudy Wibowo**

**Track A: Business, Economics, Social Science & Humanities**

MNS-426-102	The Influence of Entrepreneurship Characteristic and Market Orientation on the Competitive Advantage and its Effect Towards Business Performance (Case Study At Sentra Rajut Binong Jati Bandung)	Yunizar
MNS-426-108	Active Involvement in Activities to Reduce Passive Behaviors Problem Among Children with Autisme	Yusop Hj. Malie
MNS-426-116	School Heads' Transformational Leadership Behaviors on Teachers' Working Patterns in the Division of Biliran, Philippines	Francisco M. Ebio, Jr.
MNS-426-120	Application of GSTAR Model on the Exchange Rate Data of ASEAN-5 Countries per US Dollar	Hasrul Abdurahman
MNS-426-126	Future Educators' Perceptions on Technology and Livelihood Education Status and Development of Work Skills	Dr. Rovelina B. Jacolbia

**Lunch Break: (12:00-01:00pm)**



**DAY 01 Friday (February 26, 2016)**

**Session 2 (1:00 am – 2:30 pm)**

**Venue: Room 1**

**Session Chair: Francisco M. Ebio, Jr.**

**Track A: Business, Economics, Social Science & Humanities**

MNS-426-122	Analysis of Factors Influencing Literacy Rate in the Countries with High, Moderate, and Low Literate Population Percentage (Case Study: African Countries)	Atsirudy Wibowo
MNS-426-111	Road accidents caused by sleepy drivers and Driver Behavior: A Case study in Riau Province Indonesia	Fikri
MNS-426-127	Institutional Readiness on K to 12 Implementation: Emphasis on Commitment and Efficacy	Marilyn F. Isip

**Track B: Engineering & Technology, Computer, Basic & Applied Sciences**

MNE-426-101	Genomics and transcriptomics to identify genetic mechanisms underlying the toluene-resistant Staphylococcus epidermidis	Joon ho Park
MNS-426-125	From Trash To Cash: A Polyethylene Terephthalate Project Recycles Strategem	Christopher C. Mira

**(Closing Ceremony)**



## **DAY 02 Saturday (February 27, 2016)**

### **City Tour and Shopping Day**

All participants will be free to carry on their own tourism and shopping activities in Manila Philippines it's a free day for this purpose

**TRACK A: ENGINEERING & TECHNOLOGY,  
COMPUTER, BASIC & APPLIED SCIENCES**

## Genomics and transcriptomics to identify genetic mechanisms underlying the toluene-resistant *Staphylococcus epidermidis*

Beom soo Kim<sup>1</sup>, Jin gyu Kim<sup>2</sup>, In Chan Hwang<sup>3</sup>, Jeong a Min<sup>4</sup>,  
Joon ho Park<sup>5\*</sup>

Seoul National University of Science & Technology, Korea

### Abstract

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Organic solvent is highly toxic and source of serious environmental issues. Especially toluene is more toxic than any other organic solvents. The object of our study was characterizing the toluene resistant bacteria, *Staphylococcus epidermidis*. It was isolated and characterized on the basis of their growth and survival rates in the presence of 0.3 %(1000ppm) toluene compared to well know species, *Pseudomonas putida*, and *Bacillus subtilis*. The draft genome of *S. epidermidis* was sequenced using illumine system. Sequence data show that a genome size of *S. epidermidis* is 2,518,260 bp and a G+C content is 37%. To explore the mechanisms underlying toluene tolerance in *Staphylococcus epidermis*, ribonucleic acid sequencing (RNA)-seq analysis were performed and investigated toluene-dependent gene expression. These result will help to understand the potential mechanisms of toluene tolerance and possible adaptation mechanisms of *Staphylococcus epidermidis*.

