6th TECHNOLOGY & INNOVATION INTERNATIONAL CONFERENCE 2021

"Strengthening TVET Education in the IR 4.0
During Covid-19 Pandemic Outbreak"

14-15 SEPTEMBER 2021

Virtual Conference

Organized by:

POLITEKNIK NEGERI SAMBAS POLTESA

POLITEKNIK MALAYSIA

KOLEJ KOMUNITI MALAYSIA

POLITEKNIK MALAYSIA MUKAH

POLITEKNIK NEGERI PONTIANAK POLNEP

POLITEKNIK NEGERI SRIWIJAYA

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FOREWORD

Mahyus, S. Pd. S.E., M.M
Director of Politeknik Negeri Sambas

Assalamualaikumwarahmatullahiwabarakaatuh

Alhamdulillah. Praise be to Allah S.W.T for His blessings and compassion, we are again here meeting in this renowned 6th Technology and Innovation International Conference (TECHON) 2021. As this conference aims to bring together leading academicians and professionals from various disciplines ranging from science and technology up to education studies, it gives me immense pleasure to humbly welcome the presence and participation from all researchers and presenters to share innovative ideas, issues, recent trends and future directions in the related fields for the benefits of future knowledge and science. With the theme of "Strengthening TVET Education in the Industrial Revolution (IR 4.0) during COVID-19 Pandemic Outbreak", I believed TECHON 2021 can serve as the best platform for all the researchers to discuss and present their respective insightful thoughts in embracing the new challenges in this recent game-changing era. Ideas and results of academic research highlighted in this conference may be applied to address the current and prospective issues encountered by the industry and community as the advancements in technologies continue to provide new mechanisms and approaches for the benefit of TVET educational arena. The culture of innovations and collaborations must be continuously nurtured and explored among us for our aim to see ASEAN countries especially Malaysia, Indonesia, and other participating countries stand proudly in line with other productive and innovative nations around the world become reality. Finally, I would like to take this opportunity to wish you all great success at the 6th Technology and Innovation International Conference (TECHON) 2021. Also, a huge appreciation to all members of the Organizing Committee of this conference. I praise them for leading the drive towards the success of this all-important 6th Technology and Innovation International Conference (TECHON) 2021. Hopefully, these unconditional efforts of all the working committees will be granted with blessings from Allah SWT.

Wabillahi Taufik Wal Hidayah, Wassalamualaikum Warahmatullahi Wabarakatuh.

Thank you.

Dr. Ishak bin Mohamad
Director of Innovation & Research Center
Polytechnic & Community College Education

Bismillahirrahmanirrahim

Alhamdullilah, all praises be to Allah for His grace and mercy, we are gathered here for this notable event, Technology and Innovation International Conference, TECHON 2021. I would like to extend my heartfelt greetings and best wishes to all of you who are here today to participate in TECHON 2021. Despite the COVID-19 pandemic-era, we have virtually come together to make this remarkable event a successful occasion. The presence and participation of everyone on this day depicts your boundless support and commitment in boosting innovation culture in the society. I would also like to take this opportunity to extend our sincere appreciation and gratitude to all the stakeholders and sponsors for the trust given to the organizers to organize TECHON 2021.

Warmest congratulations to Politeknik Negeri Sambas and members of the Organizing Committee from Politeknik Mukah, Sarawak on the collaborative effort in organizing TECHON 2021 successfully. Due to the outbreak of COVID-19, this year's conference is organized as a fully virtual conference. Hence, in order to prepare for TECHON 2021, the organizing committees, reviewers, session chairs as well as authors and presenters have put a lot of effort and dedication to pull off this successful conference.

In these fast-paced modern days, the world is developing in extraordinary speed, with the advances in the fields of engineering and non-engineering. In order to cope to the current situation, I highly believe that TECHON 2021 is a noteworthy medium for us to put our head together to come with innovations and contributions that can contribute to the global effort of coping with the new norm of COVID-19 pandemic.

Lastly, once again I wish to encourage all the conference participants to jointly collaborate to ignite the culture of innovation in our society. May these initiatives inspire and support the Government's agenda to move towards a developed nation in the field of science, technology, and innovation. Thank you.

Wabillahi Taufik Wal Hidayah. Wassalamualaikum Warahmatullahi Wabarakatuh.

