



ICETVE 2020

INTERNATIONAL CONFERENCE ON
ENGINEERING, TECHNOLOGY AND
VOCATIONAL EDUCATION

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**INTERNATIONAL CONFERENCE ON
ENGINEERING, TECHNOLOGY &
VOCATIONAL EDUCATION
(ICETVE 2020)**

**INTERNATIONAL CONFERENCE ON
ENGINEERING, TECHNOLOGY &
VOCATIONAL EDUCATION
(ICETVE 2020)**

**Ts. HJ. ANUAR BIN SHAARI
MUHAMAD FARIS BIN SAYED MOHAMED
FARAH NAJWA BINTI AHMAD PUAD
2020**



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PREFACE

Bismillahirrahmanirrahim

Assalamualaikum Warahmatullahi Wabarakatuh

Deep gratitude to Allah SWT because, with His permission, ANP Resources has successfully organized the third international conference. The success of organizing such an event is very significant to future researchers and knowledge seekers in sharing their research findings and improving the quality of education.

Congratulations to all presenters who took the opportunity in this international conference in enhancing their results and findings with the latest research. I wish that the researchers will apply it as reference material and utilized it towards the development of national education.

Finally, I hope the presented paper in this conference presentation can contribute to the additional academic reference materials from various fields and indirectly expand the treasure of knowledge itself. May the great effort in producing this book of proceedings will be maintained and beneficial for the excellent quality of education in Malaysia.

Thank you.

Ts. HJ. ANUAR BIN SHAARI
Head of Programme
ICETVE 2020

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MESSAGE & WELCOME ADDRESS



Programme Director
ANP Resources

Bismillahirrahmanirrahim
Assalamualaikum Warahmatullahi Wabarakatuh

On behalf of ANP Resources, I would like to extend our warmest welcome to all honoured participants and distinguished delegates to ICETVE 2020. Our last conference event was jointly organized by Universitas Ahmad Dahlan with the support of the Association for Researcher of Skills and Vocational Training (ARSVOT). However, this event is named the International Conference on Engineering Technology and Vocational Education (ICETVE 2020) which is jointly organized by ANP Resources, Universitas Slamet Riyadi (UNISRI), and is supported by the Association for Researcher of Skills and Vocational Training (ARSVOT). It provides a platform for students, academicians, researchers and postgraduates to present their research results and share their experiences on all aspects of Engineering Technology and Vocational Education. This conference provides opportunities for the delegates to exchange new ideas face to face and establish networking for future support.

We have invited Prof. Dr. Ir. Sutardi from Universitas Slamet Riyadi (UNISRI), Indonesia as a keynote speaker to share the best practice during the Covid-19 pandemic for the agriculture sector and Dr. Salisu Monsuru Adekunle who will discuss 'The Disruption of the Pandemic in the Food and Agriculture Sector: Policy Response'. Dr. Salisu Monsuru Adekunle was recently a visiting professor at Universitas Slamet Riyadi (UNISRI), where he delivered and discussed Malaysia's Agro Biotechnology Initiative and Contribution to the Selected Agriculture Trade Sector. He was also invited by the Institute of Plantation Studies of Universiti Putra Malaysia where he discussed the topic 'Soilless media and Water Levels influences growth and Biomass Yield of Rubber

Seedlings. He is a seasoned agriculture expert and a Senior Lecturer at Universiti Pendidikan Sultan Idris, Malaysia.

In addition, we also invited Professor Dr. Bagdaulet Kenzhaliyev and his student, Maral Dyussebekova as our keynote speakers. Professor Dr. Bagdaulet Kenzhaliyev currently works as the General Director in the Institute of Metallurgy and Ore Beneficiation, Satbayev University, Almaty, Kazakhstan. His researchs more on metallurgy, materials sciences, chemistry and education. In this conference, he will present on how the nanotechnology is related to the material sciences.

Furthermore, Ts. Dr. Tee Tze Kiong, a lecturer at Universiti Tun Hussein Onn Malaysia, is also invited as our last keynote speaker. Ts. Dr. Tee Tze Kiong is currently a visiting professor at Universitas Negeri Padang (UNP), Indonesia, where he talked about “How to attract journal editors to select your paper” and the research methodology during COVID-19 pandemic. He is also a senior researcher at Malaysia Research Institute for Vocational Education & Training (MYRIVET), an editorial board member for few international journals, and Malaysia TRIZ Innovation Association (MYTRIZ), TRIZ level I instructor. In his keynote, he will talk about the most wanted generic skills by the industries – problem-solving skills: inventive problem solving for the industry.

Finally, I hope this conference will serve as a good platform for discussing and identifying pertinent issues related to the impact of Engineering Technology and Vocational Education in all countries. I would also like to express my deepest gratitude to the organising committees who have contributed in making ICETVE 2020 a reality. I am optimistic that ICETVE will be of a great benefit to all participants. Thank you.

Ts. HJ. ANUAR BIN SHAARI
ANP Resources

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PROGRAM SCHEDULES

| November, 7 th 2020 (Zoom Application) | |
|---|--|
| Time | Program |
| 08:00 | Online Registration of Participants & Presenters |
| 09:00 | Opening Remarks by Dr. Dewi Ratna Nurhayati on behalf of Universitas Slamet Riyadi, Indonesia |
| 09:05 | Promoting ARSVOT Journal + JTH + AJATEL by YBHG. Ts. Dr. Zulkifli Bin Mohd Sidi A.M.N., Chairman of Association for Reseacher of Skills and Vocational Training (ARSVOT) |
| 11:00 | Keynote Speech by Professor Dr. Ir. Sutardi |
| 11:15 | Keynote Speech by Ts. Dr. Tee Tze Kiong |
| 11:30 | Keynote Speech Professor Dr. Bagdaulet Kenzhaliyev and Maral Dyussebekova |
| 11:45 | Keynote Speech by Dr. Salisu Monsuru Adekunle |
| 12:00 | Q & A Session |

GUIDELINES FOR THE MODERATOR

1. Ask all keynote speakers to be ready with their presentation slide at least 5 minutes before the session's starting time.
2. Each session consists of presentation (15 minutes) and queries and answers (5 minutes).
3. Remind the presenter twice - when time is 3 minutes left to present and when there is only a remaining 1 minute.
4. Please stick to the time as we have a tight schedule. Ask the presenter to stop immediately when his/her time is up.
5. Encourage the audience to participate in queries and answers session.
6. Thank the speakers after his/her presentation.

KEYNOTE SPEAKER 1



Professor Dr. Ir. Sutardi

Professor Dr. Ir. Sutardi completed his first degree in Agriculture Technology (Ir) in 1974 from Universitas Gadjah Mada, Yogyakarta. In 1982, he completed his Master of Applied Science (MAppSc.) from the School of Food Technology, University of New South Wales, Sydney, Australia and completed his PhD from the same university in 1989. He was a permanent lecturer in the Agriculture Faculty of Universitas Gadjah Mada, Yogyakarta from 1973-2018 and is currently teaching in Universitas Slamet Riyadi. In addition, he was also the Incubator Chairman of the Agro-Industry and Agribusiness from 2005-2007 and a member of the Academic Senate from 2016-2018. Prof. Dr. Ir. Sutardi has numerous researches and publications, has contributed to various community development, training, workshops and has years of technical assistance experiences.

KEYNOTE SPEECH 1

SMART URBAN AGRICULTURE DEVELOPMENT ON PANDEMIC COVID-19 ERA

Sutardi

Departement of Agriculture Technology
Slamet Riyadi University
Surakarta – Indonesia

Abstract

Vertical agriculture system considerably suitable for urban agriculture development. Urban agriculture system with availability of limited land may be implemented by development effort of agricultural technology regarding to land thrifty, although this technique can be implemented in rural area as rural agriculture, and also in urban area as urban agriculture. Smart urban or city farming up to now has not been worked on seriously, because having characteristics such as capital, human resources, facilities and methods. Subsequently, the objectives of VAS are to fulfil foods need, and also for estetical, protection of polution suc as air, noise, smell polutions etc. VAS not only preferable for limited garden in rural area, but it can be developed in marginal land, by means of plants cultivation in several model of pots that do not be hanging on land condition, furthermore only growing media alternative is necessary to be invented, or using soil media from other area that is suitable for VAS.

Keywords: *Urban, vertical, agriculture, development.*

KEYNOTE SPEAKER 2



Ts. Dr. Tee Tze Kiong

Ts. Dr. Tee Tze Kiong obtained his first degree in bachelor of technology with education (civil engineering) at the Faculty of Education, Universiti Teknologi Malaysia in 2002. In 2004, he completed his Master's degree in technical and vocational education in the same university. In 2013, he obtained his Ph.D. in technical and vocational education at Universiti Tun Hussein Onn Malaysia. His Ph.D. research focused on higher order thinking skills and Buzan Mind Mapping. He is currently a lecturer in the Department of Professional Education, Faculty of Technical and Vocational Education, at Universiti Tun Hussein Onn Malaysia. Dr. Tee Tze Kiong is a registered technologist for the Malaysia Board of Technologist (MBOT), a senior researcher for Malaysia Research Institute for Vocational Education & Training (MyRIVET), and TRIZ level I instructor for Malaysia TRIZ Innovation Association (MyTRIZ). He has also published around 100 publications comprising of journals, proceedings, books, research books, chapters in books, policies and copyrights.

KEYNOTE SPEECH 2

AND SUDDENLY AN INVENTOR APPEARED ... SOLVING INVENTIVE PROBLEM THE TRIZ WAY

Tee Tze Kiong

Technical and Vocational
Universiti Tun Hussein Onn Malaysia, Batu Pahat, Johor

Abstract

Complex problem-solving skills are among the top future skills demand by employers but lacking among graduates. Theory of Inventive Problem Solving (TRIZ) is a systematic problem-solving method. It is based on logic and data, not intuition or spontaneous creativity. TRIZ was developed by Genrich Altshuller and his colleagues from 1946 through to 1985. It is based on the study of patterns of problems and solutions. They filtered from 200,000 to 40,000 patents which either solved contradictions or showed trends. TRIZ can provide repeatability, predictability, and reliability due to its structure and algorithmic approach. It improves the individual or team's ability to solve problems.

Keywords: *complex problem-solving skills, TRIZ, innovative solutions*

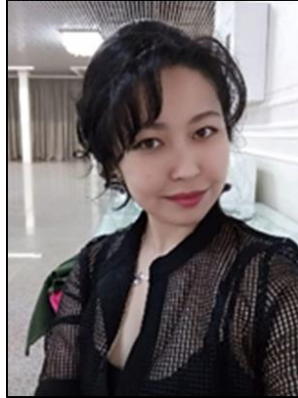
KEYNOTE SPEAKER 3



Professor Dr. Bagdaulet Kenzhaliyev

Doctor of Technical Sciences, Professor Dr. Bagdaulet Kenzhaliyev currently works as a General Director in the Institute of Metallurgy and Ore Beneficiation, Satbayev University. He conducts research in Metallurgy, Materials Sciences, Chemistry, Education, etc. He is a Laureate of al-Farabi State Prize of the Republic of Kazakhstan in 2019; Honored Worker of the Republic of Kazakhstan; Laureate of the Lenin Komsomol Prize of Kazakhstan in 1981 in the field of science and technology; Winner of two bronze medals of the USSR Exhibition of Economic Achievements and the badge "For Merit in Development science of the Republic of Kazakhstan". In 1975, he graduated from S.M. Kirov Kazakh State University. He studied chemical engineering science. He was majoring in teaching chemistry. He is an author of over 500 scientific publications, including in foreign publications, 7 monographs, over 88 patents and copyright certificates of the Republic of Kazakhstan, Russian Federation, USA and Germany.

KEYNOTE SPEAKER 4



Miss Maral Dyussebekova

Miss Maral Dyussebekova is a Junior Researcher in the Institute of Metallurgy and Ore Beneficiation. In 2012, she graduated from Kazakh British Technical University, majored in “Chemical Technology of Inorganic Compounds”. Currently she is a 2nd year PhD student in Satbayev University, her specialty is “Metallurgical Engineering”. Topic of PhD Dissertation is “Development of the Technology of Slag Depletion from Autogenous Smelting of Copper Sulfide Concentrates”.

KEYNOTE SPEECH 3 & 4

DEVELOPMENT AND IMPLEMENTATION OF INNOVATIVE TECHNOLOGIES THAT PROVIDE INCREASED EXTRACTION OF NON-FERROUS, NOBLE, RARE, RARE-EARTH METALS AND SOLVING INDUSTRIAL PROBLEMS OF INDUSTRIAL ENTERPRISES OF THE REPUBLIC OF KAZAKHSTAN

Bagdaulet Kenzhaliyev & Miss Maral Dyussebekova

Institute of Metallurgy and Ore Beneficiation, Satbayev University

Abstract

This research provides the technologies of enrichment and metallurgy processing of mineral and manmade raw materials. New technical solutions are proposed to increase the end-to-end copper extraction, industrial products processing of copper production to obtain high purity selenium; extraction of gold from resistant mineral raw materials with the use of new reagents and equipment, processing of ferrous bauxite and alumina production waste, extraction of rare and rare earth metals from industrial products and wastes of chrome, phosphorus and uranium production. Nowadays, pyrometallurgy is the most widely applied industrial practice of copper recovery in Kazakhstan. In Kazakhstan there are Zhezkazgan ores concentrates that have increased concentrations of copper and silicon dioxide and East Kazakhstan ores concentrate that contain relatively increased concentrations of iron and sulfur. Two different technologies are used for processing these concentrates. Using flux in both technologies causes an increase in feed tonnage as well as slag volume per ton of copper. One of the ways to solve this problem could be a combination of these concentrates for pyrometallurgical treatment.

Keywords: *pyrometallurgy, copper concentrates, autogenous smelting, Vanyukov furnace, flux.*

KEYNOTE SPEAKER 5



Dr. Salisu Monsuru Adekunle

Dr Salisu Monsuru Adekunle received his first degree from Ekiti State University, Nigeria in 2007 in Agricultural Science Education B. Sc (Ed). He received a Master's degree in Agronomy from Universiti Putra Malaysia in 2014 and his PhD from the same University in the same field of study in 2017. He is currently a faculty member at Universiti Pendidikan Sultan Idris, Malaysia as a Senior lecturer. His research interest mainly focusses on Agronomy, Agricultural Science Education and TVET. He has published around 22 publications in reputable journals and conference proceedings in his field of specialization.