**Keywords:** Organic Solvent, Adaptation Mechanisms

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## TRACK B: BUSINESS, ECONOMICS, SOCIAL SCIENCES & HUMANITIES

## The Influence of Entrepreneurship Characteristic and Market Orientation on the Competitive Advantage and its Effect Towards Business Performance (Case Study at Sentra Rajut Binong Jati Bandung)

Sherly C. Enage<sup>1</sup>, Susan S. Bentor<sup>2</sup>, Francisco M. Ebio Jr<sup>3</sup>,  
Yunizar<sup>4\*</sup>

<sup>1,2,3,4</sup> Faculty of Economics And Business Universitas Padjadjaran,  
Indonesia

### Abstract

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The objective of this research is to investigate the mediating effect of competitive advantage on the relationship between entrepreneurial characteristics, market orientation and business performance of knit owned by SMEs in Sentra Rajut Binong Bandung Indonesia. It proposed a descriptive quantitative analysis in which entrepreneurial characteristics and market orientation are key success factors of SMEs. In this research, Path Analysis was used for the analysis and verify the hypotheses. There are two research models were tested. The first model showed that the entrepreneurial characteristics have significant and positive impact to competitive advantage and market orientation also gives positive impact to competitive advantage. Second model showed that market orientation does not influence directly to business performance compare to entrepreneurial characteristics which influence business performance directly with positive direction.

**Keywords:** Entrepreneurial Characteristics, Market Orientation, Business Performance, Small and Medium Enterprise (Smes)

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Email: [yunizar\\_2000@yahoo.com](mailto:yunizar_2000@yahoo.com)

## Active Involvement in Activities to Reduce Passive Behaviors Problem Among Children with Autisme

**Yusop Hj. Malie<sup>1\*</sup>, Crisyanti Kuling Angki<sup>2</sup>, Nik Mohd Farid Daud Zalami<sup>3</sup>, Syahidah Abdul Majid<sup>4</sup>**

<sup>1,2,3,4</sup>Teacher Education Institute of Malaysia, Batu Lintang Campus, Malaysia

Abstract

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The purpose of this research is to investigate the behavioural problems among the autism children at one of Special Education Centre. This research involved one child from the Special Education Centre named Mukhriz. Observation method was being used to observe and record the development of the autism behavioural problems. Besides that, various activities being planned and held in order to find out the impact of the active involvement in activities to increase his interpersonal skills. This research also recommended few suggestions to reduce the passive behaviours among children with autism.

**Keywords:** Autisme, Special Education, Behavior Problems, Active Involvement

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## School Heads' Transformational Leadership Behaviours on Teachers' Working Patterns in the Division of Biliran, Philippines

**Sherly C. Enage<sup>1</sup>, Susan S. Bentor<sup>2</sup>, Francisco M. Ebio, Jr<sup>3\*</sup>**

<sup>1,2,3</sup>Naval State University Naval Biliran, Philippines

### Abstract

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The study generally aimed to determine the level of school heads' transformational leadership behaviours on teachers' working patterns in the Division of Biliran. Using the descriptive-survey research design, it included 126 secondary school teachers as respondents. The secondary school heads demonstrated high level of transformational leadership behaviours in providing vision or inspiration, modelling, fostering commitment to group goals, providing individual support, providing intellectual stimulation and holding high performance expectations. On the other hand, the secondary school teachers possessed high level of working patterns in terms of organizational commitment, organizational citizenship behaviour and teaching job satisfaction. School heads' demonstrations of transformational leadership behaviours have significant correlations to teachers' working patterns. A follow-up research maybe conducted on designing a comprehensive qualitative study that includes an interview component with students, parents, stakeholders and local government unit representatives to explore greater depth the relationships and interactions between perceived school heads' leadership behaviours and teachers' working patterns.