Mohd Sani bin Said
Acting Director of Politeknik Mukah

Bismillahirrahmanirrahim

Alhamdulillah, the highest gratitude and praise to God for His grace and mercy, and because of His will all of us are able to come together today in this glorious event of Technology and Innovation International Conference, TECHON 2021.

I would like to extend my special greetings and best wishes to everyone who are gathered here today to participate in TECHON 2021. Despite the COVID-19 pandemic-era, we have virtually come together to make this remarkable event a successful occasion. The presence of everyone clearly depicts your commitment in order to support the agenda for empowering innovation culture in our society. The COVID-19 pandemic has given a wake-up call to people around the globe that they need to transform with the use of digital technologies, where the more nimble and quickest of them will assure their survival.

I would also like to take this opportunity to express our deepest appreciation and gratitude to all stakeholders and sponsors for the trust given to the organizers in organizing TECHON 2021. Congratulations Politeknik Negeri Sambas and members of the Organizing Committee from Politeknik Mukah, Sarawak on the commitment and efforts undertaken in order to ensure that TECHON 2021 is organized successfully.

Due to the outbreak of COVID-19, this year's conference is organized as a fully virtual conference. I would also like to thank all the co-organizing committees from Indonesia and Malaysia who have been actively involved, working together in organizing this high impact and successful virtual conference. I am confident that this virtual conference will be an excellent medium for us to trigger more new ideas that are more innovative with high impact in all areas, not only in the fields of engineering but also in social sciences.

I also believe that TECHON 2021 would certainly inculcate the culture of innovation in our society. Finally, I would want to call to all conference attendees to work together to ignite an innovation culture in our society and to support the Government's objective to advance the participating countries toward becoming more developed nations in the domains of science, technology, and innovation. We do hope that researchers, knowledge workers and innovators both in academia and industry will find it a valuable reference material. Congratulations once again to Politeknik Negeri Sambas, Politeknik Mukah and all co-organizers upon the success of TECHON 2021.

Thank you and Wabillahitaufik Walhidayah Wassalamualaikum Warahmarullahi Wabarakatuh.

KEYNOTE SPEAKER

Robust and Resilient TVET 4.0 Education during Covid-19 Pandemic

Dr.Eng. Pipit Anggraeni
Vice Director of Academic Affair
Politeknik Manufaktur Bandung, Indonesia

Abstract

The COVID-19 pandemic has created challenges to deliver practical lessons remotely, especially in Indonesia. This is mainly due to limited technology and resources as well as inadequate capacity of lecturers and trainers to deliver lessons online. Now is the time to critically look at the role of digitizing technical and vocational education and training (TVET). Digital skills have become vital in a world that enhances adaptability. Furthermore, in the Industrial Revolution 4.0 there was an increase in the use of digital system products that changed the structure of work, types of work, competencies and work skills. The digital transformation and industrial revolution 4.0, which accompanied the Covid 19 pandemic, made major changes in the structure of work and employment. There are already emerging jobs and redundant jobs. Emerging jobs lead to 15 emerging skills The problem that then arises is how to conduct the formulation of competencies or skills that are relevant to the employment structure and new types of work in the Industrial Revolution 4.0 era during the pandemic? What kind of learning is relevant to the needs of the Industrial Revolution 4.0 during the pandemic? How to make a vocational learning design for the needs of Industry 4.0 during the pandemic? TVET requires skill full learning system which conduct more practices at their system. However, on the other side pandemic strikes down every contact full activities. This condition challenges us to find the best formula to optimize between the practical system in the TVET during pandemic by first make a classification which disciplines are hard to replace the practice, who are moderate to be blended and which ones are ready to fully replaced by online (simulation, AR or even VR). Improvement and innovation required to the new TVET system during pandemic. However, all are priced by compromised student's hard skills and low competency. Among them as well as investment in smart technologies, investment in capacity-building for TVET instructors. Then elaboration of comprehensive contingency plans and regular monitoring and evaluation to the new system more robust and agile is a must to do.