KEYNOTE SPEECH 5

THE DISRUPTION OF THE PANDEMIC IN THE FOOD AND AGRICULTURE SECTORS: POLICY RESPONSE

Salisu Monsuru Adekunle

Universiti Pendidikan Sultan Idris, Malaysia

Abstract

As the world faces the pandemic, Food Agriculture Organization (FAO) provides updates on the emerging COVID-19 pandemic's effects on agricultural supply chains. Unfortunately, the effect is still largely unknown. However, the United Nations World Food Programme has estimated that 265 million people could face acute food insecurity by the end of 2020, up from 135 million people before the crisis. COVID-19-induced pandemic affects the entire food system. This talk will focus on specific disruption caused to food and agriculture supply chain and consumer's lifestyle. It would equally discuss specific policy responses to overcome the agriculture labor, total productivity, and trade shock of the pandemic on food and agriculture sectors.

Keywords: *food, agriculture pandemic, disruption*

ICETVE_001

**EMPLOYER PERSPECTIVE ON STUDENT ABILITY IN SHOWING
EFFECTIVE COMMUNICATION SKILLS IN THE GLOBAL WORK
ENVIRONMENT**

Suzan Binti Impak

Politeknik Kota Kinabalu, Sabah, Malaysia

Corresponding author e-mail: suzanhub@gmail.com

Abstract

This study was conducted to obtain employers perceptions of student ability to demonstrate effective communication skills in a global work environment. This study was focus on the ability to express ideas with confidence, the ability to answer questions asked, the ability to produce reports according to the specified standard and the ability to customize the presentation in front of different audiences. The respondents of the study consisted of semester 5 students who were undergoing industrial training. The findings of the study found that the score for the ability to express ideas with confidence is High with a score value of 4.14. Meanwhile, for the aspect of ability to answer questions asked, the score value is 4.08 which means High, the aspect of ability to produce reports according to the specified standard also shows a high score of 3.97 and the ability to customize the presentation in front of different audiences also shows high score value of 3.84. The average score for these four items is 4.01. Based on this high score value, it can be concluded that the majority of employers are satisfied with the performance of students undergoing industrial training in their firm. This means that students are able to express ideas with confidence, are able to answer questions asked, are able to produce reports according to the specified standard and are able to customize the presentation in front of different audiences. Researchers hope that the findings of this study can benefit stakeholders such as Industrial Relations and Training Unit (UPLI) Kota Kinabalu Polytechnic, lecturers and students in particular.

Keywords: *Student Ability, Communication Skills, Global Work Environment*

ICETVE_002

DESIGN OF UNCONTROLLED THREE-PHASE RECTIFIER

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Abstract

This paper presents the design uncontrolled three-phase rectifier based on the specifications. The design process is including basic theoretical calculation, simulation and discussion on output results. The design was complying with IEC 61000-3-2: Electromagnetic Compatibility (EMC) to limit harmonic current emissions. All components are assumed ideal when performed the calculation. Pspice software has been used to generate the output operation of the uncontrolled rectifiers for validation purposes. The line inductance effect, circuit design and analysis on related output waveform are discussed in detail. The output voltage ripple decrease to 60V fulfills the specification that must less than 2%. The proposed design also improves the current input waveform and eliminated the harmonics.

Keywords: *Uncontrolled Three Phase Rectifier, Ripple, Harmonics*

ICETVE_004

PRODUCTION OF CARBON NANOTUBES BY THE METHOD OF IRRADIATION WITH MICROWAVES

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Abstract

The aim of the study is to obtain carbon nanotubes by microwave irradiation. Select the required concentration of the carbon source, catalyst and optimal irradiation time. Pure finely dispersed graphite powder (99% purity) was used as a carbon source. For carbon molecules to form nanotubes, we need a catalyst. Ferrocene powder (99% purity) was used as a catalyst. Chemical formula-C 10 H 10 Fe. Powders of graphite and ferrocene were mechanically mixed with different concentration fractions (80:20, 70:30, 60:40,50:50). Thereafter, the mixture of powders was placed in a microwave oven for irradiation for 5 to 15 seconds with different powder concentrations. The microwave source was a kitchen microwave oven with a power of 800 W and a frequency of 2.45 GHz. When the powders are exposed to microwaves, a flash occurs, as a result, multi-walled carbon nanotubes with different diameters from 11.52 nm to 56.28 nm were obtained. The obtained carbon nanotubes were examined in a NanoSEM 450 electron microscope (SEM) and a LIBRA 120 transmission electron microscope (TEM). Analyzing, we can say that the inner side of the nanotube is empty and has multilayer walls, which proves that these properties are characteristic of carbon nanotubes. This method does not require a high temperature, does not require the creation of a vacuum space and shortens the experiment time. Compared to similar methods, our method is a cost-effective and fast way to produce carbon nanotubes. This method has the prospect of developing in further research. As a result of the study, we can say that the diameters of the nanotube depend on the diameters of the catalyst. If the catalyst diameter is smaller, then the nanotube diameter is smaller.

Keywords: *Carbon Nanotubes*

ICETVE_005

**PROBLEM-BASED LEARNING TO DEVELOP STUDENTS'
COGNITIVE COMPETENCE BASED ON E-LEARNING**

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Abstract

The aim of this study was to examine the development of the cognitive competence of students based on e-learning in higher education and to come up with the best conceptual framework for the formation of cognitive competence. Problem-based learning approach was chosen to form the cognitive competence of students. Participants were master degree students at Abai Kazakh National Pedagogical University in Almaty, Kazakhstan. Students were given problem-based learning tasks to solve the problem which was related to their taught subject. E-learning materials were used as additional learning tools. Analyses showed that problem-based learning tasks could trigger students' cognitive skills such as critical thinking, creative thinking, analytical thinking, decision-making and communication skills. Participants could also use their theoretical knowledge and recall prior information from their memory and implement the acquired theoretical knowledge in the practice. Participants presented their final results in any form of performance including publishing articles, presentation, role-playing, discussion, brainstorming and so on. Students could also have an opportunity to plan, act, observe and reflect. Cognitive skills of students in higher education will be improved if they are engaged in problem-based tasks.

Keywords: *Learning, Cognitive, e-Learning Materials, Students, Skills*

ICETVE_006 HYDROGEN- PERMEABLE MEMBRANES BASED ON NIOBIUM AND TANTALUM

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Abstract

The paper presents measurements of the hydrogen permeability of membranes made of tantalum foil with a thickness of 40 μm , on one side covered with a metal film of various thicknesses. The measurements were carried out when the membranes were in contact with a gas mixture of argon and hydrogen of technical purity in a ratio of 1/5 at an overpressure of 500 kPa at 580-585°C. It is shown that films of metals Mo, Re, W, Cu, Co, and Ni deposited on the surface of a tantalum membrane from the side facing a hydrogen-containing gas mixture increase its hydrogen permeability. The degree of influence of these metals increases in the indicated row from left to right. The effect on the hydrogen permeability of tantalum membranes, comparable to and superior to the deposition of a Pd film, is exerted by the deposition of Cu, Co, and Ni films. This is explained by the high level of hydrogen permeability of these metals and the catalytic activity of their surface, which leads to intense dissociation of hydrogen. With a decrease in the thickness of metal films, the value of the hydrogen permeability of the membranes naturally increases, however, it is obvious that this regularity is not linear. Over time, the hydrogen permeability of membranes with Cu, Co, and Ni films decreases, which is explained by the segregation of oxygen at the membrane / film Ta interface, as well as by the processes on the membrane surface in contact with the gas mixture.

Keywords: *Membrane, Tantalum, Niobium, Hydrogen Permeability*

ICETVE_007

**RESEARCH OF ORGANOMINERAL SORBENTS BASED ON
SHUNGITE OF KAZAKHSTAN**

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Abstract

Kazakhstan ranks second in the world in terms of natural uranium reserves and dominates in its production. Hydrometallurgical processing of uranium-containing raw materials generates a large amount of liquid technogenic waste, which are waste solutions requiring disposal. Sorption methods fall under the group of the most effective methods for purifying liquids from contamination with radionuclides. Synthetic sorbents are expensive, and the natural ones have low sorption capacity, which represents a disadvantage in their usage. Obtaining modified ion-exchange materials based on their combination is an urgent problem faced by the nuclear industry. The paper discusses a modifying method applicable to natural coal and mineral raw materials in Kazakhstan. The Koku deposit shungite was selected for the research. Source raw materials were subjected to flotation. The paper introduces data obtained from physical and chemical studies of the source raw materials and the derived concentrate. A modified sorbent was derived based on the concentrate, and its sorption capacity was studied. The aim of the study is to research of organomineral based on shungite of Kazakhstan. The quantitative uranium content in solutions before and after sorption was determined on an Optima 8000DV inductively coupled plasma (ICP) atomic emission spectrometer. The phase composition of schungite was studied by X-ray phase method as a part of X-ray phase analysis using a Bruker D8 Advance diffractometer (Cu-K α radiation). The elemental composition of the source raw materials and the obtained concentrate was determined by X-ray fluorescence analysis using instruments of a Venus 200 X-ray fluorescence dispersive spectrometer from PANalytical and a D8 Advance diffractometer produced by Bruker (Cu-K α radiation). The results of X-ray phase and X-ray fluorescence methods are supplemented by data obtained using a scanning electron microscope. A JEOL JXA-8230 electron probe microanalyzer was used to perform the studies. The research resulted in synthesizing a schungite-based organopolymer according to the procedure described above. The source raw material was preliminary floated shungite obtained at the Koku deposit. The described procedure was also observed during flotation. The flotation circuit is shown in Figure 1.

Keywords: *Organomineral*

ICETVE_009
ICETVE_010
ICETVE_011

**KESEDIAAN PELAJAR TERHADAP PELAKSANAAN PENILAIAN
BERTERUSAN BAGI SUBJEK TEKNIKAL SECARA DALAM TALIAN
(ONLINE): KAJIAN TINJAUAN DI KOLEJ KOMUNITI AMPANG**

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Abstrak

Kajian ini dijalankan bertujuan mengkaji kesediaan pelajar terhadap pelaksanaan penilaian berterusan (PB) daripada kaedah bersemuka kepada kaedah secara dalam talian (online) bagi pengajaran dan pembelajaran (PdP) subjek teknikal di Kolej Komuniti Ampang (KKAS). Ini kerana penilaian formatif dalam teori dan praktikal perlu ditekankan bagi keperluan mengesan tahap penguasaan dan kemajuan pelajar di dalam kelas. Kajian ini adalah kajian tinjauan di mana responden dipilih secara rawak di kalangan pelajar KKAS iaitu seramai 95 orang; manakala instrumen yang digunakan ialah soal selidik skala Likert 5 mata. Soal selidik diedarkan bagi mendapatkan maklumbalas mengenai persepsi, kesediaan mental dan kesediaan prasarana pelajar terhadap penilaian secara dalam talian. Data yang dikumpul dianalisis menggunakan pakej perisian Statistical Package for Social Sciences (SPSS) versi 25.0 melalui kaedah deskriptif; seterusnya dipersembahkan melalui peratus, skor min dan sisihan piawai dan juga Analisa inferens bagi mendapatkan nilai korelasi. Dapatan kajian menunjukkan skor adalah sederhana dengan min (3.214) bagi persepsi pelajar, kesediaan mental dengan min (3.400) dan kesediaan prasarana dengan min (3.168). Selanjutnya, korelasi antara min persepsi dengan min kesediaan mental mempunyai hubungan linear yang sederhana positif ($r=0.63$) manakala min persepsi dengan min kesediaan prasarana mempunyai hubungan linear positif yang rendah ($r=0.44$).

Kata Kunci: Kesediaan, Penilaian Berterusan, Kaedah Secara Dalam Talian

ICETVE_012

**HUBUNGAN DAN PENGARUH KESEDARAN METAKOGNITIF
TERHADAP PENCAPAIAN MATEMATIK PENGURUSAN DALAM
KALANGAN PELAJAR DIPLOMA PEMASARAN POLITEKNIK KOTA
KINABALU**

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Abstrak

Kajian tinjauan ini bertujuan untuk mengenal pasti hubungan dan pengaruh variabel kesedaran metakognitif terhadap pencapaian akademik dalam kalangan pelajar politeknik terhadap mata pelajaran matematik. Kajian kuantitatif ini melibatkan 510 orang pelajar daripada empat buah politeknik sebagai responden. Data kajian diperoleh melalui soal selidik yang diadaptasi daripada Metakognitif Awareness Instrument (MAI) (Schraw dan Dennison, 1994). Pencapaian pelajar diukur melalui keputusan Himpunan Purata Nilai Mata (HPNM) mereka yang ditukarkan kepada skala lima titik. Data kajian dianalisis dengan menggunakan perisian SPSS versi 21. Analisis deskriptif (min dan sisihan piawai) dan analisis inferensi iaitu ujian statistik parametrik (korelasi Pearson dan regresi berganda) telah dilakukan untuk menjawab soalan dan hipotesis kajian. Dapatan kajian membuktikan terdapat hubungan dan pengaruh yang signifikan antara variabel kesedaran metakognitif terhadap pencapaian pelajar politeknik dalam Matematik Pengurusan. Cadangan penambahbaikan dan kajian lanjutan telah diberikan sebagai kesinambungan kajian ini. Kesedaran metakognitif mampu meningkatkan pencapaian pelajar. Kesedaran metakognitif memainkan peranan yang penting dalam membantu pelajar-pelajar belajar secara fokus dan menjadi penyelesaian masalah yang baik.

Kata Kunci: Kesedaran Metakognitif, Pencapaian

ICETVE_013 THE EFFECT OF TRUST IN LEADER AS MEDIATOR BETWEEN JOB RESOURCES TOWARDS JOB ENGAGEMENT AND ORGANIZATION ENGAGEMENT

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Abstract

Job resources is a key driver for generating higher level of employee engagement in organizational. This study focused in vocational education sector in Malaysia higher education. The purpose of this study is to examine the relationships between job resources, trust in leader and employee engagement based on social exchange theory (SET) and Job Demand Resources (JD-R). The participants included 230 lecturers in all Polytechnics in Malaysia. Administered online questionnaires using SurveyMonkey using probability Simple Random Sampling. Applying two-stage approach using PLS-SEM 3.0. The findings of the study revealed that Trust in leader mediates Job resources and Job engagement as well Organization engagement. Therefore, this model is expected to be used to enhance employee engagement in organization. The generalizability of the findings is limited as the data are cross-sectional and in educational sector. This study observed Employee engagement into holistic perspective by integrating two underpinning theories of JD-R and LMX. This study also viewed employee engagement into two different dimensions as proposed by Saks (2006) involving work or job engagement and organizational engagement.

