

PROCEEDINGS

SETAS-2018

**Annual International Conference on Science
Management, Engineering Technology
and Applied Sciences**

**Venue: Osaka International Convention Center
Osaka, Japan
Date: February 27-28, 2018**



CONFERENCE BOOK OF ABSTRACT PROCEEDINGS

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Book of Abstracts Proceedings

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*Annual International Conference on Science
Management, Engineering Technology and Applied
Sciences (SETAS)*

Venue: Osaka International Convention Center, Japan

Conference Theme: Providing Platform for enhancement of research
and developmental activities through networking.

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CONFERENCE TRACKS

- Computer and Software Engineering
- Mechanical & Metallurgical Engineering
- Electrical & Electronics Engineering
- Civil Engineering
- Bio-Technology & Food Technology
- Chemistry & Chemical Engineering
- Physical, Applied and Life Sciences
- Interdisciplinary

CONFERENCE CHAIR MESSAGE

Michael Sasaoka

“International Conference of Consortium of Engineering & Technology” is a platform that thrives to support the worldwide scholarly community to analyze the role played by the multidisciplinary innovations for the betterment of human societies. It also encourages academicians, practitioners, scientists, and scholars from various disciplines to come together and share their ideas about how they can make all the disciplines interact in an innovative way and to sort out the way to minimize the effect of challenges faced by the society. All the research work presented in this conference is truly exceptional, promising, and effective. These researches are designed to target the challenges that are faced by various sub-domains of the social sciences and applied sciences.

I would like to thank our honorable scientific and review committee for giving their precious time to the review process covering the papers presented in this conference. I am also highly obliged to the participants for being a part of our efforts to promote knowledge sharing and learning. We as scholars make an integral part of the leading educated class of the society that is responsible for benefitting the society with their knowledge. Let’s get over all sorts of discrimination and take a look at the wider picture. Let’s work together for the welfare of humanity for making the world a harmonious place to live and making it flourish in every aspect. Stay blessed.

Thank you.

Michael Sasaoka

Conference Chair

Email: contact@consortium-et.com

CONFERENCE SECHDULE

Consortium-et-2018

Venue: Osaka International Convention Center

Time: Registration & Kit Distribution (09:00 am - 09:10 am)

Day: Tuesday

Date: February 27, 2018

Venue: Room 1 & Room 2

09:10 am - 09:20 am	Introduction of Participants
09:20 am - 09:30 am	Inauguration and Opening address
09:30 am - 09:40 am	Grand Networking Session

Tea/Coffee Break (09:40 am - 10:00 am)

DAY 01 (February 27, 2018)

Presentation Session (10:00 am 12:00 pm)

Venue: Room 1

Track A: Business, Economics, Social Sciences and Humanities

Presenter Name	Manuscript Title	Paper ID
Anchalee Kokanuch	Readiness of Trade Business and Border Trade Entrepreneurs to Green Economy: Thailand.	DTMSES-028-ANI104
Jaegun Lee	Sustainable Competitive Advantage of Korea Hidden Champion: A Dynamic Capabilities Perspective	DTMSES-028-ANI108
Hye-inYoo & Nayeon Kwak	A Study on the Analysis of Consumer's Willingness to Pay of Smart Meter Service in Electric Power Industry	DTMSES-028-ANI110 & 110C
Jin Woo Kim & Hyoun Ah Suk	A Study on Relationship between Driver's Characteristics and Vehicle Information Display Method: Homogeneity Analysis for Infotainment System	DTMSES-028-ANI113 & 113C
Daye Kim	A Study of Viewing Motivation on Personal Broadcasting Service: Focusing on AfreecaTV	DTMSES-028-ANI114
Taesang Park	Analysis of the Factors Influencing Purchase Intention of Smart Mobility:A Mixed Methods Approach	DTMSES-028-ANI115
Hyunbo Shin	Online Review Factors Affecting Usability Evaluation: Focusing on FCB Grid Model	DTMSES-028-ANI112
Mani Ram Sharma & Rajendra Gharti & Bhim Kumari Gurung & Kale Pun & Ramesh Budha Magar	Rites and Rituals of Rautes in Nepal	DTMSES-028-ANI109,109C,109C2, 109C3 & 109C4
Hyunjoo Lee	The Structural Relationships between Adolescents Parental Attachment,Emotional Regulation, and Life Satisfaction : Comparison of 5th grade and 8th Grade Panels	HESS-FEB-134
Sungwook Jang, Jakyoun Kim & Jungwon Shin	A Study on the Factors Affecting the Intention to Work of Unemployed Persons with Disabilities	HESS-FEB-136

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

DAY 01 (February 27, 2018)

First Presentation Session (10:00 am 12:00 pm)

Venue: Room 2

Session Chair: Dr. Chairit Thongrawd

Track A: Business, Social Sciences and Management Studies

Presenter Name	Manuscript Title	Paper ID
Mrs. Narachanok Kongtonglang	Student Affairs Administrative Strategies of Secondary School in Thailand	HESS-FEB-102
Mrs. Nopharat Inphan	A Development Model of Studentsdesirable Characteristics: A Case Study of Primary Schools in Thailand	HESS-FEB-103
Mrs. Jadsadaporn Chiadphrommarat	Development of Educational Quality Assurance of Educational Institutions:Case Study of Primary Schools in Thailand	HESS-FEB-104
Dr. Chaturong Thanaseelangun	A Participatory Active Learning Integration Development for the Faculty of Education Student:Rajabhat University of Thailand Case Study	HESS-FEB-105
Saranyu Deeyangway	A Development of Student Affairs Administration : A Case Study of the Secondary Education Schools in Thailand	HESS-FEB-106
Somboon Junmusik	Good Governance of Nonthaburi City Municipality, Nonthaburi Province	HESS-FEB-109
Jun Haunsanthia	Service Effectiveness of Nong Prue Town Municipality, Chonburi Province	HESS-FEB-110
Yongyut Jansiri	Well-being of People in Laemchabang City Municipality Chonburi Province	HESS-FEB-111
Juthinart Nakson	Happiness at Work of Employee in Sattahip Town Municipality Chonburi Province	HESS-FEB-112

Lunch Break: (12:00 to 01:00 pm)

DAY 01 (February 27, 2018)

Presentation Session (01:00 pm 03:00 pm)

Venue: Room 1

Track A: Engineering and Technology, Computer, Basics and Applied Sciences

Presenter Name	Manuscript Title	Paper ID
Hee Cheol Kim	Fabrication of Poly (-Glutamic Acid)/Chitosan Oligomer Polyelectrolyte Complex Nanofibrous Web by Electrospinning	SETAS-FEB18-110
Ji Youn Shin	Effect of Vitamin Derivatives on the Thermo-Gelation Behavior of Methylcellulose	SETAS-FEB18-111
Min-Ho Song	Effect of Palladium Cocatalyst on the Properties of Pt-loaded GDE	SETAS-FEB18-112
Jae-Young Lee	Characteristics of Pt-Pd Nanocatalyst/Nafion Membrane Prepared in a Nucleophilic Solvents	SETAS-FEB18-113
Minha Choi & Jaehwan Jeong	Assessment of Land Surface Model with Hydro-Meteorological Variables at Flat Terrain	SETAS-FEB18-114C1 &C2
Haider Ali, Cheol Woo Park & Kyung Won Kim	Optimizing Ways of Raceway Ponds to Improve Microalgal Growth	SETAS-FEB18-121, SETAS-FEB18-121C1 & SETAS-FEB18-121C2
Ms Danbi Lee	Fault Location based on the Transmission Line Model Using the Distributed Parameter	SETAS-FEB18-115
Pingkan S. Pioh	Modeling for Minimal Distance and Optimal Circulation in Urban Design	SETAS-FEB18-116
Joongcheol Paik	Three-Dimensional Numerical Modeling Of Scour In A Long Contraction	OSA-528-102E