**Keywords:** School Heads, Transformational Leadership Behaviours; Teachers; Working Patterns

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Email: franc.mc.eve@gmail.com

## Application of GSTAR Model on the Exchange Rate Data of ASEAN-5 Countries per US Dollar

**Hasrul Abdurahman<sup>1\*</sup>, Atsirudy Wibowo<sup>2</sup>, Okta Nindita  
Priambodo<sup>3</sup>**

<sup>1,2,3</sup> Bogor Agricultural University, Indonesia

### Abstract

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This paper provides an application of generalized space-time autoregressive (GSTAR) model on exchange rate data of ASEAN-5 countries' currencies (Indonesian Rupiah, Malaysian Ringgit, Singapore Dollar, Philippine Peso, Thailand Bhat). GSTAR model is utilized for modelling and forecasting the exchange rate data which also depends on the spatial factor. Some of the preliminary study about exchange rate forecast excluded the spatial dependence on its analysis. In this study, GSTAR model and ARIMA model are applied to the data as the comparison analysis. By using both Queen Contiguity and Invers weighted matrix, the best GSTAR model can be chosen for then being compared with ARIMA model. Performance of the models is assessed with the performance criteria of root mean square error (RMSE), mean square error (MSE), and mean absolute percentage error (MAPE).

**Keywords:** Exchange Rate Forecasting, GSTAR Model, Queen Contiguity Weighted Matrix, Invers Weighted Matrix, ARIMA Model.

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Email: [Hasrulabdu@gmail.com](mailto:Hasrulabdu@gmail.com)

## Analysis of Factors Influencing Literacy Rate in the Countries with High, Moderate, and Low Literate Population Percentage (Case Study: African Countries)

**Hasrul Abdurahman<sup>1</sup>, Atsirudy Wibowo<sup>2\*</sup>, Okta Nindita Priambodo<sup>3</sup>**

<sup>1,2,3</sup> Bogor Agricultural University, Indonesia

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### Abstract

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This paper analyzed the factors contributing to literacy rate in some countries with high, moderate, and low literate population percentage. The countries which become the focus of this study are almost all of the African Countries as the variation of literate population percentage level of each country is varied. The study is conducted on some major factors contributing to literacy rate. The main variables used in the study are the percentage of literate population, the percentage of rural populations, average number of pupils per reading textbook in primary education, the amount of out-of-school children of primary school age, percentage of female teachers in primary education, government expenditure per primary student as percentage of GDP per capita, expenditure of education as percentage of total government expenditure, and the amount of graduates from tertiary education. The data used in this study is taken from UIS database and World Bank database. Correlation analysis and Multiple Linear Regression model with stepwise regression procedure are applied to see what factors are mostly affecting literacy rate and to find the best model for the variables. Biplot analysis is also utilized to see what factors of each country that is still lack of. The result of this study will show one best model with several selected factors which affects literacy rate the most and identify the lack factors of each country which then should be evaluated.

**Keywords:** Literacy Rate Factors, African Countries, Multiple Linear Regression, Correlation Analysis, Biplot Analysis.

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## Institutional Readiness on K to 12 Implementation: Emphasis on Commitment and Efficacy

**Marilyn F. Isip<sup>1\*</sup>, Sheryl Morales<sup>2</sup>, Larie Marie Bueno<sup>3</sup>**

<sup>1,2,3</sup> University of the Philippines, Philippines

### Abstract

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Implementation of K + 12 programs (Republic Act No. 10533-Enhanced Basic Education Act of 2013), is needed for the betterment of education. With the new 12-year curriculum in place, future Filipino students will be ready and better equipped to join overseas universities at the undergraduate level. Hence, this curriculum will give Filipino students enough time to master skills and concepts so that they are ready for tertiary education. In this study, selected teachers in San Jose Del Monte Cornerstone College, Inc. were interviewed using self made questionnaire. They were asked about the relationship of the dropout problem, the assurance that the K to 12 graduates will be employed, their perception about the additional teaching load and required National Certification due to the K to 12 program, the preparation of the teachers for the implementation of the program, the effectiveness of the program, and the readiness of the school for these changes in education. Based on the findings of the study, K to 12 program needs effective implementation, contingency plan and readiness of the school depends on the knowledgeable teachers, teaching tools and materials, facilities and classrooms and newly-developed curriculum. Furthermore, a provision of sufficient time for mastery of skills and concepts, develop lifelong learners and prepare graduates for tertiary education, middle-level skills development, employment and entrepreneurship.