Assessing the Sustainability Performance of Palm Oil Plantation via Agriculture Sustainable Index

Associate Professor Dr Shanti Faridah Salleh
Universiti Malaysia Sarawak
Director in the Chancellery and International Relations Office (UNIMAS Global),
Universiti Malaysia Sarawak

Abstract

The Food Agriculture Organization (FAO) defines sustainable development as the management and conservation of the natural resource base, as well as the orientation of technological and institutional change in such a way as to ensure the attainment and continued satisfaction of human needs for present and future generations. Agricultural sustainability, like any other concept of sustainability, is a complex and multi dimensions problem to define. In response to the growing interest in assessing agricultural sustainability challenges, several tools and approaches have been developed. Malaysia is home to a diverse range of agricultural activities. National Agrofood Policy 2.0 (2021-2030) Framework specified one of its thrust as an initiative to advance towards sustainable agriculture practices and inclusivity. Malaysia is the world's second-largest palm oil producer and exporter. In 2020, the size of the planted area for oil palm in Sarawak was approximately 1.58 million hectares. As a result, palm oil plantations' intensive farming techniques have an influence on both environmental and socioeconomic sustainability. The major goal of this research is to use the Agriculture Sustainable Index to assess the sustainability of palm oil plantations in Sarawak (ASI). This research focuses on a preliminary investigation into the most appropriate evaluation method and indicators for evaluating agriculture sustainability, which are utilised to calculate the Sustainability Index in terms of environmental and socioeconomic variables. Based on 19 developed indicators, the overall average ASI score for environmental, economic and social sustainability are 55%, 60% and 89% respectively. The high results in the overall ASI score were attributable to the plantation's social sustainability index, which was followed by economic and environmental components. The outcome of the assessed indicators were also analysed to evaluate the possible adoption strategies of Industrial Revolution 4.0 (IR4.0) to enhance the formulated ASI.

Is the Pandemic Watershed Moment for the Technology in Education?

Associate Professor Ts. Dr Sabrina Binti Ahmad
Deputy Dean (Research and Postgraduate Studies)
Faculty of Information and Communication Technology
Universiti Teknikal Malaysia Melaka

Abstract

The entire world is overwhelmed with the Covid-19 pandemic as it has a devastating impact on our everyday life. Education is no exception, as governments worldwide have moved to suspend face-to-face teaching at all levels in response to lockdown measures. Without significant efforts to counter the impacts, the lockdown shock will lead to learning loss, increased dropouts, and higher inequality in society. Therefore, digital learning is becoming a lifeline for education in which technology is the enabler. Even though Information and Communication Technology (ICT) is already being used in education long before the pandemic, the purpose is to provide alternatives and elevate the teaching and learning experience. When technology is essential for the continuity of education, the entire education paradigm shifted. In addition, institutions have an opportunity to educate lecturers about the efficacy of digital teaching and learning and to support their efforts to transition and teach their courses digital. This talk focuses on two main points: the pandemic impact on education in terms of loss of face-to-face instructional time, lecturer's preparedness on digital learning, and assessment challenges. The second is on the educational innovations to ensure active teaching and learning experience, things required for lecturer's preparedness to support innovations, and assessment alignment to accommodate the new norm. Furthermore, the talk also highlights the role of ICT to elevate the education experience for both lecturers and students.

Applying a Service Dominant Logic (SDL) to Sustain Green Innovativeness Performance with Innovated Co-creation Value as Mediating Variable. An Empirical Study on Large Scales Enterprises in Indonesia

Associate Professor Dr. Kardison Lumban Batu, SE., MSc
Politeknik Negeri Pontianak

Abstract

Purpose – current study is aiming at to investigate the role of customer join creative behavior in the development and leverage innovative service which prepared by Large Scale Enterprises for firms in the market, the important of this study is based on the imitative innovation service provider has a low role in co-creation value through design, process and product users or services, but, somehow, innovative aspect is added during service delivery.
Design/methodology/approach – The article describes a quantitative study based and Research population is LSE consisting of selected innovated services which use social media platform. Data collection is conducted by developing online questionnaires and Google form. The survey was conducted for six months in the year of 2021 (January – May).
Findings – It could be concluded that the customers participation in service innovation process plays crucial role in order to ensure the success services providers and entry the services to markets. These findings are also motivated the CCB, CPB, IDS and SC to sustain customers as loyal customers. Shortly, the findings revealed the customer participation and citizenship behavior, Integrated Dyadic Support and Social Creation showed a strong antecedent of green innovativeness performance mediated by innovated co-creation value.
Practical implications – Then, current study offers the new opportunity to conduct research within this domain. In a-nut shell, this research contributed on existed literature by empirical investigating and examining the four dimensions of value creation behavior and the innovative services, the innovated co-creation value showed the strong mediating between exogenous and endogenous variable.
Originality/value – This research proposed a novelty of the innovated co-creation value as a mediating variable to strengthen the service dominant logic.
on Value, Green Innovativeness performance.