Keywords: *Job resources, Job engagement, Organization engagement, Trust in Leader*

ICETVE_014
ICETVE_015

**KEBERKESANAN PEMBELAJARAN TVET DALAM PENGGUNAAN
SALAI & GRILL DI KOLEJ KOMUNITI TAWAU DAN KOLEJ
KOMUNITI KUALA KANGSAR**

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Abstrak

Kajian ini bertujuan melihat keberkesanan pembelajaran TVET dalam penggunaan Salai & Grill di Kolej Komuniti Tawau, Sabah dan Kolej Komuniti Kuala Kangsar, Perak. Kajian ini adalah lanjutan daripada projek inovasi yang telah dibangunkan sebagai alat pembelajaran dan pengajaran bagi menggantikan aset yang tiada di Kolej Komuniti khususnya yang melibatkan program sijil kulineri dan juga program diploma pastri. Salai & grill dibangunkan melalui pengalaman dan khidmat nasihat dari pengajar yang mengajar subjek dalam sijil kulineri dan melihat ketiadaan alat ini semasa melaksanakan proses pembelajaran dan pengajaran. Alat salai & grill yang dibina bagi kegunaan proses pembelajaran dan pengajaran ini sangat sesuai kerana ianya mudah digunakan serta mesra pengguna lebih-lebih lagi kepada pelajar di Kolej Komuniti. Kajian keberkesanan penggunaan alat ini dilaksanakan terhadap 90 orang responden pelajar sijil kulineri dari Kolej Komuniti Tawau dan juga pelajar Diploma in Patisserie dari Kolej Komuniti Kuala Kangsar dengan menggunakan borang soal selidik. Hasil kajian menunjukkan majoriti responden mengakui keberkesanan alat ini dari aspek penerimaan pelajar terhadap alat ini, kesesuaiannya terhadap silibus dan kesesuaiannya terhadap pembelajaran. Ianya juga menyumbang kearah amalan teknologi hijau. Implikasinya, penggunaan alat ini mampu menjimatkan kos kewangan pembelian aset kolej, boleh dibawa kemana-mana, mampu menjimatkan masa dan sesuai dalam tempoh pembelajaran serta mampu meminimumkan kesan kepada alam sekitar dan seterusnya membudayakan amalan teknologi hijau terhadap pelajar.

Kata Kunci: Salai & Grill, TVET, Teknologi Hijau

ICETVE_016
ICETVE_017

A COMPARATIVE STUDY BETWEEN IPV4 AND IPV6

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Abstract

The transition between the Internet Protocol Version 4 (IPv4) and Internet Protocol Version 6 (IPv6) will be a long process during both protocol coexists and it unreasonable to expect that many millions of IPv4 nodes will be converted overnight. Mobility is becoming ubiquitous nowadays. This paper has described about a background study of IPv4 and IPv6, the needs of IPv6, transition mechanisms in the various architectures, and comparison of the IPv4 and IPv6 in two major areas; header format and transition mechanism. Then, the transformation of IPv4 to IPv6 addressing by using tunnel and dual stack protocol will be discussed.

Keywords: *Protocol, IPv4, IPv6*

ICETVE_018
ICETVE_044

**APLIKASI LOGIC GATE SIMULATOR DALAM KURSUS DIGITAL
ELECTRONICS SYSTEM**

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Abstrak

Simulasi litar logik berdigit dengan menggunakan perisian Logic Gate Simulator telah dilaksanakan dalam matapelajaran Digital Electronics System, iaitu salah satu mata pelajaran dalam kursus kejuruteraan elektrik. Kaedah simulasi ini diperkenalkan kepada pelajar semester 2 di Jabatan Kejuruteraan Elektrik bermula sesi Disember 2018 di Politeknik Sultan Abdul Halim Mu'adzam Shah. Tujuan kajian simulasi ini dijalankan adalah untuk dijadikan sebagai rujukan dan panduan kepada pelajar-pelajar serta pensyarah untuk mengkaji dan memahami hasil keluaran litar logik berdigit secara maya. Metodologi kajian ini adalah dengan menggunakan perisian Logik Gate Simulator yang terdapat dalam aplikasi android untuk membentuk get-get logik dan litar logik dengan merujuk persamaan Boolean atau Litar Logik yang telah disediakan. Kaedah penggunaan simulasi Logic Gate Simulator adalah perisian yang mesra pengguna di mana ianya dapat menunjukkan kendalian berkaitan sistem digital asas hingga ke peringkat yang tertinggi. Perisian ini mempunyai 7 komponen utama iaitu input, output, logic gates, latches, flip-flops, miscellaneous dan multiplexer. Hasil dapatan dari penggunaan perisian simulasi tersebut mendapati keluaran yang terhasil adalah tepat, mudah difahami serta menjimatkan masa. Dapatan penggunaan simulasi ini menunjukkan prestasi pembelajaran, meningkat yang baik berbanding kelulusan daripada semester lepas. Merujuk semakan secara online dengan menggunakan Sistem Pemprosesan Maklumat Politeknik (SPMP) Polimas. Diharapkan penggunaan simulasi Logic Gate Simulator ini dapat diaplikasikan, untuk semua pelajar dan pensyarah bagi kursus Digital Electronics System kelak, di semua Politeknik di Malaysia. Kesimpulannya simulasi menggunakan aplikasi android ini banyak membantu dan memudahkan pelajar untuk menyemak keluaran secara maya untuk keluaran get-get logik, pembilang, pendaftar atau litar kombinasi yang lain sebelum mereka memulakan sesi amali kelak.

Kata Kunci: Simulasi, SPMP, Logic Gate Simulator, Get Logic

ICETVE_019
ICETVE_020

**KAEDAH PENCERITAAN ASAS ALGEBRA DALAM
PEMBELAJARAN DAN PENGAJARAN MATEMATIK**

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Abstrak

Kajian ini dijalankan untuk mengenal pasti keberkesanan pelajar terhadap kaedah pembelajaran melalui kaedah penceritaan algebra. Skop kajian ini adalah melibatkan tiga aspek keberkesanan di kalangan pelajar iaitu persepsi, minat, dan kefahaman pelajar terhadap penerimaan kaedah penceritaan algebra. Borang soal selidik digunakan sebagai instrumen untuk mendapat data-data yang diperlukan. Sampel kajian terdiri daripada pelajar tingkatan 3 yang menghadiri Bengkel Perkongsian Ilmu Kaedah Penceritaan Algebra di Sekolah Menengah Kebangsaan Panglima Besar. Hasil dapatan kajian menunjukkan bahawa kaedah penceritaan algebra ini memberi kesan persepsi yang positif kepada para pelajar. Selain itu kaedah penceritaan algebra dapat meningkatkan kefahaman dan menarik minat pelajar memahami dan menguasai kemahiran asas algebra.

Kata Kunci: Penceritaan, Asas Algebra, Pengajaran dan Pembelajaran

ICETVE_023
ICETVE_024
ICETVE_025

**APLIKASI BERASASKAN PERMAINAN DIGITAL PLAY AND
LEARN (DigitPAL) DALAM SUBJEK DIGITAL: KAJIAN TINJAUAN
DI KOLEJ KOMUNITI AMPANG**

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Abstrak

Kajian ini dijalankan bagi mengkaji potensi penggunaan aplikasi mudah alih dalam pengajaran dan pembelajaran (PdP) subjek Sistem Digit dan Digital Electronic System di Kolej Komuniti Ampang (KKAS) bagi menjadikan proses PdP lebih interaktif dan sebagai medium penting digunakan oleh pensyarah dan pelajar untuk memperkasakan teknologi dalam usaha meningkatkan keberkesanan pembelajaran. Pembangunan aplikasi ini dilihat perlu sebagai satu anjakan paradigma daripada PdP tradisional kepada sistem yang lebih efisien. Memandangkan persekitaran masa kini memerlukan perubahan, maka aplikasi DigitPAL telah dibangunkan. Pembangunan aplikasi DigitPAL ini adalah menggunakan perisian Mobirise. Satu tinjauan ringkas telah dijalankan bagi menganalisis potensi aplikasi DigitPAL. Kajian adalah kajian tinjauan di mana responden dipilih secara rawak di kalangan pelajar sijil dan diploma iaitu seramai 60 orang; manakala instrumen yang diguna ialah soal selidik skala Likert 5 mata. Soal selidik telah diedarkan bagi mendapatkan maklumbalas persepsi pelajar terhadap kebolegunaan aplikasi DigitPAL dan kesediaan pelajar mengaplikasikan DigitPAL bagi subjek digital. Data yang dikumpul telah dianalisis menggunakan pakej perisian Statistical Package for Social Sciences (SPSS) versi 21.0 melalui kaedah deskriptif; seterusnya dipersembahkan melalui peratus, skor min dan sisihan piawai. Hasil kajian menunjukkan purata skor min tinggi iaitu persepsi min 3.76 dan kesediaan pelajar min 3.65. Kesimpulannya, DigitPAL memberi impak positif dalam PdP.

Kata kunci: Aplikasi, Permainan, DigitPAL, Subjek Digital

ICETVE_026

**GELAGAT PELAJAR TVET TERHADAP PEMBELAJARAN
SECARA ONLINE SEMASA COVID-19**

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Abstrak

Pandemik COVID-19 telah menyebabkan gangguan sistem pendidikan terbesar dalam sejarah, yang mempengaruhi hampir 1.6 bilion pelajar di lebih dari 190 negara dan semua benua. Penanggulangan pembelajaran secara fizikal di institusi pendidikan dan ruang pembelajaran yang lain telah mempengaruhi 94 peratus populasi pelajar dunia. Senario ini telah membuka ruang kepada institusi pendidikan untuk memperkenalkan pembelajaran secara online. Disebabkan situasi pembelajaran secara online masih baru dalam kalangan segelintir pelajar, keberkesanan pembelajaran masih belum dapat dikenal pasti. Justeru itu, objektif kajian ini dijalankan adalah untuk mengenal pasti gelagat pelajar IPTA terhadap pembelajaran secara online. Lokasi yang dipilih adalah di salah satu institusi pendidikan di Sabah iaitu Politeknik Kota Kinabalu. Borang soal selidik telah diedarkan menggunakan teknik pensampelan mudah. Seramai 119 pelajar telah mengambil bahagian. Data kemudian dianalisis secara deskriptif menggunakan perisian SPSS v.22. Hasil analisis mendapati secara keseluruhan, berdasarkan kepada maklum balas pelajar terhadap pembelajaran online, masih banyak pelajar daripada IPTA Sabah yang menghadapi kesukaran belajar secara online. Untuk menjadikan pembelajaran lebih berkesan, penambahbaikan perlu dilaksanakan dari masa ke masa.

Kata Kunci: Pembelajaran Online, Politeknik, Covid-19

ICETVE_027

**TANGGAPAN SOKONGAN ORGANISASI DALAM
MEMARTABATKAN PENGGUNAAN BAHASA INGGERIS DI
INSTITUSI TVET**

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Abstrak

Kegagalan penguasaan bahasa Inggeris dalam kalangan pelajar adalah suatu perkara yang mengecewakan banyak pihak. Lebih-lebih lagi jika ianya berlaku dalam kalangan mahasiswa institusi pengajian tinggi yang tidak lama lagi akan bersaing dalam dunia pekerjaan yang memerlukan penggunaan bahasa Inggeris. Banyak pihak menuding jari kepada institusi pendidikan sekiranya mereka gagal menguasai bahasa ini. Oleh itu kajian ini dijalankan untuk mengenal pasti tanggapan pelajar Politeknik Kota Kinabalu, Sabah (PKK) terhadap tahap sokongan organisasi dalam pembangunan bahasa Inggeris di PKK. Kajian ini menggunakan borang soal selidik untuk mendapatkan data. Seramai 152 respon daripada pelajar PKK telah diterima melalui borang soal selidik yang diedarkan menggunakan teknik pensampelan mudah. Hasil analisis kajian mendapati pelajar mempunyai tanggapan yang positif terhadap pihak pengurusan PKK dalam pembangunan bahasa Inggeris dalam kalangan pelajar TVET. Implikasi kajian ini dapat membantu organisasi di PKK dalam mengenal pasti aspek yang perlu dibaiki dalam membantu pelajar menguasai bahasa Inggeris dengan baik.

Kata Kunci: Bahasa Inggeris, Tanggapan Pelajar TVET, Peranan Organisasi

ICETVE_028
ICETVE_029

**RULA STUDIES IN ELECTRICAL WIRING LAB AT POLITEKNIK
TUANKU SYED SIRAJUDDIN**

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Abstract

This study is conducted to investigate the workstation design and the analysis on the student working posture in electrical wiring lab at Politeknik Tuanku Syed Sirajuddin, Arau Perlis for any relation between manual tools handling and significant risk factors related to body postural perceived exertion. The study is focusing on 6 different activities of wiring task that are screwing and tightening the electrical cable to wall lamp module, ceiling lamp module, lower level power socket outlet, screwing of the socket box to wall wooden panel, screwing of the enclose power outlet at the lowest level and the middle level. All of these activities are manually carried out and investigation on postural position the injuries related to musculoskeletal disorder injuries will be avoided. The study also focusing on workstation environment that is not conducive to work because of high humidity and need a good air flow design. Begin with Borg's RPE Scale questionnaire to the 5 participants whose previously work with the task given. The Borg's RPE result is compared to the anthropometric data taken. For better result, RULA (Rapid Upper Limb Assessment) become main tools for ergonomics assessment on the student individual upper limb MSD. Evaluator will focus on the selected activities as mentioned earlier for the assessment. Result with very high-risk level and RULA Score of 7 will need immediate investigation. On top of that work task postural also need to be change with new postural position implemented. All of these assessments are using worksheet. Based on RULA the result, the activities above student's shoulder required immediate change and new working procedure are being proposed and implemented.

Keywords: RULA, BORG RPE Scale, MSD

ICETVE_030
ICETVE_031

PENGAPLIKASIAN VIDEO DIGITAL YOUTUBE SEBAGAI ALAT BANTU MENGAJAR (ABM) DALAM MATAPELAJARAN ELEKTRONIK KUASA (DET40073) BAGI PELAJAR DEQ5B DAN DEG5A, POLIPD

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Abstrak

Kajian ini dijalankan bagi membuat tinjauan terhadap pengaplikasian video digital Youtube sebagai Alat Bantu Mengajar (ABM) dalam matapelajaran Elektronik Kuasa (DET40073) bagi pelajar DEQ5B dan DEG5A di Politeknik Port Dickson (PoliPD), Negeri Sembilan, Malaysia. Di samping itu juga kajian ini dijalankan untuk mengenalpasti persepsi dan juga keberkesanan pengaplikasian video digital Youtube. Kajian ini menggunakan reka bentuk kajian kuantitatif. Sampel kajian ini terdiri daripada 50 orang yang mengambil matapelajaran Elektronik Kuasa (DET40073). Instrumen soal selidik digunakan dan data dianalisis menggunakan analisis statistik dengan ujian skor min. Hasil dapatan menunjukkan persepsi dan keberkesanan aplikasi video digital Youtube berada tahap tinggi. Berdasarkan hasil dapatan kajian didapati penggunaan video digital Youtube sebagai Alat Bantu Mengajar (ABM) telah memberi impak yang positif terhadap persepsi dan keberkesanan kepada pelajar serta memberi kesan yang baik terhadap peningkatan pembelajaran pelajar dalam menguasai konsep dan praktikal bagi matapelajaran Power Elektronik (DET40073) di Politeknik Port Dickson.