Ending Note: (03:00 to 03:30 pm)

DAY 01 (February 27, 2018)

Presentation Session (01:00 pm 03:00 pm)

Venue: Room 2

Session Chair: Dr. Chairit Thongrawd

Track A: Business, Economics, Social Sciences and Humanities

Presenter Name	Manuscript Title	Paper ID
Wanida Madlee	Administration of Disaster Prevention and Mitigation of Bang Bua Thong Town Municipality Nonthaburi Province	HESS-FEB-114
Dawratchada Pa-keechai	Personnel Administration of Chaoprayasurasak City Municipality Chonburi Province	HESS-FEB-115
SurasakPannak	Quality Development of Work Life of Personnel in Office of Permanent	Secretary for Defence & HESS-FEB-120
Rattiya Ngernthuam	The Personnels Attitude Towards Personnel Management in the Office of Amphoe Mueang Rayong, Rayong Province	HESS-FEB-121
Wiranchana Wran- charee	Quality in Elderly Person Social Welfare of NonthaburiDistrict Municipality Nonthaburicity,Nonthaburi Province	HESS-FEB-125
Apinya Watanaso- ponwong	The Management Project Relieving the Suffering of the Dissolution a Smile of Bang Bua Thong Sabdistrict Municipality, Nonthaburi Province	HESS-FEB-126
Chai Chaemchoy	Effectiveness of Personnel in Nonthaburi Municipality, Nonthaburi Province	HESS-FEB-127
Sivakarn Masantea	Development Process Transformational Leadership of the Executives Chonburi Provincial Administrative Organization	HESS-FEB-122
Kandis Bhanidch	Effect of Bang Bua Thong District Drug Prevention Policy	HESS-FEB-124
Nikorn Narunchon	Peoples Satisfaction Affected on Leadership of the Local Administrators in Bang Bua Thong Subdistrict Administrative Organization, Bang Bua Thong District, Nonthaburi Province	HESS-FEB-129
Sittipong Pornpong- paisan	Opinion to Narcotics Spread Prevention Measurement of People in Nonthaburi Municipality , Nonthaburi Province	HESS-FEB-131

Ending Note: (03:00 to 03:30 pm)

Participants Registered as Listener/Observer

The following Scholars/ practitioners who don't have any paper presentation, however they will attending the conference as delegates & observers.

Official ID: SETAS-FEB18-119

Cheong-hwan Lee
Youngnam University, Korea

Official ID: OSA-528-101A

Yong Park
Lambert Radiology Medical Group, PIHHEALTH Downey Hospital USA

Conference Day 02 (February 28, 2018)

Second day of conference will be specified for touristy. Relevant expenses are borne by Individual him/herself.



*Annual International Conference on Science Management
Engineering Technology and Applied Sciences
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Osaka, Japan*

TRACK A

***BUSINESS, ECONOMICS, SOCIAL SCIENCES AND
HUMANITIES***



Readiness of Trade Business and Border Trade Entrepreneurs to Green Economy: Thailand

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Keywords: Border Trade, Entrepreneurs, Green Economy

The main purposes of this research were to study the readiness of business to enter into green economy. The research was carried out by surveying potentials of SMEs trade business and border trade in the Upper - Northeastern cluster of Thailand, and to study the needs of consumers on environmental friendliness. The research methodology was done by the mixed method research and the convergent design from SMEs entrepreneurs group and consumers group of trade business and border trade. The instruments used for collecting data included the survey via personal interview and questionnaires. The research results revealed that most of the trade business and border trade had business potentials in terms of management, logistics, finance, and marketing at a good level as well as the consumers needed the eco-friendly products. Therefore, the research results as overall image can be reflected that the trade business and border trade cluster is ready to enter into green economy. Meanwhile, the public relations in terms of letting the consumers realize the significance of eco-friendly products is the crucial point which should be managed seriously and consistently by the business.

Sustainable Competitive Advantage of Korea Hidden Champion: A Dynamic Capabilities Perspective

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Keywords: Korean Hidden Champion, Sustainable Competitive Advantage, Dynamic capability, SME, Microfoundation

This research has its purpose in organizing and suggesting the process of acquiring and maintaining competitive advantage of firms in dynamic environments based on the case study of JVM, a hidden champion in the field of Korean ATDPS industry. The framework of dynamic capability has significance in explaining the source of sustainable competitive advantage of firms and in deciding the success or failure of firms in dynamic environments. Therefore, this research hopes to analyze the case of JVM forming an outstanding position in the market by successfully adjusting to the dynamic business environment from the perspective of dynamic capabilities to advance the understanding of dynamic capability. A summary of this research is as follows: Firstly, sensing capability contributes detecting new opportunities. Secondly, seizing capability could be achieved through aggressive investment of firm, and contributes to securing competitive advantage. Thirdly, reconfiguration capability contributes to the retainability of firm. This research investigates the relationship between dynamic capability and sustain of competitive advantage having difficulty in empirical study due to the ambiguity of the concept through case study to suggest how dynamic capability deducts and retains sustainable competitive advantage.

Rites and Rituals of Raute Nepal

^{1*}Mani Ram Sharma,²Rajendra Gharti,

³Bhim Kumari Gurung,⁴Kale Pun

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Keywords: Hunting, Distribution, Resources

Nepal is indeed a multi religious, multi- ethnic and multi- lingual country. Most of the communities are nuisance, backward and subsidiary in the country by dint of unequal distribution of natural resources. At least 20 billion people have been living their low level life style (Boodle 1988). Kabilia, caste and indigenous communities are kept under this category. The life of these people is committed in hunting and nomadic activities. As we know that the development process of society has various speed and shapes which resembles the unity in diversity. The process of emerging powerful countries, system of imperialistic practice, population growth and its effect in natural resources, scientific inventions and miracles in communication are the challenges for the nomadic people (Rautes) in the country. The debates have been started, who are Rautes? What do they need? Why are the people messaging wrong issues about them? Why are Rautes famous among other groups? Late Prithvi Narayan Shah stated Nepal is the public garden of four castes and thirty six sub- castes'. Yes! There are many social groups that have been source of revenue from the very beginning. Raute caste is one of them, historically found in mid and far- western regions Terai of Nepal, Known as wandering caste in Asia.

A Study on the Analysis of Consumer's Willingness to Pay of Smart Meter Service in Electric Power Industry

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Keywords: Smart Grid, Contingent Valuation Method, Smart Meter Service, Willingness to Pay(WTP), Electric Power Industry

In the traditional electric power industry, consumers have been a role of using electricity, and they have not been recognized as stakeholders holding influences over the electric power industry. When it comes to researches also, particularly regarding Smart Grid, most researches have more focus on policies from power suppliers view. However, consumers have become one of active participants who have been not only using electricity but also producing power in electricity industry since electricity distribution system have been transformed to smart grid, which the power transmission system was changed to bidirection from one-way mode by power plant. Smart grid generally refers to digital technology that allows for two-way communication between the utility and its customers, and the sensing along the transmission lines is what makes the grid smart. A smart grid includes a variety of operational and energy measures by smart meters, smart appliances, renewable energy resources, and energy efficient resources. It offers many benefits to utilities and consumers, mostly seen in big improvement in distribution of electricity aspects. This research is to identify key factors affecting perceived values by consumers through analyzing the smart grid from consumer perspectives. To achieve the purpose of the research, Smart Meter Service (Power Planner) have been analyzed because it provides consumers with understandable and measurable information about electricity in shape of mobile app and web service in the portal. In particular, CVM(Contingent Valuation Method) was adopted as research methodology, and we implemented a survey of electricity consumers.