Advancing a New Path for Lifelong Learning via Open & Distance Learning: How Do We Get There?

Associate Professor Dr. Fariza Khalid
Deputy Director (Academic and Program Advancement)
Center for Educational Extension
Universiti Kebangsaan Malaysia
fariza.khalid@ukm.edu.my

Abstract

Open & Distance Learning (ODL) has become an integral part of higher education globally, aiming to cater to the increasing demand for higher education and at the same time to promote life-long learning. ODL has been proven to provide students with relevant knowledge, professional development, self-motivation, and perseverance. However, achieving a successful ODL program requires careful planning. This is because the philosophy behind ODL program is not just merely mean shifting teaching and learning online. Many considerations need to be taken by program providers before, during, and after the implementation of the ODL program. In this keynote session, the discussion will revolve around the development of the ODL program covering curriculum design, assessment, Learning Management System (LMS) and other support system needed to ensure students' meaningful learning and emotional balance.

Responsible Youth Empowerment: Making an Impact on the Future

Associate Professor Dr. Hiram Ting Huong Yiew
UCSI University, Malaysia
Ambassador, Emerald Publishing (East Asia)
Associate Editor, Young Consumers
Editor-in-Chief, Journal of Responsible Tourism Management

Abstract

Young people are the front-liners of the future and they are able to build a better future for all. They are exposed to information explosion and are more than often presented with opportunities to learn new things in the digital era. While TVET remains essential to nurturing the young generation, the COVID-19 pandemic underscores the importance of youth empowerment through the lens of responsibility in order to prepare a generation who are educated, trained, resilient and purposeful. It is high time that young people today are equipped not only with the relevant knowledge and skills, but also growth mindset and ascription of responsibility to perpetuate the Fourth Industrial Revolution in the face of the pandemic crisis in a sustainable manner.

CONFERENCE TENTATIVE

DAY 1 : 14 SEPTEMBER 2021 (TUESDAY)

TIME	FUNCTION
OPENING CEREMONY	
8.30 am – 9.00 am	Registration of Participants and Arrival of Honourable Guests
9.00 am – 9.30 am	Welcoming Address National Anthem of Malaysia & Indonesia Recital of Doa Presentation of TECHON 2021 Video Montage
9.30 am – 10.00 am	Welcoming Speech by Acting Director of Politeknik Mukah **: Mr. Mohd Sani bin Said** Officiating Speech by Director of Politeknik Negeri Sambas **: Mr. Mahyus, S. Pd. S.E., M.M**
10.00 am – 10.15 am	Introduction of Keynote Speakers
10.15 am – 10.20 am	Virtual Photo Session
10.20 am – 11.20 am	Parallel Keynote Speech 1. **Dr.Eng. Pipit Anggraeni** ROOM 1 (ENGINEERING) http://shorturl.at/mnGQY 2. **Associate Professor Dr Shanti Faridah Binti Salleh** ROOM 2 (ENGINEERING) http://shorturl.at/avELO 3. **Associate Professor Ts. Dr Sabrina Binti Ahmad** ROOM 3 (IT) http://shorturl.at/gxL45 4. **Associate Professor Dr Kardison Lumban Batu** ROOM 4 (SOCIAL SCIENCE) http://shorturl.at/yIO15 5. **Associate Professor Dr Fariza Khalid** ROOM 5 (EDUCATION) http://shorturl.at/vyAZ0 6. **Associate Professor Dr. Hiram Ting Huong Yiew** ROOM6 (OTHER MULTIDISCIPLINE) http://shorturl.at/rCHIU
OPENING CEREMONY ENDS	

DAY 1 : 14 SEPTEMBER 2021 (TUESDAY)