Kata Kunci: Youtube, Alat Bantu Mengajar (ABM), Elektronik Kuasa

ICETVE_032

DESIGN OF FULL WAVE SINGLE PHASE RECTIFIER

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Abstract

A rectifier is an electrical device that converts alternating current, which periodically reverses direction, to direct current, which flows in only one direction. This paper is addressed to design uncontrolled singlephase full wave rectifier with output current ripple less than 5% based on given specifications. All components that used in design are real application purpose. Design process including basic theoretical calculation, simulation and discussion on output results. All components are assumed ideal when performed the calculation. Simulation software has been carried out by Pspice software to validate the operation of the uncontrolled rectifiers. The line inductance effect, circuit design and analysis on related output waveform are discussed in details. The objective to achieve output current ripple less than 5% is achieved which 2.89% for output power 500W and 4.67% for output power 1500W.

Keywords: *Rectifier, Single Phase, Ripple.*

ICETVE_033
ICETVE_034
ICETVE_035

**PERSEPSI PELAJAR TERHADAP PEMBELAJARAN DAN
PENGAJARAN DALAM TALIAN SEMASA PANDEMIK COVID-19**

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Abstrak

Kajian ini dijalankan untuk mengenalpasti masalah yang dihadapi oleh pelajar sepanjang menjalani pembelajaran dan pengajaran dalam talian (PdPDT) dan mengenalpasti tahap penggunaan dan penerimaan pelajar terhadap platform Pembelajaran dan Pengajaran Dalam Talian (PdPDT) di kalangan pelajar. Kajian ini menggunakan kaedah statistik deskriptif. Seramai 316 orang pelajar dari Politeknik Balik Pulau dipilih dalam kajian ini. Instrumen yang digunakan dalam kajian ini ialah soalan soal selidik dan temubual melalui aplikasi Whatsapp. Data-data dianalisis menggunakan pakej perisian Statistical Package for Social Sciences (SPSS) versi 20 bagi mendapatkan skor min. Kajian menunjukkan bahawa masalah utama yang dihadapi sepanjang menjalani PdPDT ialah pelajar sukar memahami pengajaran yang diajar dalam kelas online yang menyumbang nilai min yang paling tinggi iaitu 3.91. Tahap penggunaan platform PdPDT di kalangan pelajar menunjukkan nilai min yang tinggi iaitu sebanyak 3.85 manakala tahap penerimaan pelajar terhadap platform PdPDT adalah pada tahap sederhana sahaja iaitu sebanyak 3.47.

Kata kunci: Pembelajaran dan Pengajaran Dalam Talian, Covid-19

ICETVE_036
ICETVE_037

**EFFECTS OF USING 24WATT TWISTED FLUORESCENT LAMP,
13WATT LED BULB AND 30WATT LED T8 ON INVERTER
CURRENT, PHOTOVOLTAIC PANEL AND CHARGING CURRENT
OF SOLAR SYSTEM**

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Abstract

An alternative to the use of solar systems is an electricity saving activity that can provide a profit if the load used is in accordance with the level of capacity of the system. Load selection in solar systems is very important in ensuring the stability of the system itself. Energy from sunlight is the main source of direct current power generation but it is subject to the capabilities of the Maximum Power Point Tracking (MPPT) solar charger controller used. The selection of the appropriate load will provide good efficiency as well as more efficient energy savings. In this paper, 13Watt LED bulb, 24Watt Twisted fluorescent lamp and 30Watt T8 LED lamp are tested in an experimental study to see the effect of their use on the inverter current, the current flowing through the photovoltaic panel and the current used to charge a battery in the solar system. These data will be used to make comparisons with the energy savings generated by this solar system to provide longer time to use. The brightness of the lamp is also compared using digital Lux meters. The results of this study have shown that the use of 13Watt LEDs is more economical in terms of direct current (Dc) power and contributes to brighter lighting than the 24Watt twisted fluorescent lamp and 30Watt T8 LED lamp used.

Keywords: Photovoltaic, Solar System, LED

ICETVE_038

SISTEM KEHADIRAN PELAJAR MUDAH ALIH

ICETVE_039
ICETVE_040

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Abstrak

Sistem kehadiran pelajar mudah alih merupakan satu produk inovasi yang direkabentuk khusus untuk kegunaan pensyarah merekodkan kehadiran pelajar ketika proses pengajaran dan pembelajaran secara bersemuka. Kaedah lazim yang digunakan untuk merekod kehadiran pelajar adalah mengambil masa kerana pensyarah perlu menyebut nama pelajar satu per satu. Justeru, produk ini dihasilkan. Produk inovasi ini bersifat mudah alih kerana ianya ringan dan mudah dibawa oleh pensyarah ke bilik kuliah setiap kali proses pengajaran dan pembelajaran. Objektif utama penghasilan produk inovasi ini adalah untuk merekodkan kedatangan pelajar dengan menggunakan kad RFID (Radio Frequency Identification) dan rekod kedatangan akan disimpan dalam kad SD (Secure Digital). Para pelajar telah dibekalkan dengan kad FRID masing-masing di awal semester. Data-data yang direkodkan ialah nombor pendaftaran pelajar, nama pelajar, kelas, tarikh dan waktu kehadiran dalam format teks. Dengan itu, pensyarah telah mendapat kelebihan penjimatan masa kerana tidak perlu lagi merekod kedatangan pelajar sepertimana kelaziman. Pelajar hanya perlu mengimbas kad RFID pada Wiegand Reader. Walaupun terdapat kaedah yang lebih terkini untuk merekod kehadiran pelajar iaitu yang berasaskan internet of things (IoT), namun produk ini masih lagi relevan kerana terdapat juga bilik-bilik kuliah yang tiada capaian internet atau pelajar itu sendiri kehabisan data internet telefon mudah alihnya.

Kata Kunci: Kehadiran Pelajar, Kad FRID, Kad SD

**ICETVE_041 KONSEP PELAKSANAAN INDUSTRY ON CAMPUS [IOC] HUJAN –
HUJAN SPA OLEH KOLEJ KOMUNITI TAIPING DI HOTEL
TAIPING PERDANA**

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Abstrak

Kertas kajian konsep ini dibangunkan bagi menjelaskan perancangan dan pelaksanaan Industry on Campus (IOC) di Kolej Komuniti Taiping. Idea pelaksanaan program IOC ini dihasilkan berdasarkan kepada konsep asal yang dibangunkan oleh Jabatan Pendidikan Politeknik dan Kolej Komuniti (JPPKK). Pelaksanaan IOC yang dijalankan di Kolej Komuniti masing - masing diaplikasikan menerusi model pelaksanaan IOC bagi bidang tujahan Sijil Terapi Kecantikan dan Spa yang ditawarkan di Kolej Komuniti Taiping. Berdasarkan kepada model dan aplikasi pelaksanaan IOC di Kolej Komuniti Taiping ini, maka laporan pelaksanaan bidang tujahan tersebut diaplikasikan dalam kertas kajian konsep ini. Pelaksanaan IOC yang melibatkan Kolej Komuniti Taiping dengan syarikat Ashiqairis dan Nikky Pir Khan Touch merupakan satu bentukan pakatan strategik yang mantap dapat menghasilkan hubungan kerjasama yang erat dalam menghadapi cabaran revolusi industri 4.0. Hasil daripada usaha dan komitmen dalam menjayakan kolaborasi ini dilaporkan dalam kertas kajian konsep ini. Usaha berterusan syarikat dan institusi dalam pelaksanaan IOC ini diharapkan dapat menyumbang kepada; a) kebolehpasaran yang tinggi, b) meningkatkan ekonomi negara, dan c) membantu menaik taraf kehidupan sosial.

Kata Kunci: Kolaborasi, Industry on Campus, TVET, Politeknik dan Kolej Komuniti

ICETVE_042

**LEVEL OF STUDENT ACCEPTANCE AND ACHIEVEMENT IN THE
USE OF MECB AS AN INNOVATION KIT IN TEACHING AND
LEARNING**

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Abstract

Practice in the laboratory is important to produce highly skilled engineering graduates. However, it always causes problems for Electrical engineering students due to weaknesses in mastering the concept of electrical circuit, this causes students to not be able to make circuit connections and unable to make measurements of current and voltage. Ultimately it affects student achievement in this course. To overcome this problem Measurement Electric Circuit Board (MECB) has been developed. Therefore, this study was conducted to examine the level of acceptance and achievement of students on MECB innovation kit. In addition, 63 respondents were selected as a respondent and collected data were analyzed by using SPSS Software v.22. The results of this study found that the level of student acceptance of MECB achieved high level and the mean score value is 3.73 and student achievement is also increased after using MECB. The results of this study are expected to inspire other lecturers to make more innovations to improve student achievement and MECB can also be applied to various related courses.

Keywords: *Concept of Electrical Circuit, Student Achievement, MECB*

ICETVE_045
ICETVE_046

**STUDENTS AWARENESS AND KNOWLEGDE TOWARDS
INDUSTRIAL REVOLUTION 4.0 IN POLYTECHNIC**

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Abstract

Industrial Revolution (IR) 4.0 has become a buzzword in the manufacturing industry. IR4.0 focuses on automation, interconnectivity, real time data and machine learning. The emergence of IR4.0 has received a lot of attention not only in business but also in education system. Therefore, is vital for students to equip themselves to the latest skills and technology. The purpose of this study is to identify the level of awareness and knowledge on IR 4.0 among Polytechnics students from 5 polytechnics in northern region. The descriptive study uses questionnaires based on Likert Scale. Data collected were analysed using Statistical Package for Social Science (SPSS). The findings showed only 50% students are aware about IR 4.0 but the lack of knowledge on the matter. Female student is weak compare to male student in awareness and knowledge. As a recommendation student should be exposed to more seminars and workshop in relevant industries of IR4.0. At the same time, the curriculum of the polytechnics must be tailored toward preparing the future graduates for IR4.0. Integration of relevant skills, such as critical and analytical thinking, must be strengthened in the current syllabus.

Keywords: Awareness, Industrial Revolution 4.0, Knowledge.

ICETVE_047

**IMPLEMENTATION OF PROJECT WORK IN DESIGN AND
TECHNOLOGY SUBJECT FOR SECONDARY
SCHOOL STUDENTS**

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Abstract

In facing rapid technological developments, the demand for up-to-date products and innovations is increasing. Today, students in secondary school have been exposed formally to the knowledge and skills to develop a product in the Design and Technology subject. Therefore, this study was conducted to evaluate the implementation of project work in producing a product. This study involved 118 teachers in Batu Pahat district. This is a quantitative approach study whereas a survey has been carried out to get feedback from respondents. There are three aspects studied: project planning, product development and product evaluation. Findings indicate that the level of project planning is low where students have difficulty in obtaining information and generating ideas. Product development is also at a low level as students are lack of skills to use the equipment. Findings also indicate that the overall quality of the products produced is low due to its low functionality. The research findings also revealed that there are no significant differences in the mastery level on all three aspects of gender and academic performance. Therefore, it is recommended that reference materials for project implementation should be multiplied to guide teachers and students to produce quality products and can be commercialized.

Keywords: *Project Work, Design and Technology, Project Planning, Product Development, Product Evaluation*

ICETVE_048

**THE ROLE OF ESTHETICIANS' COMMUNICATION SKILLS IN
BEAUTY AND HEALTH CARE INDUSTRY**

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Abstract

In the recent years, the Beauty and Health Care Industry (BHCI) has become one of the fastest growing industries in the world. BHCI is one of the cosmetology industries. However, BHCI generally does not involve medical treatment but more on services provided or provide non-invasive treatments like general facial treatment, make up, manicure and pedicure. Non-invasive treatments focus on enhancing clients' appearance, well-being, psychological, social life, physical satisfaction, confidence and self-esteem. Therefore, quality of services and satisfaction rate of clients depend on the service provider (estheticians). Thus, one of the most important competencies that estheticians need to achieve before they graduated is to master communication skills. The purpose of this study is to develop a comprehensive understanding on the role of estheticians' communication skills in BHCI. Literature was searched within Google Scholar, Scopus, Emerald, Springer and Researchgate database. The results found that, mastering communication skills is crucial among estheticians. Estheticians seems lack of communication skills when entering BHCI. Past researchers also found that they lack of knowledge, skills and confidence towards communication skills during consultation with real clients. The role of communication skills among estheticians are to build good rapport with clients, understand clients need, give the best advice to clients, enhance client's motivation, self-confident, quality of life and psychological. Other than that, the results also found that there is lack of guidance on the communication skills in the field of cosmetology education. Several researchers also suggested that there is a need to training beauty and health practitioners in enhancing their communication skills since in vocational school because BHCI is clients-based industries and it depending on the provider's efficiency in serving clients. Thus, this study recommends that the future research need to develop a learning module to help estheticians master their communications skills before they enter the real work environment.

Keywords: *Communication Skills, Cosmetology, Estheticians, Learning Module*

ICETVE_049

**IMPLEMENTATION OF COMMUNICATION SKILLS MODULE FOR
VOCATIONAL COLLEGE STUDENTS**

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Abstract

Poor mastery of soft skills especially communication skill has affected the employability of Technical and Vocational Education and Training graduates. The development of the Communication Skills Module is one of the ways to overcome this problem. Hence, this study was conducted to evaluate the implementation of the Communication Skills Module among vocational college students. The samples of the study were 125 students from four vocational colleges that were assigned to a control group and a treatment group. This study uses a quantitative approach with a quasi-experimental research design. Questionnaire and tests were used in this study and the data were collected and analyzed descriptively and inferentially. There are three constructs studied in this research: social literacy skills, oral presentation skills, and perceived importance of English language proficiency. The research findings revealed that there are no significant differences between control and treatment groups on the post test results. The result of the study found that the social literacy skills of students are at the medium level, while oral presentation skills are still at the low level so as for the perceived importance of English language proficiency construct after treatment was given. In conclusion, even though the module development has met its objectives but still needs improvements in terms of design and content. The researcher recommends that other variables such as learning styles, thinking styles, or personality traits should be considered in the design and content in the module development.