A Study on Relationship between Driver's Characteristics and Vehicle Information Display Method: Homogeneity Analysis for Infortainment System

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Keywords: User Interface, Method of Information Display, Vehicle, Driving Experience, Presence of Passengers

The field of automobile technology is developing in the direction of technology that incorporates state-of-the-art functions and advanced driving technology with information technology. Though attempts are being made to provide helpful information to the driver in various ways, the process of designing methods to deliver information to the driver without interfering with the driving process itself is becoming a significant issue in the automotive industry. The information display method provided by the vehicle in the HUD layout is not only limited to simple text and voice methods, but also extends to include the usage of augmented reality technology. Therefore, this study examined if there were any differences in the choice of vehicle information display method based on drivers driving experiences and whether there were passengers riding aboard the car. Results of tests showed that factors such as drivers experiences and the presence of passengers affected the preferred choices of HUD display methods. The study showed that there is a need for the engineering of an interface system to establish a user specific presentation method for future development of connected cars.

A Study of Viewing Motivation on Personal Broadcasting Service: Focusing on AfreecaTV

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Keywords: Afreeca TV, Personal Broadcasting, Continuous Use, Viewing Motivation

This study investigates the influences of viewing motivation and social viewing on continued use and willingness to pay in AfreecaTV, an internet broadcasting service in South Korea. For this purpose, focus group interview was conducted to find out factors of viewing motivation. Four viewing motivations were identified: swearing and vulgar words; violence; sexuality; gambling; and vicarious satisfaction. A survey was carried out for eight days. In the model using structural equation, the result of this study can be summarised as follows: First, all of the ten variables selected as viewing motivation did not significantly affect the amount of viewing. Given that the effects of the variables identified in the previous researches showed different results in this study, the results highlight the fact that only parasocial interaction, indicating the intimacy of the viewers to broadcasters, is a critical factor for the higher level of satisfaction.

Analysis of the Factors Influencing Purchase Intention of Smart Mobility: A Mixed Methods Approach

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Keywords: Mental Accounting Theory, Topic modeling, Eco-friendliness, Social Infrastructure

In recent years, smart mobility that has been converged with IT technology in the field of transportation has been rapidly spreading. In particular, smart mobility of personal mobility is used not only as a leisure activity but as a means of commuting to work, and it is emerging as a next-generation mobile means of solving environmental problems using eco-friendly raw materials. Despite the proliferation of smart mobility, however, research on this issue has not been actively pursued. Therefore, in this study, we first examined the unique characteristics of smart mobility by applying topic modeling, which is one of the text mining techniques, with the collected data through articles and tweeter. Secondly, we investigated how the characteristics of smart mobility, which are found through topic modeling, influence consumers' purchase intention. Unlike previous research focused on the technical and design elements of smart mobility, this study examines the characteristics of smart mobility through the theory of mental-accounting and examines how the characteristics affect the purchase intention. In addition, it is meaningful that we explored the factors through text mining and proceeded quantitative research based on the found factors.

Online Review Factors Affecting Usability Evaluation: Focusing on FCB Grid Model

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Keywords: Online Review, FCB Grid Model, Purchase Decision, Online Market, Data Analysis, Data Mining

Due to the rapid development of IT, nowadays most commodity transactions are being done online. Commodity deals help reduce costs such as price and time since it is easier to compare and find cheaper products and there is no need to go to the store in person. However, since consumers do not buy products directly in the store, consumers need to acquire and choose various information in order to make smart purchasing decisions. In order to obtain such information about the products that consumers want to buy, the first information they receive is the reviews of the products written by whom already bought the product and consumers tend to put efforts in reading a large number of reviews. Therefore, this study constructs a usability evaluation model of reviews by grasping the nature of useful reviews that can provide useful information to consumers according to the nature of the products. Using data from Amazon.com, a global online marketplace, it is found that reviews with similar characteristics to products based on FCB grids received ratings from consumers for review. This study suggests that this study may help consumers to make smart decision when it comes to purchasing products in online market and to select useful reviews that can understand and complement consumers' thoughts about the merchandise.

Student Affairs Administrative Strategies of Secondary School in Thailand

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Keywords: Student Affair, Administration, Strategies, Secondary School

The purposes of this study were 1) to examine the general conditions and the problems of administration of student affairs of secondary school in Thailand, 2) to study the student affairs administrative process in the successful school, and 3) to develop student affairs administrative strategies of secondary school in Thailand. According to the present our world is a globalization that move ahead on information, technology and everything had changed rapidly. So the schools in Thailand were focus on intelligence, knowledge, and moral. School had to responsible for youth who were materials to develop the country. Therefore, the school must prepare students to confront with Thai society especially activity about students apart from academic was student affairs. The student affairs is important for educational administration. Many schools in Thailand were confront with many points of problems and obstacles about student affairs administration. The instruments used for data collection were focus group discussion record form, student affairs administration interviewing form, five Likerts type questionnaires. Various statistical methods were used for analyzing the data,including percentage, mean, standard deviation, summary and content analysis. The results of this research were that student affairs administration of secondary schools in Thailand was promoted to develop 4 tasks as follows student assistance system, preventing and solving drug problems, moral ethics promotion, and democracy in school promotion. The secondary school is necessary to find a way to conduct student affairs so that students can develop their quality in accordance with the curriculum.Strategic was the operating characteristics to move on the student affair base on participatory administration. And mechanism was the project in accord with the student affair scope that can be practice in school and defining in action plan. The strategic assessment results were student affairs administrative strategies revealed that the suitability was in the high level, the possibility and feasibility was in the high level. According the strategies the school where arrange basic education become aware of the student affair important student quality development to set strategies and plan clearly to lead to develop the fullest of students quality to potential. The relevant appropriate context of Thai society.

A Development Model of Students desirable Characteristics: A Case Study of Primary Schools in Thailand

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Keywords: Model, Students desirable Characteristics, Guidelines, Thai Students

The purposes of this study were to study the studentsdesirable characteristics in the Thai society context. To study the guidelines to promote the Thai students desirable characteristics. To develop and evaluate the development model of studentsdesirable characteristics of Thai students. This research shows the studentsdesirable characteristics of Thai students. To get a way to promote the studentsdesirable characteristics and to get a development model of studentsdesirable characteristics. The research areas include: The primary school. The target group for the data collection was: academic, university lecturer, school director, supervisors, teachers who responsible for the job about morality and ethics, administrators, teachers, and the basic school commission and student parent representatives. Data were collected manually by semi-structured interview, group discussion, and study the document. There were three stages of the study: Phase 1 Studying the studentsdesirable characteristics in The basic education core curriculum B.E. 2551. The researcher studied the studentsdesirable characteristics 8 kinds were that 1) love country, Religion, and king 2) Honesty 3) Discipline. 4) learning 5) Sufficient 6) Commitment to work 7) love Thai traditional and 8) Have a public mind. Phase 2 Studying the guidelines to promote the Thai students desirable characteristics. Phase 3 Creating and Evaluating the development model of studentsdesirable characteristics: a case study of primary schools in Thailand The results of this research were that 1. The desirable characteristics of Thai students that should be developed including 1) love country, Religion, and king 2) Honesty 3) Discipline. 4) learning 5) Sufficient 6) Commitment to work 7) love Thai traditional and 8) Have a public mind. The guidelines to promote the Thai students desirable characteristics including integration of learning activities at the classroom both in the school level and collaborated to promote desirable characteristics by participating between home, temple, school, and related department. This was a great way to live and enhancing good attitude for the direct experience of learners. The model assessment results were revealed that suitability and possibility were in the highest level. Therefore, it should be applied to adapt and expand the results at the national level.