11.20 am – 1.50 pm	Break
1.50 pm – 2.00 pm	Presenter Registration
2.00 pm – 4.30 pm	Conference Presentation (Session 1)
4.30 pm	End of Day 1

DAY 2 : 15 SEPTEMBER 2021 (WEDNESDAY)

TIME	FUNCTION
8.45 am – 9.00 am	Presenter Registration
9.00 am – 12.30 pm	Conference Presentation (Session 2)
12.30 pm – 2.00 pm	Break
CLOSING CEREMONY	
2.00 pm – 2.30 pm	Registration of Participants and Arrival of Honourable Guests
2.30 pm – 3.00 pm	Welcoming Address National Anthem of Malaysia & Indonesia Recital of Doa TECHON 2023 Video Montage
3.00 pm – 3.30 pm	Welcoming Speech by Acting Director of Politeknik Mukah **: Mr. Mohd Sani bin Said** Closing Remarks by Deputy Director General (Planning) Department of Polytechnic & Community College Education **: Dr. Zubaidah binti Aman**
3.30 pm – 3.40 pm	Commentary Speech by **Head of Review Panel**
3.40 pm – 4.00 pm	Awards Presentation
4.00 pm – 4.10 pm	Virtual Photo Session
CLOSING CEREMONY ENDS	

PRESENTATION ROOMS

Day 1 : Tuesday, September 14, 2021
(2.00PM - 4.40PM, Malaysian time. UTC +08:00)

ROOM 1 (ENGINEERING)

Msteam Link : http://shorturl.at/mnGQY
Session Chair : Ir. Ts. Dr. Ahmad Azlan bin Ab Aziz
Moderator : Dr. Nur Adilla binti Kassim

Time	Paper ID	Paper Title	Author	Presenter	Affiliation
2:00pm-2:15pm	TECHON 2021: 047-032	Programmable Logic Controller Trainer For Polytechnic Students	Roslinda Ismail and Suhairi Suaibun	Roslinda binti Ismail	Politeknik Kota Bharu
2:15pm-2:30pm	TECHON 2021: 030-016	An Efficient of Overlapping Grid Method with Scattering Technique in Time Domain for Numerical Modeling	Bong Siaw Wee, Kismet Hong Ping and Shafrida Sahrani	Ts. Dr. Bong Siaw Wee	Politeknik Mukah
2:30pm-2:45pm	TECHON 2021: 134-120	Development of Oil Palm Shell-reinforced 316L Stainless steel Composite Prepared by Powder Metallurgy Route	Zulaikha Abdullah, Sufizar Ahmad and Goodwin ak Dangkan	Zulaikha bte Abdullah	Politeknik Mukah
2:45pm-3:00pm	TECHON 2021: 097-067	A Development of Energy Harvesting Floor Using Piezoelectric Sensors	Michael Sillang and Susie Patricia	Ts. Michael Sillang Anak George Albert	Politeknik Mukah
3:00pm-3:10pm	10 minutes break				

3:10pm-3:25pm	TECHON 2021: 105-074	Electrical Power Prediction of a Small-Scale Hydrokinetic Turbine	Diana Ringgau	Diana anak Ringgau	Politeknik Mukah
3:25pm-3:40pm	TECHON 2021: 119-088	Easy Measurement Equipment	Norliza Abd Razak and Hamadi Ahmad	Norliza binti Abd. Razak	Politeknik Mukah
3:40pm-3:55pm	TECHON 2021: 069-096	Switched Reluctance Motors: Review on Fundamentals, Controls and Applications	Hamadi Ahmad and Norliza Abd Razak	Hamadi Bin Ahmad	Politeknik Mukah
3:55pm-4:10pm	TECHON 2021: 065-099	Investigate The Performance Of Line Following Robot With Different IR Sensor Position Mounted	Mohd Nazrul Effendy Mohd Idrus, Mohd Khairul Anuwar Mohd Khairi and Kamarul Ariff Abu Mansor	Mohd Nazrul Effendy Bin Mohd Idrus	Politeknik Mersing

ROOM 2 (ENGINEERING)

Msteam Link : http://shorturl.at/avELO
Session Chair : Dr. Nurul Izzatul Akma binti Katim
Moderator : Tan Kheng Wee