Keywords: *Communication Skills, Technical and Vocational Education and Training, Vocational College, Module, Learning Styles*

ICETVE_050

**DIGITALIZATION E-BOOK IN TEACHING AND LEARNING OF
PATTERNMAKING AT HIGHER
INSTITUTIONS IN MALAYSIA**

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Abstract

Teaching and learning (T&L) in patternmaking play an important role in reproducing graduates with knowledgeable in the field of fashion especially manufacture of patternmaking because it is closely related to the process of clothing production in clothing manufacturing. The purpose of this study to identify problems in T&L of patternmaking among students in higher level which is to find out the importance of T&L in patternmaking and the needs of module development to solve T&L problems. By using a qualitative approach and thematic analysis to analyze the data and the results found that the majority of students have problems in patternmaking, especially in making part of sleeve because students have weaknesses in imagination and visualization. The results found suggestions in developing learning modules easy to access by digitalizing module in the form of e-books and with a clear video in detail to help students overcoming the problems in patternmaking.

Keywords: *Digitalization e-book, Module, Teaching and Learning, Higher Institution, Patternmaking*

ICETVE_051

**INOVASI PdP BAGI MODUL DRK 3132 – MESRA ALAM:
PENINGKATAN KEMAHIRAN KHUSUS DAN INSANIAH PELAJAR
MELALUI GERAKKERJA TANAMAN POKOK ROSELLE**

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Abstrak

Penerapan kemahiran khusus dan kemahiran insaniah dalam modul DRK3132, Mesra Alam memerlukan pelaksanaan tindakan yang lebih terkehadapan di mana pengurusan penyeliaan, pelajar sendiri memerlukan perancangan, kepimpinan, tindakan dan penilaian. Istilah kemahiran employability menjelaskan perkaitan dengan gambaran personal, sikap, tabiat, dan juga tingkahlaku; cara berkomunikasi, penyelesaian masalah dan kemahiran membuat keputusan serta proses mengurus organisasi. Pendekatan PdP secara “hand-on” menjurus kepada penanaman pokok roselle secara serius dengan dibantu oleh agensi FAMA dan Jabatan Pertanian meningkatkan pola kemahiran pelajar. Seramai empat puluh pelajar telah mengikuti program peningkatan kemahiran intensif siswatani di bawah modul DRK3132-Mesra Alam. Membantu pelajar untuk cenderung mengilhamkan inovasi teknikal selain membimbing menjadi usahawan tani.

Kata kunci: PdP, Kemahiran Employability, Mesra Alam

ICETVE_052

**PEMBANGUNAN APLIKASI BERASASKAN ANDROID BAGI SUB
TOPIK ASAS PEMILIHAN PAKAIAN MATAPELAJARAN SAINS
RUMAH TANGGA TINGKATAN 4**

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Abstrak

Impak globalisasi dan perkembangan dalam ICT ini telah menuntut agar beberapa perubahan dibuat dalam sistem pendidikan Negara, lebih-lebih lagi dengan kewujudan pandemik COVID-19 ternyata sudah banyak mengubah segenap aspek kehidupan termasuklah dalam sektor pendidikan negara. Oleh itu, satu anjakan paradigma dalam dunia pendidikan perlu dilaksanakan ekoran isu COVID-19 kini, agar dapat memenuhi keadaan semasa yang memerlukan pelajar untuk belajar secara atas talian dengan menggunakan M-Pembelajaran (Mobile Learning) seperti Aplikasi Mudah Alih. Aplikasi Mudah Alih yang dibangunkan adalah untuk meningkatkan m-pembelajaran dalam kalangan pelajar berdasarkan permasalahan yang telah dikenalpasti. Objektif kajian ini ialah mengenalpasti masalah PdPc dalam Subjek Sains Rumah Tangga bagi subtopik Asas Pemilihan Pakaian Tingkatan 4. Kajian yang dijalankan berbentuk penyelidikan kualitatif dengan menggunakan reka bentuk pengajaran model ADDIE, iaitu (i) Analisis (Analysis), (ii) Reka Bentuk (Design), (iii) Pembangunan (Development), (iv) Pelaksanaan (Implementation), dan (v) Penilaian (Evaluation) dengan mengambil kira aspek seperti reka bentuk antaramuka, interaksi dan informasi aplikasi mudah alih yang dikaji berdasarkan Teori ADDIE tersebut. Dengan ini, aplikasi pembelajaran berasaskan android bagi sub topik Asas Pemilihan Pakaian dibangunkan bagi memudahkan pelajar untuk belajar dengan mudah dan fleksible.

Kata Kunci: *Multimedia Interaktif, Aplikasi Mudah Alih, M-Pembelajaran, Model ADDIE, Sains Rumah Tangga*

ICETVE_056
ICETVE_084

STUDENTS' READINESS TO FOLLOW ONLINE LEARNING

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Abstract

This study was carried out to look at the students' level of readiness in online learning, the barriers that influenced the online learning and the differences of readiness between the diploma and certificate students in online learning. A total of 260 community college students were selected as the sample for this study. Questionnaires were given to the students in order to obtain the relevant data and descriptive analysis. T-Test and ANOVA Test were also conducted to answer the research questions. The result shows that the students' readiness in online learning is at moderate with the mean value of 2.87. There are three barriers focused in this study-self efficacy, technological barriers and institutional barriers. The highest mean value of the barriers is self-efficacy (3.33) compared to institutional barriers (3.24) and technological barriers (2.91). Finding shows that ($p < 0.05$) there is a significant difference in student readiness in online learning between diploma and certificate programs while the ANOVA finding result shows that ($p < 0.05$) there are differences in student readiness in online learning for all programs except for the Diploma in Architecture Technology and Certificate of Fashion and Clothing.

Keywords: *Students' Readiness, Online Learning, Barriers*

ICETVE_057
ICETVE_058

**KAJIAN HUBUNGAN SIKAP, MINAT, PENGAJARAN PENSYARAH
DAN GAYA PEMBELAJARAN TERHADAP PENCAPAIAN
PELAJAR KURSUS DCG5103 REMOTE SENSING**

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Abstrak

Meskipun kecemerlangan akademik bukanlah faktor utama menjamin peluang mendapat pekerjaan, namun ianya merupakan kriteria yang masih dilihat oleh majikan masa kini. Penguasaan terhadap bidang akademik diukur dari segi aspek pencapaian setiap kursus yang diikuti itu diperolehi. DCG5103 Remote Sensing merupakan satu kursus teras yang wajib diambil oleh pelajar jurusan Diploma Geomatik. Pencapaian gred yang baik bagi kursus ini turut memberi kesan kepada pencapaian akademik keseluruhannya kerana jumlah jam kredit kursus ini agak tinggi. Berdasarkan statistik keputusan peperiksaan akhir kursus bagi tempoh tiga sesi iaitu Jun 2019, Dis 2018 dan Jun 2018 telah menunjukkan ianya berada pada tahap sederhana iaitu dengan nilai mata diantara 2.0 hingga 3.0. Seramai 6 orang pelajar gagal dalam kursus ini. Oleh itu, kajian ini bertujuan untuk meneliti hubungan sikap, minat, pengajaran pensyarah dan gaya pembelajaran terhadap pencapaian pelajar. Kajian ini dianalisa secara deskriptif dan inferensi menggunakan ujian Pearson. Instrumen yang digunakan adalah soal selidik berskala Likert lima mata. Data kajian di analisis menggunakan perisian Statistical Package for Social Science (SPSS) Version 25. Responden kajian ini melibatkan seramai 66 orang pelajar yang telah mengambil kursus DCG5103 Remote Sensing pada Sesi Disember 2018. Nilai kebolehpercayaan keseluruhan item yang dibina ialah $\alpha = 0.827$. Dapatan kajian menunjukkan faktor minat, pengajaran pensyarah dan gaya pembelajaran mempunyai hubungan yang positif signifikan dengan kekuatan hubungan yang lemah terhadap pencapaian pelajar dalam menguasai kursus ini. Manakala, faktor sikap mempunyai perkaitan yang sederhana dengan pencapaian pelajar. Keseluruhannya menunjukkan keempat-empat faktor ini memberi kesan terhadap pencapaian pelajar. Beberapa saranan dikemukakan sebagai langkah kepada penambahbaikan dan peningkatan pencapaian pelajar terhadap kursus teras ini.

Kata Kunci: *Sikap, Minat, Pengajaran Pensyarah, Gaya Pembelajaran, Pencapaian.*

ICETVE_059

**PEMBANGUNAN PERISIAN APLIKASI MUDAH ALIH
MYNUTRIENT BAGI TOPIK MAKANAN & PEMAKANAN DALAM
MATAPELAJARAN SAINS RUMAH TANGGA**

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Abstrak

Perkembangan teknologi yang semakin membangun pada era pascamoden ini seharusnya dimanfaatkan dalam setiap bidang yang diceburi termasuklah bidang pendidikan. Penggunaan teknologi dalam bidang pendidikan penting bagi meningkatkan mutu dan kualiti bidang pendidikan supaya negara ini tidak ketinggalan dari arus peredaran zaman. Teknologi maklumat yang semakin berkembang maju sehingga teretusnya Revolusi Industri 4.0 menjadikan semua maklumat boleh dicapai hanya di hujung jari. Antara teknologi yang boleh digunakan bagi meningkatkan tahap pengajaran dan pembelajaran adalah perisian aplikasi mudah alih. Perisian aplikasi mudah alih yang dibangunkan adalah untuk meningkatkan tahap pengajaran dan pembelajaran bagi matapelajaran Sains Rumah Tangga berdasarkan masalah yang dikaji. Objektif kajian ini dijalankan adalah mengenalpasti masalah yang dihadapi oleh murid dalam mata pelajaran Sains Rumah Tangga. Kajian yang dijalankan adalah berbentuk penyelidikan kualitatif menggunakan reka bentuk pengajaran model ADDIE, iaitu Analisis, Reka Bentuk, Pembangunan, Pelaksanaan dan Penilaian. Dengan adanya perisian ini, ia bukan sahaja dapat meningkatkan prestasi pelajar dalam matapelajaran Sains Rumah Tangga sekaligus meningkatkan mutu dan kualiti bidang pendidikan di Malaysia.

Kata Kunci: Perisian Aplikasi Mudah Alih, Sains Rumah Tangga, teknologi, Model ADDIE

**ICETVE_060 IMPAK PANDEMIC COVID-19: KAJIAN KEBERKESANAN PROSES
PENDAFTARAN PELAJAR DAN HARI SUAIKENAL PELAJAR
BAHARU SEBELUM DAN SEMASA PERINTAH KAWALAN
PERGERAKAN PEMULIHAN (PKPP)**

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Abstrak

Arahan menggunakan garis panduan norma baru dalam pengurusan sistem pendidikan negara memberi kesan secara keseluruhan kepada kaedah pendaftaran dan hari suaikenal pelajar baharu di Kolej Komuniti Paya Besar (KKPB). Namun begitu, kepentingan dalam memastikan urusan tadbir urus dan kecemerlangan dalam organisasi tetap perlu diambil berat untuk memastikan kualiti pengurusan pendidikan sentiasa terjamin. Oleh itu, kajian keberkesanan proses pendaftaran pelajar dan hari suaikenal telah dilaksanakan sebagai langkah untuk memastikan organisasi tetap berada di landasan yang menyokong Pelan Pembangunan Pendidikan Malaysia 2013- 2025. Perbandingan Hasil dapatan data diperolehi melalui borang soal selidik yang telah diedarkan dikalangan Pelajar baharu bagi sesi Jun 2019 dan sesi Jun 2020 untuk melihat kesan sebelum dan semasa Perlaksanaan Perintah Kawalan Pergerakan Pemulihan (PKPP). Data telah dianalisa secara kuantitatif dan data yang diperolehi dianalisis dengan menggunakan perisian Microsoft Office Excel 2016. Sebanyak 91 orang responden bagi sesi jun 2019, 97 orang responden bagi sesi jun 2020 telah menjawab borang soal selidik yang telah diedarkan. Dapatan kajian menunjukkan bahawa sebanyak 96.15 % responden berpuas hati dengan proses pendaftaran pelajar baharu semasa PKPP berbanding 94.08% sebelum PKPP. Manakala sebanyak 96.41% responden berpuas hati dengan proses hari suaikenal pelajar baharu semasa PKPP berbanding 86.58% sebelum PKPP dilaksanakan. Secara keseluruhan, hasil kajian yang diperolehi menunjukkan bahawa proses pendaftaran dan Hari Suaikenal pelajar baharu semasa PKPP bagi sesi Jun 2020 berjalan dengan sangat lancar serta sangat berkesan dalam membantu pelajar mengenali gaya hidup baharu di Kolej Komuniti Paya Besar.

Kata Kunci: Norma Baharu, Kolej Komuniti, Impak Pandemik Covid-19

ICETVE_061

**IMPAK PENGGUNAAN APLIKASI TERHADAP PROSES
PENGAJARAN DAN PEMBELAJARAN PELAJAR POLITEKNIK
DALAM KURSUS ELECTRICAL TECHNOLOGY**

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Abstrak

Pengenalan aplikasi berasaskan IOT kini telah menembusi sistem pendidikan terutamanya pengajian tinggi. Sistem berkonsepkan aplikasi yang dikenali sebagai mobile learning ini berpusatkan telefon pintar sebagai perantinya. Maka satu aplikasi yang dinamakan "Etech" dibangunkan khusus untuk kursus Electrical Technology bagi membantu proses pengajaran dan pembelajaran (P&P) yang lebih berkesan. Namun untuk melihat keberkesanan aplikasi tersebut dan impaknya terhadap pelajar-pelajar politeknik, maka sebuah kajian dirangka. Kajian yang berbentuk deskriptif ini dimulakan dengan survei secara atas talian. Hasil setiap item survei dianalisa melalui nilai skor min untuk melihat tahap kesediaan serta impaknya kepada responden. Beberapa buah politeknik dijadikan sampel untuk melihat hasil adaptasi penggunaan aplikasi ini. Keputusannya, kesemua item yang dianalisa mencapai tahap yang memberangsangkan iaitu berada pada kedudukan tahap yang tinggi. Hal ini menunjukkan impak yang sangat positif dalam penerapan sistem aplikasi dalam proses P&P terutamanya dalam kursus Electrical Technology

Kata Kunci: P&P, IOT, m-learning, SKMM

ICETVE_062

**STUDY ON THE CONCENTRATION OF BOTANICAL
INSECTICIDES ON THE GROWTH AND YIELD OF SOYBEAN
(*Glycine max* (L.) Merrill) ANJASMORO VARIETY**

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Abstract

The soybean plant is one of the important food plants related to the nutrients contained in it, especially in its high protein content. The necessity for soybeans in Indonesia has not been equaled by an increase in production. One of the influencing aspects is the existence of pests. The intention of this research was to assess botanical insecticides on the growth and result of soybean (*Glycine max* (L.) Merrill.) Anjasmoro variety. This research was conducted in Getas Village, Wonosalam District, Demak Regency, Central Java, Indonesia, with an altitude of 100 MDPL (meters above sea level) and dark gray gromosol soil types. The implementation of research from July 2020 to October 2020. The method used was a randomized completely block design (RCBD) with a single factor. The kinds of treatment were: soursop leaf extract with a concentration 150 g/l, 300g/l, 450g/l; tobacco leaf extract with concentration 150 g/l, 300g/l, 450 g/l ; a combination of soursop leaf extract and tobacco 150 g/l, 300 g/l, 450 g/l. The results obtained indicate that the concentration of botanical insecticides affects plant growth. This is indicated by an increase in several growth parameters. The most significant growth occurred in the combination treatment of soursop leaf extract and tobacco leaf with concentration 450 g/l. In progression, the parameters of plant height, amount of leaves, amount of pods, amount of seeds, weight of seeds, weight of 100 seeds and intensity of wart incursion were 59.40 cm, 11.73 leaves, 40.60 pods, 87, 16 seeds, 11.04 g, 16.80 g. Whereas in the observation of the intensity of pest incursions, an effective treatment to suppress pest incursions was a combination of soursop leaves and tobacco with a concentration of 450 g / l. The results obtained at observations at the age of 84 HST were 36.20%.