Development of Educational Quality Assurance of Educational Institutions: Case Study of primary schools in Thailand

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Keywords: Development Model, Educational Quality Assurance, Primary School

The purposes of this research were 1) To study the components of educational quality assurance. 2) To study the development of educational quality assurance and 3) to construct and evaluate the development model of educational quality assurance in primary schools. The sample was the primary schools in Thailand. The research method consists of 3 phases. Stage 1: To study the elements of quality assurance activities by studying the documents, concepts, theories and research for analyzing the elements and important of educational quality assurance. The researcher had the components of educational quality assurance consisted of 8 aspects according to the framework of the ministerial regulation on the principles and methods of educational quality assurance B.E.2553 as follows: 1) Establishment of educational standards of educational institutions. 2) The development plan for educational management of the school. 3) The management and information system. 4) The implementation of the development plan. 5) The follow up of educational quality. 6) The educational internal quality assurance of the school. 7) Preparation of the annual internal quality assessment report and 8) Continuous improvement of the educational quality. Stage 2: Study the educational quality assurance guideline of school with excellent educational quality assurance performance. The data was used as a guideline for developing of educational quality assurance in primary schools in Thailand. The quality assurance operators in primary schools in Thailand were purposively sampled. They were educational school administrators, teachers, educators of the school with excellent educational quality assurance performance. The instrument used was a semistructured interview. The model assessment results of the experts revealed that the suitability and possibility of a model of educational quality assurance in primary schools in Thailand was in the high level. Therefore, educational institutions or educational institutions with similar contexts can apply the research-applied models to develop quality assurance systems and assign to be the strategy for the next operation.

A Participatory Active Learning Integration Development for The Faculty of Education Students: Rajabhat University of Thailand case study

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Keywords: Learning Activity Development, Integration, Participation, Guideline For Learning Enrichment

The purposes of this research are to develop participatory active learning activities in the classroom, to study the results of participatory active learning activities, and to study the ways of promoting participatory integrated active learning in the classroom of the university students in Thailand. Thailand plays an important role in the production of teachers, focusing on educational management for the development of professional teachers to meet the professional standards of the Teachers Council. The target is a specific type, the first year students in social studies were 50 students who had enrolled in Teacher Actualization subject in the first semester of academic year 2016. The research instrument were learning activity plan (thes 3) was designed to be a 12-hour learning activity divided into 3 research cycles of 4 times per 4 hours, Achievement test, Assessing Learning Skills, and the satisfaction questionnaire in learning activities, and the record reflects the results of activities to determine the development of learning. The research found that integrated active learning activities were defined as activities based on the concept, engaging process, group process or teamwork., and self-cognition based on the philosophy of evolution. The emphasis is on case studies, brainstorming to share knowledge and create common knowledge, presentation in front the class, fulfilling and linking ideas to knowledge by instructors. Steps to Knowledge, it fuses ideas and synthesizes knowledge, or key points of learning, and collaborates. Focus on leading questions in classifying issues and explaining allow students to self-summarize their knowledge. In line with the 21st century learning management concept. The achievement of the study was found that 43 students from 50 persons, or 86%, exceeded the criteria of 80% of the total. The results reflect the success of the learning activity design, exotic and challenging affects attention, including enthusiasm for learning and joint activities. Group activities or activities will affect the enthusiasm active and the ability to work with others well. It can be applied in the design of creative learning activities in the future. It can also be developed as a participatory active teaching style that is unique in the context of Thai society and sustainable learning further.

A Development of Student Affairs Administration: A Case Study of the Secondary Education Schools in Thailand

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Keywords: Lectric Thin Film, Future Electron Devices

Dielectric Thin film is a kind of film which is especially for future electron devices, Under the base of Science and Technology a dielectric thin film makes a great change amongst the electron devices. For instance any kind of micro change will be appropriate as well as suitable for sustainable in micro-electron devices. Today micro electron stands for the modern change also. All the Electron are related to the planet earth conphasizes on super kind of changes. Therefore, the people of Bangladesh also trying to reach the goal. This will work as a guiding manual for them and the basis of more advance research in the filed of electron devices. So it has to face the Challenges and find ways in the field of electron field to make all the oppose and thus go ahead the way to the sustainable dielectric thin film development

Good Governance of Nonthaburi City Municipality, Nonthaburi Province

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Keywords: Good Governance, City Municipality, Province

This research aimed to 1) study the good governance of Nonthaburi city municipality, Nonthaburi province, and 2) suggest the guideline of the good governance of Nonthaburi city municipality, Nonthaburi province. This research was the quantitative research. The sample size of 400 people with accidental sampling was drawn from people who have lived in Nonthaburi city municipality, Nonthaburi province. The questionnaire was used as the research tool. Data were analyzed by various statistical methods including frequency, percentage, mean and standard deviation. The research results of the good governance of Nonthaburi city municipality, Nonthaburi province showed that 1) peoples opinions towards the good governance of Nonthaburi city municipality, Nonthaburi province overall were rated at fair level (= 2.94). When considered in each aspect found that peoples opinions towards the good governance of Nonthaburi city municipality in the morality aspect was at fair level (= 3.26), following by accountability aspect (= 3.17), cost effectiveness or economy aspect (= 3.04), responsibility aspect (= 2.77), rule of law aspect (= 2.68), and participation aspect (= 2.63), respectively. For the suggestion of this research the municipal administrators should offer the opportunity for local people to present their needs, make the decisions for problem solving, and set the policies plans and activities. In addition, the municipal administrators should provide the local people to participate in the community development master plan for the communitys three year development plan in each year.

Service Effectiveness of Nong Prue Town Municipality, Chonburi Province

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Keywords: Effectiveness, Administration, Town Municipality

This research aimed to 1) study the service effectiveness of Nong Prue town municipality, Chonburi province, and 2) suggest for further development in the service effectiveness of Nong Prue town municipality, Chonburi province. This research was the quantitative research. The sample size of 368 people was drawn from people who lived in Nong Prue town municipality. The questionnaire was used as the research tool. Data were analyzed by various statistical methods including frequency, percentage, mean and standard deviation. The research results showed that 1) peoples opinions towards the service effectiveness of Nong Prue town municipality, Chonburi province overall were rated at good level (=4.32). When considered in each aspect found that peoples opinions towards the service effectiveness of Nong Prue town municipality, Chonburi province in the infrastructure aspect was at excellent level (=4.59), following by quality of life promotion aspect was at excellent level (=4.55), organizing community / society aspect was at good level (=4.21), art culture tradition and local wisdom aspect was at good level (=4.18), and conservation of natural resources and environment aspect was at good level (=4.05), respectively. 2) The suggestion for further development in the service effectiveness of Nong Prue town municipality, Chonburi province which is the municipal administrators should have the refuse disposal system, the wastewater treatment before returning to the water cycle, maintain clean public places such as fitness facilities at the parks, waste recycling training, and the campaign to raise public awareness of participation and responsibility for conservation and restoration of natural resources and the environment.