Time	Paper ID	Paper Title	Author	Presenter	Affiliation
2:00pm-2:15pm	TECHON 2021: 044-029	Distillation of Essential Oil Through Portable Distiller to the Partners of the Program for Disseminating Technology Product to Community	Hidayat Asta, Daud Perdana, Munandar and Kiki Kristiandi	Kiki Kristiandi	Politeknik Negeri Sambas
2:15pm-2:30pm	TECHON 2021: 050-035	The Supply Chain Management of Sambas Citrus	Andiyono, Erik Darmansyah, Rozana, Radian and Tatang Abdurrahman	Andiyono	Politeknik Negeri Sambas
2:30pm-2:45pm	TECHON 2021: 051-036	Risks Identification of Pontianak Citrus Farming in Sambas District West Kalimantan	Erik Darmansyah, Andiyono, Rozana, Radian and Tatang Abdurrahman	Erik Darmansyah	Politeknik Negeri Sambas
2:45pm-3:00pm	TECHON 2021: 052-037	NTRM (Non Tobacco Related Material) Madura Sliced Tobacco Controlling Strategy	Rozana, Lorine Tantalu and Sudirman	Rozana	Politeknik Negeri Sambas
3:00pm-3:10pm	10 minutes break				

3:10pm-3:25pm	TECHON 2021: 081-052	GP Nangka SMART Fertigation System: Innovation Research for Sarawak Agriculture	Amir Haziq Loh Bojeng, Siti Zuraifa Md Sah, Mohammad Fadzli Jawawi, Mohd Fahmi Abd Razak and Mohammad	Siti Zuraifa Binti Md Sah	Politeknik Mukah, Politeknik Kuching Sarawak
3:25pm-3:40pm	TECHON 2021: 016-011	Properties of Pervious Concrete with Recycled Oyster Shells as Partial Aggregates Component	Nadia Razali, Nur Aini Ahmad Sani, Nadlene Razali and Nurriswin Jumadi	Nurriswin Jumadi	Universiti Kuala Lumpur - Malaysian Institute of Chemical and Bioengineering Technology, 78000 Alor Gajah, Melaka,
3:40pm-3:55pm	TECHON 2021: 029-048	Kajian Penggunaan Perlite, Abu Dasar (Bottom Ash) Dan Gentian Sabut Kelapa Sebagai Pengganti Agregat Halus Dalam Menghasilkan Nisbah Campuran	Mohd Fahmi Abd Razak and Siti Zuraifa Md. Sah	Mohd Fahmi Bin Abd Razak	Politeknik Mukah
3:55pm-4:10pm	TECHON 2021: 095-064	Kajian Kekuatan Bata Termampat Berasaskan Tanah Liat	Mohd Rizal, Nik Nur Dina and Ahmad	Mohd Rizal Bin Khatib	Politeknik Mukah

ROOM 3 (INFORMATION TECHNOLOGY)

Msteam Link : http://shorturl.at/gxL45
Session Chair : Assoc. Prof. Dr. Johari bin Abdullah
Moderator : Dr. Norliza binti Abdullah

Time	Paper ID	Paper Title	Authors	Presenter	Affiliation
2:00pm-2:15pm	TECHON 2021: 049-034	Application Design for Catholic Church Administration in Sambas	Theresia Widji Astuti	Theresia Widji Astuti	Politeknik Negeri Sambas
2:15pm-2:30pm	TECHON 2021: 135-106	Kajian Keberkesanan Sistem Pengurusan Unit Jaminan Kualiti (UJQMS) Politeknik Mukah	Aisyah Suhailla Jili and Fairose Mohtar	Aisyah Suhailla bt Jili	Politeknik Mukah
2:30pm-2:45pm	TECHON 2021: 131-110	Usability Testing on PTSS Conference Management System	Ruziana Mohamad Rasli, Mime Azrina Jaafar, Hafizah Abdullah Ali and Hafizah Abdullah Ali	Ruziana Mohamad Rasli	Politeknik Tuanku Syed Sirajuddin
2:45pm-3:00pm	TECHON 2021: 048-033	Requirement Model to Optimize Features Selection for Web-Based e-learning on Learning Management System	Narti Prihartini	Narti Prihartini	Politeknik Negeri Sambas
3:00pm-3:15pm	TECHON 2021: 060-042	A Correlational Study on the Relationship between Students' Readiness and Attitudes towards Online English Language Learning	Kamilah Zainuddin, Tengku Ahmad Badrul Shah Raja Hussin and Noor Asmaa' Hussein	Kamilah Binti Zainuddin	Politeknik Kota Bharu
3:15pm-3:25pm	10 minutes break				