**Keywords:** Commitment, Efficacy, Contingency Plan, Organizational Readiness Implementation

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## From Trash to Cash: A Polyethylene Terephthalate Project Recycles Strategem

**MIRA, Christopher C<sup>1\*</sup>, Abana, Jhoanne D<sup>2</sup>, Atienza, Lenet R.,  
Gonzales<sup>3</sup>, Cristine G, Saronias<sup>4</sup>, Noreen B<sup>5</sup>**

<sup>1,2,3,4,5</sup> Polytechnic University of the Philippines-Manila

### Abstract

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The Polyethylene Terephthalate or commonly called PET is one of the most commercially used type of plastic used as a container of purified water in the country. Since PET is not a biodegradable material, a reprocessing/recycling procedure shall be made to repulse the rapidly increasing wastes. This study aims to evaluate possibilities of transforming used PET bottles into other useful commercial products thru recycling. The project will help lessen wastes from the unprecedented disposal of this material in landfills. The output product will be achieved thru various production processes namely -- shredding, grinding, granulating, melting and moulding. The desired output will then undergo tests like strength/impact test and heat resistance test. The results will determine the suitable design for commercial production and utilization. Test results was evaluated and recommendations will be generated for the enhancement of the process, and increasing the designs of the output products

**Keywords:** utilization, commercial production, output products

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## Future Educators' Perceptions on Technology and Livelihood Education Status and Development of Work Skill

**Dr. Rovelina B. Jacolbia\***

University of the Philippines, Philippines

Abstract

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This study aimed to determine the Technology and Livelihood Education Program status and the development of students' work skills. The study made use of descriptive research of study. It involved 125 randomly selected second year and third year Bachelor in Business Teacher Education students of the Polytechnic University of the Philippines using the survey questionnaire as the major instrument in gathering the data. The mean average was used to describe the status of the TLE program in terms of curriculum content, instructional methods, faculty competence, and adequacy of facilities as well as the development of work skills and work attitudes of students. The Pearson Product Moment Correlation was used to determine the relationship of the TLE program to the development of students' work skills. The study revealed that the Status of Technology and Livelihood Education Program has a positively strong relationship with the Development of Work Skills.

**Keywords:** Status, Technology and Livelihood Education, Work Skills

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## Road accidents caused by sleepy drivers and Driver Behavior: A Case study in Riau Province Indonesia

**Fikri\***

Islamic University of Riau. Indonesia

Abstract

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To investigate the influences of driver Behavior and sleepiness in bus drivers on road accidents in Riau Province Indonesia. Information from various countries indicates that driver sleepiness plays an important role in road accidents. However, there is only limited information on this subject in Indonesia. Using a survey method and comparative study was carried out with 400 bus drivers who drive on Sumatra Highway of Riau Province Indonesia. The Data collecting using the, Driver Behaviour questionnaires, Sleep Hygiene Inventory and Road Accident Inventory. The data collected were analysis confirmatory factor analysis and Structural Equation Model (SEM) To determine the influence between variables the SEM test was used. The Three measuring tools in the measurement model applied in the study were tested using CFA while the compatibility of the road accident predictor hypothesis model with research data was tested using SEM. SEM findings showed that all predictors accounted for 25% of variance in road accidents. Sleepiness and driver behaviour by drivers directly influenced road accidents by ( $\beta = .28$ ), sleepiness ( $\beta = -.53$ ) and driving behaviour ( $\beta = .47$ ). Our results support the hypothesis that Driver behaviour and sleepiness among bus drivers are related to road accidents. The implication of this research on the Indonesian government is that it needs to implement stress management courses for aggressive drivers, modify sleeping behaviour and impose severe punishment for drivers with maladaptive driving behaviours.

**Keywords:** Sleepiness, Driver Behavior, Road Accident

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