Well-being of People in Laemchabang City Municipality Chonburi Province

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Keywords: Well-Being, People, City Municipality

This research aimed to 1) study the well-being of people in Laemchabang city municipality, Chonburi province, and 2) suggest for the further development in the well-being of people in Laemchabang city municipality, Chonburi province. This research was the quantitative research. The sample size of 396 people was drawn from people who have lived in Laemchabang city municipality, Chonburi province. The questionnaire was used as the research tool. Data were analyzed by various statistical methods including frequency, percentage, mean and standard deviation. The research results of the well-being of people in Laemchabang city municipality, Chonburi province showed that 1) peoples opinions towards the well-being of people in Laemchabang city municipality, Chonburi province overall were rated at good level (=3.96). When considered in each aspect found that peoples opinions towards the well-being of people in Laemchabang city municipality, Chonburi province in income and income distribution was at good level (= 4.44), following by health aspect (= 4.06), work aspect (= 3.97), family aspect (=3.94), environment aspect (= 3.88), good governance aspect (= 3.75), and knowledge aspect (= 3.70), respectively. 2) The suggestion for the further development in the well-being of people in Laemchabang city municipality, Chonburi province which is the administrators of Laemchabang city municipality should promote the knowledge aspect by giving the opportunity for people to receive compulsory and higher education, promoting field trips in order to create learning resources, and encouraging people to be able to read and write.

Happiness at Work of Employee in Sattahip Town Municipality Chonburi Province

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Keywords: Happiness, Employees, Town Municipality

This research aimed to 1) study the happiness at work of employee in Sattahip town municipality, Chonburi province, and 2) provide guidance on how to create the happiness at work of employee in Sattahip town municipality, Chonburi province. This research was the quantitative research. The sample size of 108 people was drawn from employees in Sattahip town municipality, Chonburi province. The questionnaire was used as the research tool. Data were analyzed by various statistical methods including frequency, percentage, mean and standard deviation. The research results of the happiness at work of employee in Sattahip town municipality, Chonburi province found that 1) employees opinions towards the happiness at work overall were rated at good level (= 4.14). When considered in each aspect found that employees opinions towards the happiness at work in job inspiration aspect was at good level (=4.70), following by friendship aspect was at good level (= 4.49), organizations shared values aspect was at good level (= 4.31), quality of work life was at good level (=3.73), and leaderships aspect was at fair level (=3.47), respectively. 2) For the suggestion to create the happiness at work of employees, the administrators of Sattahip town municipality should play the important role for building and developing a team or department to motivating employees to work by stimulating their subconscious to work enthusiastically, and realizing on the vision, mission and values of the organization.

Optimal Use of Alternative Energy to Reduce Costs

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Keywords: Effectiveness, Administration, City Municipality

The purposes of this research were: 1) to study the administration effectiveness of Nonthaburi city municipality, Nonthaburi province, and 2) suggest the ways to improve administration of Nonthaburi city municipality, Nonthaburi province. This research was the quantitative research. The sample size of 400 people with stratified sampling was drawn from people who lived in Nonthaburi city municipality. The questionnaire was used as the research tool. Data were analyzed by various statistical methods including frequency, percentage, mean and standard deviation. The research results of the administration effectiveness of Nonthaburi city municipality, Nonthaburi province showed that 1) peoples opinions towards the administration effectiveness of Nonthaburi city municipality overall were rated at good level (= 4.32). When considered in each aspect found that peoples opinions towards the administration effectiveness of Nonthaburi city municipality in infrastructure aspect was at excellent level (=4.59), following by quality of life promotion aspect was at excellent level (=4.55), organizing community / society aspect was at good level (=4.21), art culture tradition and local wisdom aspect was at good level (=4.18), and conservation of natural resources and environment aspect was at good level (=4.05), respectively. 2) The suggestion for further development in the administration effectiveness of Nonthaburi city municipality, Nonthaburi province which is the municipal administrators should have the refuse disposal system, the wastewater treatment before returning to the water cycle, maintain clean public places such as fitness facilities at the parks, waste recycling training, and the campaign to raise public awareness of participation and responsibility for conservation and restoration of natural resources and the environment.

Administration of Disaster Prevention and Mitigation of Bang Bua Thong Town Municipality Nonthaburi Province

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Keywords: Administration, Disaster Prevention and Mitigation, Town Municipality

The purposes of this research were: 1) to study the administration of disaster prevention and mitigation of Bang Bua Thong town municipality, Nonthaburi province, and 2) suggest for the further development in the administration of disaster prevention and mitigation of Bang Bua Thong town municipality, Nonthaburi province. This research was the quantitative research. The population of this research consisted of 78 people who involved in the disaster prevention and mitigation of Bang Bua Thong town municipality, Nonthaburi province. The questionnaire was used as the research tool. Data were analyzed by various statistical methods including frequency, percentage, mean and standard deviation. The research results of the administration of disaster prevention and mitigation of Bang Bua Thong town municipality, Nonthaburi province showed that 1) people who have worked in the disaster prevention and mitigation of Bang Bua Thong town municipality toward the administration of disaster prevention and mitigation overall were rated at good level ($= 3.72$). When considered in each aspect found that peoples opinions toward the administration in personnel aspect was at good level ($= 3.83$), following by budget aspect, management aspect ($= 3.72$), and material aspect ($= 3.63$), respectively. 2) For the suggestion of Bang Bua Thong town municipality, the administrators should develop the administration of disaster prevention and mitigation of Bang Bua Thong town municipality in material aspect by providing a badge, a board, or a manual to show how to use the equipment, materials, and maintenance. There is a suitable material storage facility. There are sufficient number of materials available and ready to use. The materials must be modern and effective for the operation.

Personnel Administration of Chaoprayasurasak City Municipality Chonburi Province

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Keywords: Personnel Administration, Personnel Recruitment, City Municipality

The purposes of this research were: 1) to study the personnel administration of Chaoprayasurasak city municipality, Chonburi province, and 2) suggest for further development in the personnel administration of Chaoprayasurasak city municipality, Chonburi province. This research was the quantitative research. The population of this research consisted of 112 people who worked at Chaoprayasurasak city municipality, Chonburi province. The questionnaire was used as the research tool. Data were analyzed by various statistical methods including frequency, percentage, mean and standard deviation. The research results of the personnel administration of Chaoprayasurasak city municipality, Chonburi province showed that 1) peoples opinions towards the personnel administration of Chaoprayasurasak city municipality overall were rated at good level (= 3.78). When considered in each aspect found that peoples opinions towards the personnel administration of Chaoprayasurasak city municipality in personnel termination procedure aspect was at good level (= 3.84), following by personnel development aspect (= 3.78), personnel maintenance aspect (= 3.76), and personnel recruitment aspect (= 3.75), respectively. 2) For the suggestion of this research, the administrator of Chaoprayasurasak city municipality should develop the personnel recruitment aspect by making a staffing framework consistent with the position. The recruitment process should be effective. The staffing meet the qualification and department needs, and the job placement is in accordance with the rule. Moreover, the moral principles should be used in the recruitment process.