Keywords: *Vegetative Insecticide, Soursop, Tobacco, Soybeans*

ICETVE_063

**THE STUDY OF FERTILIZER ON THE GROWTH AND RESULTS
OF CORN VARIETIES (*Zea mays* L.) in PANDEMI**

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Abstract

Corn is a plant that is classified as an important food crop in the world and is even favored by people in Indonesia. This research was conducted in Manyaran Wonogiri, Central Java, from April to July 2020 in a pandemic condition. Where the regional PSBB is applied so that it experiences obstacles in the treatment of this research corn. In the cultivation of corn, there are still obstacles from pest attacks to harvest. The purpose of this study was to test the dose of cow manure against maize varieties (*Zea mays* L.). The method used in this research is Complete randomized block design (CRBD) with two factorials, namely 2 varieties and 5 doses of cow manure combined into 10 combinations and repeated 3 times to obtain 30 experimental units. The types of treatment are as follows: J1P0: Corn P21 at 0g / plant , J1P1: Corn P21 at 150 g / plant , J1P2: Corn P21 at 300 g / plant , J1P3 : Corn P21 at 450 g / plant , J1P4: Corn for P21 measure 600 g / plant , J2P0: 2 portions of Bisi Corn 0 g / plant , J2P1: 2 portions of 150 g / plant Bisi Corn , J2P2: 2 portions of Bisi corn 300 g / plant , J2P3: 2 portions of Bisi corn 450 g / plant , J2P4 : Corn Bisi 2, measuring 600 g / plant . The results showed that the fertilizer cowshed with a dose different will result in an average weight of 1000 seeds are different, where the P4 produce a weight of 1000 seeds were the heaviest significantly compared with P3, but not real when compared by P0, P1, and P2.

Key words: *Pandemic, Corn Bisi, Measures*

ICETVE_064

WATER DRAINAGE SYSTEM

(SISTEM SALIRAN AIR)

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Abstrak

Longkang atau parit adalah tempat mengalirkan air ke tempat takungan, tasik atau sungai. Ia perlu dibina sempurna untuk berfungsi dengan baik dan selamat. Kawasan longkang yang mengandungi air bertakung mengundang pembiakan nyamuk dan jika ia kotor mengeluarkan bau busuk. Keadaan ini menimbulkan tidak selesa kepada yang berada disekitarnya. Bau busuk juga mengundang makhluk perosak seperti tikus, lipas, semut dan seumpamanya. Kajian ini mengenalpasti sistem perparitan yang dibina di dalam dan luar Negara. Kemudian paip polivinil klorida (PVC) putih dan batu kerikil digunakan untuk membina sistem pengaliran air untuk mengelak air bertakung dan menghasilkan longkang tertutup, jadi ia adalah selamat dari terjatuh. Sistem peparitan jenis ini juga menarik dari aspek landskap dan mesra alam sekitar kerana terdapat rumput atau tumbuhan menghijau. Kos pembinaan dan penyelenggaraan juga adalah lebih rendah.

Kata Kunci: Longkang, Bertakung, Landskap, Mesra Alam Sekitar

ICETVE_066
ICETVE_067

**VIDEO PDP 'Digital Cert' DALAM KURSUS
INTRODUCTION TO HUMAN DEVELOPMENT (PUB1012)**

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Abstrak

Kursus Introduction to Human Development (PUB1012) merupakan subjek wajib bagi pelajar pra-diploma di politeknik. Program Pra-Diploma merupakan program yang dilaksanakan untuk memberi peluang kepada calon yang tidak memenuhi kelayakan minimum peringkat diploma untuk mengikuti pengajian di politeknik di samping memberi peluang kedua kepada calon untuk merebut peluang pekerjaan dan meningkatkan taraf ekonomi diri dan keluarga. Antara objektif kursus ini adalah untuk mengukuhkan perkaitan perkembangan kognitif dalam pemerolehan pengetahuan pada topik 4.0, Social Relation. Dalam topik ini, pelajar perlu menjalankan aktiviti Corporate Social Responsibility (CSR) yang melibatkan pelajar dan komuniti setempat. Berdasarkan pemerhatian melalui aktiviti-aktiviti yang telah dijalankan, terdapat beberapa permasalahan dikenalpasti khususnya melibatkan pengeluaran sijil iaitu berkaitan proses percetakan sijil penghargaan dan penyertaan dalam kuantiti yang banyak kepada organisasi dan komuniti yang terlibat, pengagihan sijil penghargaan dan penyertaan yang telah dicetak kepada organisasi dan komuniti yang terlibat dan penggunaan dan pembaziran kertas sijil. Permasalahan ini timbul disebabkan asas pengetahuan teknologi yang lemah di kalangan pelajar Intake Pra-Diploma Sains (IPS) politeknik khususnya pelajar IPS 1, Politeknik Sultan Idris Shah sesi Disember 2019 dan Jun 2018. Bagi menyelesaikan permasalahan tersebut, satu kaedah mudah dilaksanakan iaitu dengan membina video Pengajaran dan Pembelajaran (PdP) Digital Cert menggunakan perisian Document Merge Tools Autocrat. Melalui inovasi ini, kesemua permasalahan tersebut dapat diatasi secara lebih mudah dan cepat dengan penerapan elemen mesra alam selaras Center of Technology (COT) Politeknik Sultan Idris Shah ke arah Go-Green. Pembangunan Digital Cert ini juga secara tidak langsung menyahut saranan kerajaan agar mengekalkan Social Distancing bagi membendung wabak COVID-19. Selain dapat digunakan di dalam kelas, bahan ini juga boleh digunakan secara atas talian melalui aplikasi CIDOS yang membolehkan pelajar belajar secara sendiri. Kesimpulannya, video PdP ini dapat memberi manfaat kepada pelajar terutamanya dari segi memudahkan mereka untuk melaksanakan aktiviti yang melibatkan penyertaan yang ramai.

Kata Kunci: *Digital, Cert, e-cert.*

ICETVE_070

**THE EFFECT OF THIN LAYER MORTAR AND GROUT ON
COMPRESSIVE BEHAVIOUR IN MASONRY WALLS
ASSEMBLAGES MADE WITH BIAXIAL INTERLOCKING BLOCK**

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Abstract

This study investigates biaxial interlocking block (BIB) and masonry walls under compressive loading according to BS EN 1052-Part 1 as the critical parameters for evaluating compressive resistance of masonry walls. BIB is a new interlocking block system consists of a groove and tongue approach to react in x and y-direction. Its only use of mortar with 2mm thickness as a binder. BIB was designed and expected to have the capacity to resist the biaxial load. In this research, the production of BIB was introduced, and the properties of BIB as the individual and walling unit was identified. The features of BIB in terms of density, compressive strength, modulus of elasticity, stress-strain diagram and failure mode was identified. The impact of BIB to the masonry wall capacity was investigated by preparing the nine walls panel with different assemble and reinforced method and tested under concentric compressive load. From the data obtained, the BIB walling system was calculated and identified. All the properties values of hollow and grouted BIB masonry were obtained. The relationship between masonry properties was also defined and discuss. From all the data and analysis carried out, it is found that the features of masonry unit have influenced the walling properties of the constructed wall. The higher compressive strength of the masonry unit, the thin layer mortar and grout material reflects the improvement of the capacity of the masonry walls. Based on this research, it is also found that grouted BIB has excellent properties as a walling unit as compared to a hollow one. A linear relationship between the compressive strength of the samples regardless of the changing in masonry unit compressive strength has been found. This work offers valuable data of BIB to the masonry walls properties under compressive load.

Keywords: *Biaxial Interlocking Block; Characteristic Compressive Strength; Grout; Thin Layer Mortar*

ICETVE_071

MITIGATION OF AREA PRONE TO LANDSLIDE

IN ANTICIPATING THE IMPACT OF CLIMATE CHANGE

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Abstract

Climate change is felt very influential in the wet tropics as in Indonesia. The impacts of climate change that felt much were floods and landslides during the rainy season and drought during the dry season. The occurrence of landslides in mountain slopes is mostly caused by soil, topography, geology, hydrology and climate. The purpose of the study is to determine the areas prone to landslides in the Samin River Basin area on the western slopes of Lawu mountain, and management efforts through mitigation areas prone to landslides in order to anticipate the impacts of climate change. The research method is overlapping topography map, land map, land use map, climate map, geological map and earth map as base map. Besides, field survey was conducted to observe the morphology of soil landslide events and in-depth interviews. The results showed that the research area of 6,797.06 ha consisted of very prone to landslides (73.64%), prone to landslide 26.25%, and slightly prone to landslide 0.11%. The most influential factors in the landslide are topography, rainfall and land cover. Landslide type that occurs mostly is slump landslide, followed by rockfall and landslide. Soil sensitive type of landslide are Andosol and Latosol. Land use that is very prone to landslides is the land that are used for vegetable cultivation and land conversion functions for road construction. Management efforts to mitigate landslides among others are landslide reforestation potential landslides, and land use systems with an intercropping system of annual crops with agro forestry on cultivated land.

Keywords: *Mitigation, Landslide, Climate*

ICETVE_072

**STUDENTS' MOTIVATION AND ATTITUDE IN USING ENGLISH
LANGUAGE IN COMMUNICATIVE ENGLISH CLASS AMONG
COMMUNITY COLLEGE STUDENTS**

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Abstract

The English language has become a basic requirement for students and job seekers in this increasingly globalised world. The general objective of the English courses in Malaysia is to equip students with necessary skills in academic and non-academic context so that they are able to perform in the industries. This paper aims in investigating students' motivation and attitude in using English language during Communicative English class among community college students in Taiping. Questionnaires were distributed to student who had enrol in Communicative English module in Taiping Community College. Data were analysed using SPSS Version 16. From the findings, it shows that students do have positive attitude and high motivation in using English language during their Communicative English class. The study will also provide some pedagogical implications and suggestions for further investigations. The survey results can be probably used to give further implications for the creation of ESL curriculum for community colleges students to enhance their ability in using English language.

Keywords: *Motivation, Attitude, Communicative English*

ICETVE_073

**PENGGUNAAN APLIKASI KARNAUGH MAP (K-MaP) SOLVER
DALAM KURSUS SISTEM ELEKTRONIK DIGITAL**

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Abstrak

Aplikasi Karnaugh Map (K-Map) Solver telah dilaksanakan dalam kursus Sistem Elektronik Digital sebagai bahan bantu mengajar proses pengajaran dan pembelajaran operasi Boolean. Karnaugh Map merupakan teknik mudah untuk meringkaskan atau memudahkan persamaan operasi Boolean melalui cara pemetaan. Aplikasi ini adalah mesra pengguna dimana ia dapat menghasilkan keluaran persamaan yang ringkas melalui pemetaan Karnaugh Map. Aplikasi ini sangat mudah digunakan kerana mempunyai jadual kebenaran serta dilengkapi litar logik bagi persamaan yang telah diringkaskan. Perisian aplikasi ini juga dijadikan sebagai panduan kepada pelajar serta pensyarah untuk lebih memahami pemetaan Karnaugh Map. Kelebihan aplikasi ini adalah meringkaskan persamaan Boolean dengan lebih tepat, mudah difahami dan menjimatkan masa. Tujuan penggunaan aplikasi ini adalah untuk meningkatkan pemahaman pelajar terhadap operasi Boolean menggunakan Karnaugh Map. Keberkesanan aplikasi ini dapat dikenalpasti melalui soal selidik dan keputusan laporan Course Outcome Review Report (CORR) dari sistem SPMP. Hasil dapatan soal selidik dan laporan CORR mendapati prestasi pembelajaran pelajar selepas menggunakan aplikasi ini meningkat. Kesimpulannya aplikasi ini dapat meningkatkan kefahaman dan menarik minat pelajar disamping mengaplikasikan kemahiran teknologi dalam pengajaran dan pembelajaran.

Kata Kunci: *Pemetaan, Boolean Algebra, Pengajaran dan Pembelajaran*

ICETVE_074

**LITERASI ICT DALAM KALANGAN PELAJAR TVET: KAJIAN
EMPIRIKAL DI POLITEKNIK KOTA KINABALU, SABAH
(ICT LITERACY AMONG TVET STUDENTS: EMPIRICAL STUDIES
AT KOTA KINABALU POLYTECHNIC, SABAH)**

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Abstrak

Berikutan dengan penularan pandemik Covid-19, hampir semua industri termasuklah pendidikan di seluruh dunia terjejas. Akibatnya, daripada semua sistem pendidikan telah beralih kepada pembelajaran secara atas talian sebagai sebahagian daripada langkah pencegahan pandemik Covid-19 di Malaysia yang bermula bulan Mac 2020. Keadaan ini menyebabkan tenaga pengajar dan juga pelajar di institusi pengajian tinggi berhadapan dengan keperluan untuk menyesuaikan diri dengan pengajaran dan pembelajaran dalam talian. Oleh itu, hampir semua pelajar perlu menggunakan komputer seperti menghantar tugas, pertemuan alam maya dan sebagainya. Justeru itu kajian ini dijalankan untuk mengenal pasti tahap literasi komputer dan aplikasi komunikasi dalam kalangan pelajar Politeknik. Seramai 143 pelajar telah mengambil bahagian untuk menjawab soal selidik yang diedarkan menggunakan teknik pensampelan rawak. Data kemudian dianalisis secara deskriptif. Hasil kajian mendapati masih terdapat segelintir pelajar yang tidak mahir dalam menggunakan aplikasi komputer dan aplikasi online seperti aplikasi Zoom dan Google Meet. Kajian ini dapat membantu institusi merangka pelan pembangunan dan program bagi celik komputer dalam kalangan pelajar tertentu seperti yang tinggal di pedalaman yang tidak mempunyai capaian internet yang stabil.