Strategic Management of Pattaya City, Chonburi Province

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Keywords: Strategic Management, Pattaya City, Province

The purposes of this research were: 1) to study the strategic management of Pattaya city, Chonburi province, and 2) suggest for further development in the Strategic management of Pattaya city, Chonburi province. This research was the quantitative research. The sampling size of this research consisted of 343 people who were the government employees, staffs and employees in Pattaya city, Chonburi province. The questionnaire was used as the research tool. Data were analyzed by various statistical methods including frequency, percentage, mean and standard deviation. The research results of the strategic management of Pattaya city, Chonburi province found that 1) peoples opinions towards the strategic management of Pattaya city, Chonburi province overall were rated at good level (= 3.84). When considered in each aspect found that peoples opinions towards the strategic management of Pattaya city in situational analysis aspect was at good level (= 3.95), following by strategic assessment aspect (= 3.90), strategic formulation aspect (= 3.84), and strategic implementation (= 3.68), respectively. 2) For the suggestion of strategic management of Pattaya city, the administrator of Pattaya city should promote strategic implementation by managing the main and supporting roles of department structure to drive the strategy achievement, distributing the mission of the department to the executive and staff at all levels to take seriously, and distributing the development strategy to the executive and staff at all levels to understand and follow the same direction.

Public Service Quality of Technicians of Sattahip Town Municipality Chonburi province

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Keywords: Quality, Public Service, Technicians

The purposes of this research were: 1) to study the public services quality of technicians of Sattahip town municipality, Chonburi province, and 2) suggest for further development in the public service quality of technicians of Sattahip town municipality, Chonburi province. This research was the quantitative research. The sampling size of this research consisted of 390 people who lived in Sattahip town municipality, Chonburi province. The questionnaire was used as the research tool. Data were analyzed by various statistical methods including frequency, percentage, mean and standard deviation. The research results of the public services quality of technician of Sattahip town municipality, Chonburi province found that 1) peoples opinion toward the public service quality of technicians of Sattahip town municipality, Chonburi province overall were rated at good level (= 3.65). When considered in each aspect found that peoples opinions towards the public service quality of technicians of Sattahip town municipality in access aspect was at good level (= 4.20), following by ability aspect, and integrity aspect (= 3.86), friendship aspect was at good level (= 3.51), responsiveness aspect was at fair level (= 3.39), equity aspect was at fair level (= 3.36), respectively. 2) For the suggestion for the further improvement of the public service quality of stack technician, it should be equal to serving people the same without discrimination, and work with the fairness The service process must be ordered before and after with equality.

Budget Management of Subdistrict Administrative Organization in Bangbuathong District, Nonthaburi Province

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Keywords: Budget Management, Subdistrict Administrative Organization, District

This research aimed to 1) study the budget management of subdistrict administrative organization in Bangbuathong district, Nonthaburi province, and 2) suggest for the budget management of subdistrict administrative organization in Bangbuathong district, Nonthaburi province. This research was the quantitative research. The sample size of 156 people was drawn from people who have worked on budgeting department at subdistrict administrative organization in Bangbuathong district, Nonthaburi province. The questionnaire was used as the research tool. Data were analyzed by various statistical methods including frequency, percentage, mean and standard deviation. The research results of the budget management of subdistrict administrative organization in Bangbuathong district, Nonthaburi province showed that 1) the employees opinions towards the budget management of subdistrict administrative organization in Bangbuathong district, Nonthaburi province overall were rated at fair level (= 2.58). When considered in each aspect found that employees opinions towards the budget management of subdistrict administrative organization in Bangbuathong district, Nonthaburi province in budget execution was at fair level (= 2.77), following by budget adoption aspect (= 2.61), budget preparation aspect (= 2.49), and budget controlling aspect (= 2.45), respectively. 2) For the suggestion of the budget management of subdistrict administrative organization in Bangbuathong district, it should emphasize the employees to participate for controlling, and monitoring the use of public and private budgets. They must be cautious in controlling and verifying a proof of receipt-pay the budget. Officials should be responsible for regulating the regulatory budget.

The Personnels Attitude towards Personnel Management in the Office of Amphoe Mueang Rayong, Rayong Province

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Keywords: Attitude, Personnel, Personnel Management

The research titled The Personnels Attitude towards Personnel Management in the Office of Amphoe Mueang Rayong, Rayong Province aimed at the examination of civil servants attitude level towards personnel management of the Office of Amphoe Mueang Rayong, Rayong Province. In this research, there were 132 populations consisting of civil servants, staffs and employees of the Office of Amphoe Mueang Rayong. The research tools were the questionnaire while the data analysis was conducted using the frequency, percentage and standard deviation. According to the research results, the overall picture of personnels attitude towards personnel management of the Office of Amphoe Mueang Rayong, Rayong Province was found at a high level. When considering each aspect, the attitude towards personnel recruitment, disciplinary action and personnel development, respectively, were found at a high level with the highest mean score. In contrary, the attitude towards personnel retention was also found at a high level but with the lowest mean score.

Development Process Transformational Leadership of the Executives Chonburi Provincial Administrative Organization

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Keywords: Development Process, Transformational Leadership, Administrative Organization

The purposes of this research were: 1) to study the development process transformational leadership of the executives chonburi provincial administrative organization 2) The results of the study are used as guidelines for leadership development of the executives chonburi provincial administrative organization. This research was the quantitative research. The sampling size of this research consisted of 185 people who involved in of the executives chonburi provincial administrative organization. The questionnaire was used as the research tool. Data were analyzed by various statistical methods including frequency, percentage, mean and standard deviation. The research results of the development process transformational leadership of the executives chonburi provincial administrative organization. Overall, found that the personnel on duty the opinions were at a moderate level (=3.50) to taking into account the individual (=4.12) The second was the inspiration (=3.93) ideological influence (= 2.84) and the lowest mean is intellectual stimulation (= 2.81) and 2) development guidelines should be encourage and support new initiatives to need to find new solutions to problems in the agency, create new and creative there is encouragement to followers try to find solutions to problems with new ways of thinking and creative to solve problems systematically.

Effect of Bang Bua Thong District Drug Prevention Policy

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Keywords: Effect District, Drug, Prevention Policy

Research study have a purpose 1) the level of knowledge of effect of Bang Bua Thong district drug prevention policy and 2) ways to improve conflict management strategies of the drug prevention policy. The research conducted was a descriptive study. The instrument used to measure the headmens knowledge of effect of Bang Bua Thong district drug prevention policy was a 5-scale questionnaire, Data was collected from a population of 400 people , and analyzed using a statistical package program to determine percentage, mean, and standard deviation. The results were as follows; effect of Bang Bua Thong district drug prevention policy Overall, it was found. Sample effect of Bang Bua Thong district drug prevention policy in level low (= 2.69) When classified as income, it was found that. At a low level on all sides Drug prevention level low (= 2.6) Drug treatment level low (= 2.36) Narcotics suppression level low too (=1.83) and Narcotics Prevention and Suppression Plan of Bang Rachan District Singburi Province Bang Rachan district should have a meeting to clarify to the public prior to the implementation of the action plan to prevent and suppress the drug among people. Community leaders with To create a mutual understanding. Community leaders should be supervised and supervised. Addict And the perpetrator about drugs continues. By the district of Bang Rachan. Support and promote Regulate the people and leaders to have knowledge. And actively participate in the prevention and resolution of drug problems in their own communities seriously.

Quality in Elderly Person Social Welfare of Nonthaburi District Municipality Nonthaburi City, Nonthaburi Province

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Keywords: Quality, Elderly Person, Social Welfare

The purpose of this research were 1) to study quality in elderly person social welfare of Nonthaburi district municipality Nonthaburi city, Nonthaburi province. 2) for offer guidelines in development to quality in elderly person social welfare of Nonthaburi district municipality Nonthaburi city, Nonthaburi province. This research is quantitative research. The samples of this research were 386 personnel by accidental selection in Nonthaburi district municipality Nonthaburi city, Nonthaburi province. The research instrument was a questionnaire, statistic used for data analysis by Frequency, Percentage, mean and standard deviation. Research results were shown as follows: 1) quality in elderly person social welfare of Nonthaburi district municipality Nonthaburi city, Nonthaburi province. The overall level is in the high (= 3.97) when considering each aspect found that highest average trust (= 4.07) secondary, responsiveness to customers (= 4.02) the average minimum confidence (= 3.87) respectively. 2) Offer guidelines to develop the quality in elderly person social welfare of Nonthaburi district municipality Nonthaburi city, Nonthaburi province. such as confidence by the staff provides service with a smile, polite speech, dress modestly. staff concrete are quick to contact.

The Management Project Relieving the Suffering of the Dissolution a Smile of Bang Bua Thong Subdistrict Municipality, Nonthaburi Province

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Keywords: The Management Project, Municipality, Nonthaburi

The purpose of research titled The Management Project Relieving the Suffering of the Dissolution a Smile of Bang Bua Thong Subdistrict Municipality, Nonthaburi Province The research population comprised 359 persons who works in of Bang Bua Thong Subdistrict Municipality, Nonthaburi Province . The tools used in this study were the questionnaire while the data analysis employed the frequency, percentage, mean and standard deviation. It was revealed by the research results that the over-all personnels attitude towards revention and mitigation management of of Bang Bua Thong Subdistrict Municipality, Nonthaburi Province was found at a high level. After the consideration of each aspect, the ones found at an high level with the highest mean score were the administration staffing , organization, coordinating, reporting, planning directing and budgeting.

Effectiveness of Personnel in Nonthaburi Municipality, Nonthaburi Province

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Keywords: Effectiveness Municipality Nonthaburi

The purpose of research titled Effectiveness of Personnel in Nonthaburi Municipality, Nonthaburi Province The research population comprised 359 persons who works in of Nonthaburi Municipality, Nonthaburi Province . The tools used in this study were the questionnaire while the data analysis employed the frequency, percentage, mean and standard deviation. It was revealed by the research results that the overall personnel attitude towards revention and mitigation management of Nonthaburi Municipality, Nonthaburi Province was found at a high level. After the consideration of each aspect, the ones found at an high level with the highest mean score were the administration staffing , organization, coordinating, reporting, planning directing and budgeting.

Organizational Commitment of Personnel of Bang Bua Thong Sub-district Administrative Organization, Bang Bua Thong District, Nonthaburi Province

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Keywords: Organizational Commitment, Personnel, Administrative Organization

The purpose of research titled Organizational Commitment of Personnel of Bang Bua Thong Sub-district Administrative Organization, Bang Bua Thong District, Nonthaburi Province was to examine the Organizational Commitment of Personnel of Bang Bua Thong Sub-district Administrative Organization, Bang Bua Thong District, Nonthaburi Province. The research population comprised 143 staffs in Bang Bua Thong Sub-district Administrative Organization, Bang Bua Thong District, Nonthaburi Province. The tools used in this study were the questionnaire, Index of Item Objective Congruence (IOC) and Cronbrachs Alpha Coefficient, while the data analysis employed the frequency, percentage and standard deviation. It was revealed by the research results that the overall Organizational Commitment of Personnel of Bang Bua Thong Sub-district Administrative Organization, Bang Bua Thong District, Nonthaburi Province was found at a high level. According to the consideration of each aspect, a high level of happiness with the highest mean score were found in the following aspects in the respective order: the quality of work life in terms of good and safe work environment as well as physical and mental health promotion, and the supervisors capability to create common understanding among all workers. However, the aspect having a high level of happiness with the lowest mean score was the work characteristics in light of works that they were doing were interesting, diverse and challenging.



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TRACK B

***ENGINEERING AND TECHNOLOGY, COMPUTER, BASICS
AND APPLIED SCIENCES***



Fabrication of Poly (-Glutamic Acid)/Chitosan Oligomer Polyelectrolyte Complex Nanofibrous Web by Electrospinning

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Keywords: Poly (-glutamic acid), Chitosan, Polyelectrolyte Complex, Nanofibrous Web, Electrospinning

Owing to the specific characteristics of nanofibrous web such as large specific surface area, high porosity and flexibility, the nanofibrous web is applied to various fields such as catalysis, sensors, cosmetics and wound dressing. Electrospinning is widely used for fabrication of nanofibrous web because this technique is simple and easy. In the fabrication of nanofibrous web using electrospinning, the morphology and properties of nanofibrous web were affected by various electrospinning factors such as solution viscosity, applied voltage, flow rate, temperature and humidity etc. Poly (-glutamic acid) (-PGA) is natural anionic polymer consisted of amide bond between -amino group and -carboxy group. -PGA is known to be biocompatible, biodegradable, non-toxic to the human body and anti-inflammation response. Also, -PGA is promising to use as a next-generation biomaterial owing to the high moisture holding power compared to hyaluronic acid. However, it is difficult to make the fiber formation of -PGA due to the lack of intermolecular interaction at solution state. Therefore, in this study, polyelectrolyte complex (PEC) solution was prepared by mixed with chitosan oligomer (CHI) to enhance the electrospinnability of -PGA. The electrospinnability and morphological changes of PEC nanofiber according to -PGA/CHI ratio were studied. Subsequently, glutaraldehyde is used as a chemical cross-linking agent of -PGA/CHI PEC nanofibrous web to enhance the structural stability in water. In addition, various characteristics of nanofibrous web including the fluorescence properties of -PGA/CHI PEC nanofibers were investigated.

Effect of Vitamin Derivatives on the Thermo-Gelation Behavior of Methylcellulose

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Keywords: Hydrogel, Methylcellulose, Hydrophilic Vitamin Derivatives

The hydrogel is able to have large amounts of water in a physically or chemically cross-linked three-dimensional network. Therefore, the hydrogel is a state that is neither completely liquid nor completely solid. The stimuli-sensitive hydrogel easily occurs sol-gel transition through external stimuli such as temperature, pH, pressure, and electrical signals. Methylcellulose (MC), one of the chemically modified cellulose derivatives, is used as a binder in drug delivery and thickener of paint and food. The aqueous solution of MC generally occurs a sol-gel transition depending on the temperature, and the gelation behavior can be controlled by the molecular weight, concentration and types of salt. Hydrophilic vitamin derivatives support maintain skin tone and muscle health. Also, they help activate synthetic enzymes of collagen, and promote metabolism. In this study, we report on the MC hydrogel containing hydrophilic vitamin derivatives. The purpose of this study was to investigate the gelation behavior of the MC solution according to the type and concentration of vitamin derivatives. The gelation behavior was monitored by ATR-IR and rheometer. In addition, the compressive strength and the morphology of MC hydrogel containing hydrophilic vitamin derivatives were studied. Furthermore, the drug release behavior of vitamin derivatives from the MC hydrogel was investigated.

Effect of Palladium Cocatalyst on the Properties of Pt-loaded GDE

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Keywords: Gas Diffusion Electrode, PEMFC, Nanocatalyst

As the demands for alternative energy due to global warming, green house emission and exhaustion of fossil fuels continue to increase, hydrogen energy is a practical solution to environmental and energy problems. A fuel cell is an electrochemical cell that converts the chemical energy from a fuel into electricity through an electrochemical reaction of hydrogen fuel with oxygen. There are various types of fuel cells, and polymer electrolyte membrane fuel cell (PEMFC) is used for automotive and electrical applications. PEMFC uses platinum (Pt), which is very expensive noble metal, therefore it is necessary to develop a catalyst capable of replacing Pt. In this study, Pd catalyst was used as a cocatalyst for Pt-loaded gas diffusion electrode (GDE). 5x5 cm² of GDE and 0.5 mg of palladium(II) bis(acetylacetonate), Pd(acac)₂ were placed in a glass reactor, and the reactor was heated at 180C to produce a Pt-Pd loaded GDE. The generation mechanism of Pd nanocatalysts was as follows: The Pd(acac)₂ was sublimated and spontaneously reduced to Pd nanocatalyst without any reducing agent. As the holding time became longer, the size of the Pd nanocatalysts became increase. Cyclic voltammetry (CV), electrochemical impedance spectroscopy (EIS) and cation conductivity were measured.