Kata kunci: Literasi Komputer, Aplikasi Online, Pelajar Politeknik

ICETVE_075

REKABENTUK AKUARIUM TERNAKAN UDANG PINTAR

ICETVE_076

MENGGUNAKAN APLIKASI IOT BAGI MEMANTAU KUALITI AIR

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Abstrak

Hasil penternakan udang sangat bergantung kepada kualiti dan keadaan air seperti nilai pH dan suhu air khususnya untuk menggalakkan proses pembiakan dan tumbesaran udang. Kualiti dan keadaan air adalah berubah-ubah mengikut keadaan persekitaran. Antara cabaran besar yang dihadapi oleh kebanyakan penternak udang adalah untuk memastikan nilai pH dan suhu air di dalam kolam ternakan adalah sentiasa terkawal. Sebagai contoh, suhu air yang sesuai bagi ternakan udang harimau ialah antara 25 hingga 30 darjah Celsius manakala nilai pH air yang sesuai pula ialah antara 6.5-8.3 (Begham, 2019). Akuarium Ternakan Udang Pintar merupakan satu inovasi kolam ternakan udang yang direkabentuk dan dilengkapi dengan pengesan pH Meter dan pengesan suhu Air yang digunakan untuk mengukur nilai pH dan suhu air dan menggunakan aplikasi IoT untuk memantau nilai pH dan suhu air pada setiap masa dan dari jarak yang jauh. Akuarium Ternakan Udang Pintar ini direkabentuk dengan menggunakan peranti ESP 32 yang merupakan sejenis mikro pengawal yang dihubungkan dengan Wi-Fi untuk menjalankan fungsi IoT. Data masukan daripada pengesan pH dan pengesan suhu akan dihantar ke mikro pengawal (Microcontroller) untuk diproses. Kemudian, data yang sudah diproses akan dihantar kepada keluaran (Output). Keluaran yang digunakan dalam projek ini adalah paparan LCD OLED, LED, buzzer dan aplikasi IoT (Blink dan BOLT).

Kata Kunci: *Akuakultur, IoT, Kualiti air*

ICETVE_077

**STUDY OF DOSES OF COW MANURE IN MONOCULTURE AND
INTERCROPPING OF SESAME AND CORN CULTIVATION IN
KARANGLOR, MANYARAN, WONOGIRI**

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Abstract

Problem of sesame and maize cultivation in Indonesia is low productivity. Planting rainfed land in Manyaran District, Wonogiri Regency. The research objective was to determine the effect of organic fertilizer on maize and sesame production by monoculture and intercropping. The study used grumosol soil which was idle for 2 years. Research in March-November 2020 during the Covid-19 pandemic. Complete Randomized Block Design Research with two factors. The first factor, the dose of cow manure consisted of 0 controls, 150, 200 gr. The second factor was the types of crops in the form of maize, sesame and intercropping of sesame and corn. The variables observed were plant height, leaf color, number of branches per plant, number of filled pods per plant, seed weight per plant, number of cobs, weight of corn cobs in monoculture and intercropping. The results showed that the intercropping system was more productive than monoculture.

Keywords: *Corn, Sesame, Cow Manure, Intercropping, Monoculture*

ICETVE_078
ICETVE_079
ICETVE_080

**KAJIAN PENYELIDIKAN BAGI PEMBINAAN LENGKUNG
KEAMATAN-TEMPOH FREKUENSI (IDF CURVE) BAGI DAERAH
PEKAN, PAHANG MENGGUNAKAN KAEDAH GUMBEL**

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Abstrak

Lengkung Keamatan–Tempoh-Frekuensi hujan (IDF) merupakan satu elemen yang sangat penting dalam bidang hidrologi untuk digunakan dalam aspek rekabentuk sesuatu struktur terutamanya dalam rekabentuk sistem saluran perbandaran. Oleh itu lengkung IDF yang terkini penting dalam memastikan struktur yang dibina kelak dapat berfungsi dengan lebih efisien dan memastikannya tidak gagal sepanjang tempoh jangka hayat rekabentuknya. Objektif bagi kajian ini adalah membina lengkung IDF bagi Bandar Pekan Pahang menggunakan kaedah Gumbel dan membandingkannya dengan lengkung IDF yang terdapat di dalam Manual Saliran Mesra Alam Malaysia (MASMA) melalui Ujian Kesepadanan Chi-Square dan perbandingan peratusan. Data stesen hujan yang digunakan dalam analisis kajian ini adalah data stesen hujan bagi Rumah Pam Pahang Tua (3533102) yang diambil dari Jabatan Pengairan dan Saliran (JPS) Ampang Kuala Lumpur bermula dari tahun 1980 hingga 2013. Data hujan dari stesen ini akan dianalisis menggunakan kaedah Taburan Nilai Ekstrem atau Gumbel bagi mendapatkan nilai keamatan hujan bagi Kala Kembali 2, 5, 10, 20, 50 dan 100 tahun dengan tempoh hujan 5, 10, 15, 30, 45, 60, 120, 180, 360, 540, 720, 900 dan 1440. Seterusnya lengkung IDF akan dibina daripada nilai keamatan yang diperolehi menggunakan perisian Microsoft Excel. Dari Ujian Kesepadanan Chi-Square, diperolehi nilai x_2 bagi lengkung IDF yang baru dibina dari kaedah Gumbel ialah 0.382. Nilai x_2 yang diperolehi ini lebih besar daripada nilai α (0.05), maka ini menunjukkan tiada perbezaan yang signifikan secara saintifik (hipotesis alternatif) atau disimpulkan tidak terdapat perbezaan yang ketara antara kedua-dua kaedah taburan dengan nilai keamatan hujan di dalam MASMA dan peratusan perbandingan juga sekitar 3% adalah terlalu sedikit. Maka, hasil lengkung IDF yang baru dibina daripada kedua-dua kaedah taburan sesuai digunapakai bagi tujuan rekabentuk infrastruktur sistem saluran Bandar Pekan, Pahang.

Kata Kunci: *Lengkung Keamatan Hujan, Lengkung IDF, Pahang Tua, Pekan Pahang*

ICETVE_081

**OPTIMIZATION OF RECTIFYING CIRCUIT FOR RF ENERGY
SCAVENGING**

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Abstract

This paper studies a rectifier design for radio frequency energy scavenging at 2.45 GHz ISM band. The designs of a voltage doubler rectifier that enable RF to DC conversion consists of two units of Schottky diode. This paper also covers the analysis of six zero bias Schottky diodes. The Schottky rectifier is widely used due to their switching speeds that can approach zero time and give very small forward voltage drops. It does allow the circuit to operate at very high frequency and very low power input signals. The rectifying circuit is designed, simulated and measured in this study by using Agilent Advanced Design System (ADS) at 2.45 GHz. The conversion efficiency of proposed rectifier with HSCH-9161 diode gives 31.16%. The rectifier reaches the highest efficiency at 20 dBm input power, which reliable to commercial Wi-Fi access point that operates at 10 to 25 dBm. The higher output voltage is 10.32 V at 20 dBm.

Keywords: Rectifier, Voltage-Doubler, Zero Bias Diode, Schottky Diode, Energy Scavenging.

ICETVE_082
ICETVE_083

**PENERAPAN KEMAHIRAN INSANIAH OLEH PENSYARAH
TERHADAP PELAJAR DI KOLEJ KOMUNITI NEGERI SELANGOR**

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Abstrak

Dewasa ini, penguasaan kemahiran insaniah perlu diterapkan dalam diri pelajar bagi menghadapi cabaran era globalisasi. Oleh itu, satu kajian telah dilaksanakan bertujuan untuk mendapatkan maklumat berkenaan pelaksanaan dan penerapan KI oleh pensyarah terhadap pelajar dalam pengajaran dan pembelajaran di Kolej Komuniti Negeri Selangor. Sampel kajian adalah seramai 183 orang yang terdiri daripada pensyarah yang terlibat dalam PdP daripada sepuluh buah kolej komuniti yang berada di Negeri Selangor. Bagi mendapatkan maklumat mengenai penerapan KI yang diamalkan oleh pensyarah-pensyarah di Kolej Komuniti Negeri Selangor khususnya yang berkaitan dengan aktiviti pengajaran dan pembelajaran, soal selidik telah diedarkan secara atas talian menggunakan aplikasi "google form" bagi mengumpulkan maklumat berkaitan. Hasil kajian menunjukkan bahawa kebanyakan pensyarah telah mengambil inisiatif dalam menerapkan KI melalui pengajaran dan pembelajaran dengan inisiatif sendiri. Tumpuan diberikan ke atas elemen kemahiran kerja berpasukan dan kemahiran komunikasi. Pendekatan yang digunakan bagi menerapkan KI dalam kalangan pelajar adalah melalui pendekatan konvensional iaitu kuliah dan projek. Para pensyarah juga banyak bergantung kepada kaedah penilaian projek, pembentangan dan pemerhatian oleh pensyarah bagi menilai penguasaan KI dalam kalangan pelajar. Namun begitu, terdapat masalah yang dikenalpasti dihadapi oleh pensyarah untuk melaksanakan aktiviti menerapkan KI dalam pengajaran dan pembelajaran iaitu tidak cukup masa menerapkan KI disebabkan bahan kuliah yang banyak dan kurang kemahiran menerapkan KI.

Kata Kunci: *Kemahiran Insaniah, Pengajaran dan Pembelajaran, Pelajar.*

ICETVE_085

**KEBERKESANAN PERBINCANGAN ATAS TALIAN DALAM
PENYEDIAAN RANCANGAN PERNIAGAAN DI KALANGAN
PELAJAR KEJURUTERAAN**

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Abstrak

Perintah Kawalan Pergerakan (PKP) telah diumumkan oleh kerajaan Malaysia bagi membendung penularan wabak COVID19 pada Mac 2020 seterusnya memberi kesan kepada sektor pendidikan yang mana proses pengajaran dan pembelajaran secara bersemuka yang diamalkan selama ini terpaksa digantikan dengan pembelajaran secara atas talian. Antara kursus yang terkesan di kalangan pelajar kejuruteraan adalah kursus Keusahawanan yang mana mereka tidak mahir dalam bidang tersebut. Kajian ini bertujuan untuk menilai keberkesanan aktiviti perbincangan secara atas talian dalam pembelajaran penyediaan Rancangan Perniagaan bagi kursus Keusahawanan. Data kuantitatif dikumpul melalui borang soal selidik yang diedarkan kepada 94 orang responden yang mewakili pelajar semester 3 Jabatan Kejuruteraan Elektrik yang mengambil kursus Keusahawanan secara atas talian. Skop kajian memfokuskan kepada keberkesanan perbincangan dalam penyediaan Rancangan Perniagaan sahaja. Data yang diperolehi telah dianalisis dan dapatan kajian menunjukkan secara keseluruhannya keberkesanan perbincangan dalam penyediaan Rancangan Perniagaan adalah tinggi di kalangan pelajar yang mengambil kursus Keusahawanan secara atas talian.

Kata Kunci: Lembaran Kerja, Rancangan Perniagaan, Keusahawanan

ICETVE_086

**A NEW ALGORITHM FOR OPTIMAL PLACEMENT OF SVC
CONTROLLERS TO IMPROVE DYNAMIC VOLTAGE STABILITY**

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Abstract

This paper proposes a new algorithm to find optimal location and size of Static Var Compensator (SVC) controllers in order to increase the voltage security of power system during large disturbances. The optimal location and size of SVC is determined based on the rate of change of the voltage magnitude sensitivity factor. Results of dynamic simulation in 220/60 kV South-East Algerian transmission system, using commercial software SECRE program are presented to demonstrate the effectiveness of the proposed algorithm. The results clearly indicate that the optimal placement of SVC devices using our algorithm could improve dynamic voltage stability of the power system.

Keywords: *Dynamic stability, Static Var Compensator, Rate of Change of Voltage, Emergency Operating Conditions*

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Abstrak

Pendidikan kini telah merentas masa dan lokasi. Perkembangan teknologi telah merubah paradigm pembelajaran secara konvensional. Pembelajaran teradun (Blended Learning) berasaskan e-Pembelajaran atau M-pembelajaran menjadi asas pembelajaran di Politeknik. M-pembelajaran adalah kaedah yang berasaskan teknologi mobile yang membantu proses pembelajaran, rujukan atau pencarian maklumat. Platform sosial media Whatsapp, yang popular dan murah digunakan secara meluas oleh pelajar untuk menghantar mesej secara multimedia seperti gambar dan audio. Objektif kajian ini adalah untuk meneroka potensi WhatsApp dalam M- pembelajaran. Kajian berbentuk tinjauan ini menggunakan soal selidik berskala Likert lima mata sebagai instrument kajian. Seramai 98 orang pelajar dari Politeknik Tuanku Sultanah Bahiyah terlibat dengan kajian ini dimana soal selidik telah dimuatnaik melalui aplikasi WhatsApp. Kajian ini menunjukkan hanya sebahagian iaitu 63.5 % responden sedia maklum tentang m pembelajaran namun hanya 57.1% responden setuju M-pembelajaran membantu dalam pembelajaran. Ini disebabkan hanya 67.7% yang aktif menggunakan M-pembelajaran. Hasil kajian menunjukkan pelajar di PTSB kurang mendapat pendedahan dalam M-pembelajaran namun positif dengan M-pembelajaran serta boleh memberi motivasi untuk meningkatkan persediaan pembelajaran. Namun begitu pelajar kurang berpuashati dengan capaian Internet dan kaedah penilaian. Sebahagian besar pelajar bersetuju M-pembelajaran boleh membantu mereka untuk lebih memahami hasil pembelajaran, meningkatkan imej politeknik serta daya saing dan kebolehpasaran graduan.

Kata kunci: Pembelajaran Teradun, e Pembelajaran, m-Pembelajaran, Aplikasi Whatsapp

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Abstract

Direct Torque Control is a control technique used in AC drive systems to obtain high performance torque control. This paper presents the analysis of DTC performance in term of torque ripple for variation of torque and flux hysteresis bandwidths. The main objective of this study is to identify the major problems in hysteresis-based DTC of induction machines by analyzing the effects of DTC performance due to the variation of bandwidth of hysteresis controllers. The importance of analyzing the performance of DTC due to the effects of torque or flux hysteresis bands variations is to identify the roots of problem in order to prevent deterioration of DTC performance. It will be shown that by selecting inappropriate bandwidth, this will affect the restriction of torque ripple within the hysteresis band and hence causes larger torque ripple. The problems which are mainly associated in hysteresis controllers were identified by simulating the DTC of induction machine at different applications of hysteresis bandwidth (e.g. different of load torque and speed levels). By analyzing the DTC performances through simulations, it can provide useful information for the designer to identify the root of problem and hence chooses the appropriate hysteresis bandwidths at different operating conditions to achieve high DTC performance.