Characteristics of Pt-Pd Nanocatalyst/Nafion Membrane Prepared in a Nucleophilic Solvents

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Keywords: Pt Nanocatalyst, PEMFC, Cation Conductivity

Nafion composite membranes with platinum-palladium (Pt-Pd) nanocatalysts were prepared by using a dry process to produce polymer electrolyte composite membranes for use in polymer electrolyte fuel cells (PEMFC). Various kinds of Nafion membranes were cut into 55 cm² and placed in a glass reactor. 0.5 mg of platinum(II) bis(acetylacetonate), Pt(acac)₂ and palladium(II) bis(acetylacetonate), Pd(acac)₂ mixture were solved in a nucleophilic solvent such as amide, ester, amine, and the solution was added to the glass reactor. And then, the reactor was heated at 40-80°C to produce a Pt-Pd/Nafion composite membrane. The generation mechanism of Pt-Pd nanocatalysts was as follows: The Pt(acac)₂ and Pd(acac)₂ dissolved in the nucleophilic organic solvent penetrated into the surface of the Nafion membrane, and the Pt(acac)₂ and Pd(acac)₂ were spontaneously reduced without any reducing agent. As a result, the size of the Pt and Pd nanocatalysts in the Nafion membrane grew in proportion to the holding time at a constant temperature. Further, as the holding time becomes longer, the penetration depth into the Nafion membrane becomes deeper. In order to evaluate the characteristics of Pt-Pd/Nafion composite membranes, cyclic voltammetry (CV), electrochemical impedance spectroscopy (EIS) and cation conductivity were measured.

Assessment of Land Surface Model with Hydro-Meteorological Variables at Flat Terrain

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Keywords: Hydro-Meteorological, Community, Atmosphere

The quantification of hydro-meteorological fluxes is important to analyze hydrological process. For the accurate quantification and assessment of fluxes, the Land Surface Models (LSMs) are widely used with observed meteorological dataset as a forcing dataset in various previous researches. Recently, Community Land Model 4.0 (CLM4.0), one of the LSMs, is utilized to understand the complex interactions between land surface and the atmosphere with estimations of hydro-meteorological fluxes. The CLM4.0 was developed by integrating three models such as LSM by Bonan; LSM by Chinese academy of Sciences-Institute of Atmospheric Physics (IAP94); and Biopere Atmosphere Transfer Scheme (BATS). This model is a part of Community Earth System Model (CESM) to simulate boundary conditions of land surface. The CLM4.0 can calculate relatively accurate hydro-meteorological variables with hydrology, bio-geophysics, and biogeochemistry schemes. In this study, we estimated hydro-meteorological variables such as net radiation (RN), sensible heat flux (H), latent heat flux (LE), and ground heat flux (G) using in situ dataset from FLUXNET for assessment of the CLM4.0 at Freeman Ranch-2 (FR2) site in flat terrain from 2004 to 2008. This study site is in humid subtropical climate region in Texas, USA. The daily temporal variations of estimated energy fluxes from CLM4.0 were validated with in situ dataset.

Method for Detecting the Fault Location of the Transmission Line using the Finite Difference Discretization in the Time Domain

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Keywords: Transmission line, Distributed Parameter, Fault Location

This paper presents a method for detecting the fault in the transmission line based on the time-synchronized voltage and current data from two terminals of the line. The transmission line using the telegraphers equation, which consists of the three parameters such as resistance, inductance, capacitance. The modeled line is discretized to compute the voltage and current profile using the finite element method. To detect the fault location, the voltage error between the sending and receiving end is calculated. Finally, the proposed method is simulated by the electromagnetic transients program(EMTP-ATP) and verified by MATLAB.

Modeling for Minimal Distance and Optimal Circulation in Urban Design

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Keywords: Graph, N-connected, Minimal Distance, Urban Design

Among the important aspects in urban design are minimal distance and optimal circulation of the traffic network which include good access to the places of interests. The main road network is modeled in graph where the important places are represented by vertices and the main roads between them are represented in edges. A graph is called 3-connected if for every pair of vertices, there are three disjoint paths connecting them. Given the vertices and their locations, this paper focuses to make a 3-connected graph with minimal distance connecting them. This model is simulated in a computer program and applied in a current road network of Manado City, North Sulawesi Indonesia to see whether of not the road network in Manado is already optimal or not

Optimizing Ways of Raceway Ponds to Improve Microalgal Growth

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Keywords: Microalgae, Raceway Pond, Growth Conditions

The increase in global energy utilization in the course of the most recent four decades and the lack of fossil fuel resources has constrained the modern world to look for other energy sources. Among accessible biofuels, microalgae seem, by all accounts, to be a potential option as a result of their higher biomass yield in contrast with other plant crops. Microalgae are photosynthetic microorganisms that use sunlight, water, nutrients, and carbon dioxide to produce biomass. The unicellular structure and water inhabitability of microalgae increase photosynthesis through the interaction of cells with carbon and nutrient elements. Open algal raceway ponds, which are utilized for mass cultivation of microalgae, are categorized as low-depth ponds. A paddle wheel is used to circulate and vertically mix the microalgae culture in the raceway pond. Turbulent mixing generated by paddle wheel helps to increase the interaction of microalgae cells with nutrients, carbon dioxide, and sunlight. The algal productivity of the raceway ponds depends on various growth conditions, such as water velocity, water temperature, carbon dioxide concentration, pH value, and nutrients concentration. Maintaining optimal values of these growth conditions help to increase the algal productivity of a raceway pond. The raceway pond design significantly affects the microalgal growth conditions. Therefore, the present study aims to improve the design of the raceway pond to achieve the optimal growth conditions in the raceway pond. This study modeled various transport phenomena in the raceway pond to investigate the effects of pond design on the microalgal growth conditions.

Three-Dimensional Numerical Modeling Of Scour In A Long Contraction

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Keywords: Contraction Scour, Turbulent Flow, Numerical Modeling, Multiphase Fluids

Bridge crossing the river often creates large contraction of flow providing a high potential of local scour. The hydraulic variables for contraction scour are embankment length, geometric contraction ratio, approaching velocity and bed material properties. The contraction scour is numerically investigated using a multiphase modeling approach. The three-dimensional filtered Navier-Stokes equations are used for reproduces the propagation and interactions of Newtonian water flow and non-Newtonian bed material flow along the bottom. A volume of fluid method is employed for tracking of fluid interfaces of fluid phases. The governing equations are solved by the finite volume methods. Turbulent stresses in the Newtonian fluid flows are calculated by a hybrid RANS/LES method and the non-Newtonian behavior of bed material layer is computed by the Hershel-Bulkley fluid model. The multiphase flow modeling approach is applied to reproduce the local scour in a long contraction of opening ratio of 0.4 installed in a laboratory flume. The present numerical approach produces promising results of the deformation of bed material layer treated by the non-Newtonian relation which is comparable to the contraction scour generated in the laboratory flume.

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