Keywords: *Torque Ripple, Hysteresis Controllers, Induction Machines*

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Abstract

This paper presents a new method to prevent Cascaded tripping of power lines due to mal-operation of distance relays during major power system disturbances by using Thyristor-controlled series capacitor (TCSC) controllers. These controllers are able to change the network parameters in a fast and effective way in order to limit the consequences and prevent development of disturbances. The behavior and the performance of distance relays with and without TCSC controllers during the March 31, 2015 blackout in Turkey are analysed. The simulation results using URPC software clearly indicate that the use of TCSC controllers could improve reliability of relay operation, enhance the stable operation of power system and prevent future mal-operation involving distance relays in Turkish power system.

Keywords: *Distance Relay Protection, Thyristor-Controlled Series Capacitor, Blackout, Overload Conditions*

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Abstract

Mung beans are the third most important legume crop commodity after soybeans and peanuts. Bahan organic can improve soil structure, increase water holding capacity, and increase soil biological life. The main problem of mung bean cultivation in Indonesia is low productivity and limited cultivated land. This problem can be overcome by optimizing the grumosol land for mung bean cultivation. The challenge of developing green beans on grumosol land is increasing productivity and maintaining the quality of the land for sustainable production. The use of high yielding varieties is one of the technological components for the development of mung bean productivity. The purpose of research is that generate packet technologies such as the development of pea green through the fertilization of organic and assess the effectiveness of the use of fertilizers organic to the growth and results of pea green. The method used is Design Randomized Complete with two factorials is 2 varieties and 3 kinds of fertilizer cage among other dirt chickens, pigs, cows. And got eight combinations among others: V1P0 : Variety Vima 1 without fertilizer / V1P1 : Variety Vima 1 with cow manure (40 grams) / V1P2 : Variety Vima 1 with chicken manure (120 grams) / V1P3 : Variety Vima 1 with fertilizer Pig pen (80 grams) / V2P0 : Vima 3 varieties without fertilizer / V2P1 : Vima 3 varieties with cow manure (40 grams) / V2P2 : Vima 3 varieties with chicken manure (120 grams) / V2P3 : Vima varieties with manure pork (80 grams). The study's fertilizer cage pig dose of 80 grams gives results that differ noticeable on parameter height plant, number of pods and weight of 1000 seeds compared with manure cage chicken 120 grams and manure cage cow 40 grams, as well as varieties of Vima 3 grow more better compared with varieties Vima 1.

Keywords: *Pea Green, Effectiveness, Manure Cage, Varieties*

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Abstract

Utilization of natural resources through environmental empowerment is an intention to improve public welfare through the Pancasila philosophy. The occurrence of floods that have occurred at this time both the Jabodetabek area and other regions illustrate the preservation of the environment not running well. For this reason, efforts and strategies need to be made to anticipate disasters that will occur in the future. In accordance with the foundation of the Pancasila state that has been engraved in the life of the nation and state of Indonesia, the role of the Pancasila for environmental protection needs to be put forward. This article aims to prevent the dominance of law enforcement in the field of environment but the role of the Pancasila perspective as a way of life and state ideology must be put forward. Pancasila is a guideline for maintaining and developing community welfare through a harmonious, balanced environment in order to improve the ongoing development at this time. This research uses a normative approach to library research, by conducting a study of the nation's life view of Pancasila and analyzing the applicable legal provisions, specifically in the field of environmental law. The results of this study are to put forward the Pancasila perspective approach in managing the environment in order to develop patterns of harmony, harmony and balance both in meeting physical and spiritual needs. The conclusion of this article is that environmental management has not been carried out in the perspective of the Pancasila perspective, so that the practice of Pancasila values has not been carried out consistently in developing environmental aspects.

Keywords: *Pancasila Perspective, View of Life*

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Abstrak

Pelajar merupakan elemen penting bagi setiap institusi pendidikan. Kepuasan pelajar terhadap kemudahan dan perkhidmatan yang disediakan di satu-satu institusi pendidikan perlu dipandang serius dalam memastikan proses pembelajaran mereka berjalan dengan lancar. Tujuan kajian ini dijalankan adalah untuk mendapatkan tahap kepuasan pelajar Sijil Pengembaraan Pelancongan terhadap kemudahan infrastruktur yang disediakan di Kolej Komuniti Cawangan Lenggong. Kajian ini dilaksanakan terhadap 46 orang responden yang terdiri daripada pelajar Sijil Pengembaraan Pelancongan. Borang soal selidik digunakan sebagai instrument kajian dan menggunakan pengukuran berskala Likert. Data dianalisis menggunakan SPSS versi 23.0. Hasil dari data yang dianalisis, menunjukkan tahap kepuasan pelajar terhadap kebersihan, keselamatan dan keselesaan persekitaran ruang pembelajaran berada pada tahap paling tinggi dengan skor min 4.376 dan sisihan piawai 0.549. Manakala bagi item peralatan/ bahan sewaktu proses pengajaran dan pembelajaran merupakan kedua tertinggi dengan min 4.086 dan sisihan piawai 0.546 dan yang paling rendah adalah item kemudahan bilik kuliah/ studio/ makmal dengan min 3.89 dan sisihan piawai 0.731. Dapatan kajian menunjukkan tahap kepuasan pelajar terhadap kemudahan infrastruktur yang disediakan di Kolej Komuniti Cawangan Lenggong berada pada tahap yang tinggi. Ini menunjukkan pelajar sangat berpuas hati terhadap kemudahan dan perkhidmatan yang disediakan di kolej. Kajian ini diharap dapat menjadi panduan kepada pihak pengurusan Kolej Komuniti Cawangan Lenggong bagi meningkatkan lagi tahap kemudahan dan perkhidmatan yang akan diberikan kepada pelajar.

Kata Kunci: *Kepuasan, Kemudahan, Pelajar, Infrastruktur, Kolej Komuniti Cawangan Lenggong*

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Abstract

When driving at night, accidents may occur at the intersection or corner. This is happened because the driver cannot visualize the road clearly where the head lamp angle view is offset from the road and causes limited vision and less illumination. The system developed is an additional light system called cornering light. Cornering light is placed on the right and left side of the front bumper of the vehicle. The light will turn on automatically when the steering shaft turns to the left or right and reaches a preset steering angle, and will turn off when steering angle is less than preset angle. The increment type of encoder is use to determine the preset value of steering angle for the light to switch on. By using this method, the switching angle can be changed by altering the pulse count in microcontroller. This system benefits the driver by increasing the illumination on the side of the road while driving at corner or intersection.

Keywords: *Cornering Light, Encoder*

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Abstract

There is a problem for students to perform laboratory exercise where the face to face teaching methodology was no longer allowed due to pandemic Covid 19. This article is about the development of virtual experimental exercise on Programmable Logic Controller (PLC) courses at Port Dickson Polytechnic using Omron CX Designer software. This software is used incorporated with CX Programmer, where students created their ladder diagram program. The physical input and output components of the PLC was replaced by virtual components in CX Designer. The students may choose those components in the default library or customized by themselves. This practical exercise will benefits students with hands on skill in developing the ladder diagram, tested and monitored it every where and time. This will make the learning became more conducive, more interesting and increase students motivational on learning PLC.

Keywords: *OMRON CX Designer, Programmable Logic Controller, Virtual Laboratory.*

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Abstract

The present paper deals with implementing the finite element code to simulate the crash behavior and energy absorption characteristics of aluminum alloy thin-walled tubes of corrugation cross-section subjected to axial impact loading. The collapse procedure is successfully simulated, and the numerical model's verification was compared with other analyses with the previous investigation. Both thin-walled metallic structure aluminum alloy extrusion was describing numerically. Introducing corrugation, a shell element, and a suitable advanced metallic material will enhance absorbed energy device units' crashworthiness performance. On the other hand, the comparison was carried out within both of the results in terms of dynamic load and dynamic absorbed energy versus displacement. Results indicated that the thin-walled energy absorption capability was affected significantly by varying the radial corrugation and aspect ratios. It is also found that as the number of radial corrugations increase, the amount of absorbed energy substantially increases.

Keywords: *Energy Absorption, Thin-Walled Corrugation Structure, Finite Element Analysis*

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Abstract

The purpose of the work is to confirm the possibility of processing different types of Kazakhstan concentrates by autogenous smelting in Vanyukov furnace, select optimum portions of the concentrates in the feed and investigate complex recovery of valuable components. Methods of work – simulation of autogenous smelting in laboratory conditions. The trial plant consisting from a furnace with a crucible installed within was constructed and the feed batched in 100g portions. After feed smelting the melt was blown with the ambient air enriched with oxygen allowing practically complete trapping of the off-gas and fumes through submerged alundum pipe. Results of the work and their novelty – High grade copper matte from 55% to 62% of Cu and acceptable slag composition were obtained. The optimum portions of Zhezkazgan and Eastern Kazakhstan ore concentrates in the feed were determined. Was confirmed the possibility of processing various types of Kazakhstan ore concentrates by autogenous smelting in Vanyukov Furnace. Application area. Copper Production. The results of the trial smelting and calculations confirmed possibility of smelting of the feed composed of two concentrates mentioned above in Vanyukov furnace with no flux added. The heat balance in such case will allow producing 55% to 62% Cu matte while keeping the slag composition satisfactory. Based on the experiments the recommendations were made to Balkhash Copper Smelting Plant to feed high Cu (up to 37%) concentrates to Vanyukov furnace that will allow increase in Cu grade in matte and reduction of slag per 1 metric ton of copper.

Keywords: *Copper Sulfide*

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Abstrak

Makalah kajian ini bertujuan menentukan kesan terhadap balutan gentian kaca jenis E apabila di kenakan bebanan kuasi-statik mampatan. Ujian yang di jalankan adalah secara eksperimen terhadap dua jenis ketebalan aloi aluminium berdinging nipis iaitu 1.6 dan 1.8 mm. Resin penguat yang di gunakan adalah jenis poliester dan gentian kaca jenis kepingan lembar terpotong (CSM). Unikaji ini memeriksa 3 balutan yang berlainan bilangannya merangkumi 2, 4 dan 6 balutan. Keputusan mendapati bahawa tenaga penyerapan mempengaruhi bilangan balutan terhadap lilitan dinding terhadap aluminium tersebut. Selain itu juga, makalah ini juga menganalisis permulaan dan puncak bebanan daya serta tenaga penyerapan tentu terhadap anjakan di bawah bebanan statik.

Kata Kunci: Kecekapan Daya Bebanan, Tenaga Penyerapan, Tiub Berdinging Nipis.

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Abstract

Teaching aids are among the most important instruments in providing effective delivery results as well as the best understanding to students. Therefore, this teaching aid should also be in the Thermodynamics course and among the topics whose concept is quite difficult to understand by students is Boyles Law in the topic of Perfect Gas. Boyle's law is used to explain the inverse relationship between pressure and gas volume at a constant temperature. This law states that when the pressure of the container is filled with increasing gas, then the total volume will decrease. Boyles' Law on the topic of Perfect Gas is also one of the important topics and it is the basis in Thermodynamics. This paper is about the development of Boyle's Law Apparatus (BLA) teaching aids (TA) for the DJJ20063 Thermodynamics course at Port Dickson Polytechnic which is an apparatus that can explain to students related to the basic concepts of Boyle's Law. In addition, this teaching aids can also help lecturers in providing a better understanding to students who take Thermodynamics courses. The production of this tool is not only used by lecturers in the theory class but also this tool can also be used for practical needs in the laboratory. In conclusion, a suitable apparatus for explaining Boyle's Law to students has been successfully designed and developed. In this regard, hopefully the innovation of this teaching aids will be able to benefit all parties in improving the teaching and learning system, especially for Thermodynamics course.

Keywords: *Teaching and Learning, 'Boyle's Law' Teaching Aids, Thermodynamics.*

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Abstract

Boyle's law is used to explain the inverse relationship between pressure and the volume of gas at a constant temperature. This law states that when the pressured container is filled by increasing gas, thus the total volume will decrease. This research paper aims to study the level of student acceptance of teaching based on teaching aids (TA) Boyle's Law Apparatus (BLA) in the teaching and learning for the DJJ20063 Thermodynamics course. The questionnaire study was distributed to 66 respondents, namely Port Dickson Polytechnic's students of semester 2, Diploma in Mechanical Engineering program December 2019 session who involved in lectures where TA is used to give the students a clear vision in understanding the concept of Boyle Law in the topic of Perfect Gas. The questionnaire made an instrument in which the collected data were analysed by descriptive statistics. The results of the study analysis showed that the level of effectiveness of this TA is at a high level with an average mean score of 3.70 and standard deviation 0.447. Therefore, studies showed that the use of teaching aids among students provides a better understanding, especially on the topic of Perfect Gas compared to teaching methods without the teaching aids that had been produced before. Through this method as well, the study found that students' interest and determination to deepen a lesson can be nurtured in more depth.

Keywords: *Teaching Methodology, 'Boyle's Law' Teaching Aids, Thermodynamics.*

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Abstrak

Pendedahan kepada pembelajaran secara maya dan atas talian sudah menjadi kebiasaan dan norma baru semenjak pandemik Covid 19 menular. Perubahan dan perkembangan proses pembelajaran daripada secara bersemuka kepada penggunaan e-Pembelajaran memberi kesan bukan sahaja kepada pensyarah, tetapi juga kepada pelajar. Penggunaan internet bukan merupakan perkara yang asing kepada pelajar, tetapi penggunaannya sebagai perantara utama dalam sesi pembelajaran mengubah sedikit sebanyak pengalaman pembelajaran tersebut. Melalui e-Pembelajaran sepenuhnya, adaptasi atau penyesuaian pelajar dengan norma baru dan penglibatan menyeluruh dari pelajar adalah diperlukan dengan sokongan fasiliti yang baik, pengalaman pembelajaran sendiri dengan motivasi dan yang tinggi, sokongan daripada pengajar serta bahan pengajaran serta tumpuan pembelajaran itu sendiri. Instrument kajian yang digunakan adalah boring soal selidik dengan skala Likert lima mata dan data yang diperolehi dianalisa menggunakan Microsoft Excel. Dapatan kajian menunjukkan tahap adaptasi pelajar terhadap e-pembelajaran adalah sederhana iaitu dengan purata min keseluruhan 3.51. Secara keseluruhannya, pelajar masih lagi dalam proses menyesuaikan diri dalam peralihan kaedah pembelajaran secara e-pembelajaran sepenuhnya. Kaedah pembelajaran yang pastinya berbeza dengan suasana persekitaran yang baru disebabkan oleh desakan sistem pembelajaran masa kini.

Keywords: *e-Pembelajaran, Adaptasi, Pelajar*



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