3:25pm-3:40pm	TECHON 2021: 086-058	Faktor Yang Mempengaruhi Hasil Pembelajaran Pelajar Dalam Pembelajaran Atas Talian: Kajian Kes Di Politeknik Kota Kinabalu	Nina Shenna Kosumin, Clayrina Julianus and Ag Izzuddin Hamdi Awang Rasim	Clayrina Julianus	Politeknik Kota Kinabalu
3:40pm-3:55pm	TECHON 2021: 022-053	Sikap Mahasiswa Politeknik terhadap Youtube sebagai Sumber Maklumat	Petrus Banati @ Fazzerius and Alester G Jakuil	Petrus Bin Banati @ Fazzerius	Politeknik Kota Kinabalu
3:55pm-4:10pm	TECHON 2021: 092-060	The E-learning Centralised Systems adoption during the Covid-19 Pandemic	Mohamad Shafiq Mohamed Nasaruddin, Muhammad Wasfi Khairul Anuar, Ahmad Syakir Kadimin and Habsah Mohamad Sabli	Mohamad Shafiq Mohamed Nasaruddin	Politeknik Mukah
4:10pm-4:25pm	TECHON 2021: 094-062	The Facilitating Conditions with CIDOS 3.5 Utilisation	Adi Jaya Adam, Salinda Rosli and Habsah Mohamad Sabli	Adi Jaya Adam	Politeknik Mukah
4:25pm-4:40pm	TECHON 2021: 103-073	Cabaran Pembelajaran dan Pengajaran Dalam Talian (PdPDT) : Kajian Sorotan Literatur Bersistematik	Abdul Fattah Hamden	Abdul Fattah Bin Hamden	Politeknik METrO Betong Sarawak

ROOM 4 (SOCIAL SCIENCE)

Msteam Link : http://shorturl.at/ylO15
Session Chair : Dr. Desloehal Djumrianti
Moderator : Dr. Habsah binti Mohd Sabli

Time	Paper ID	Paper Title	Author	Presenter	Affiliation
2:00pm-2:15pm	TECHON 2021: 031-017	Hubungan Kekerapan Bermain Permainan Dalam Talian Dengan Motivasi Belajar Pelajar Kejuruteraan Di Politeknik Port Dickson	Suhana Ramli, Noorain Ithnin and Farizah Sufar	Suhana binti Ramli	Politeknik Port Dickson
2:00pm-2:15pm	TECHON 2021: 021-012	Keperluan Unit Pemeriksaan Dalaman Bagi Proses Penambahbaikan Kerja-kerja Penyelenggaraan Kenderaan Rasmi Institusi	Arman Haji Ahmad Sapawi, Zuraiti Haji Che Amat and Mohd Asmedi Yaacob	Arman Bin Hj Ahmad Sapawi	Politeknik Sultan Azlan Shah
2:15pm-2:30pm	TECHON 2021: 093-061	Financial Literacy Among Micro Entrepreneur Performance In Sarawak, Malaysia.	Habsah Mohamad Sabli, Nik Suriani Nik Fauzi and Mohammad Fardillah Wahi	Mohammad Fardillah Bin Wahi	Politeknik Mukah
2:30pm-2:45pm	TECHON 2021: 022-075	Pilihan Barangan Dan Gelagat Pembelian Pengguna Atas Talian	Javadius Bollah, Alester G Jakuil and Petrus Banati	Javadius Bollah	Politeknik Kota Kinabalu Sabah
3:00pm-3:10pm	10 minutes break				

3:10pm-3:25pm	TECHON 2021: 099-069	The Link Between Teachers' English Language Proficiency And Teachers' Competence	Yong Hua Ying and Diana Ipan	Yong Hua Ying	Politeknik Mukah
3:25pm-3:40pm	TECHON 2021: 040-022	Sifat Kebimbangan di Kalangan Atlet Futsal Politeknik Malaysia Semasa Kejohanan Liga IPT	Zamry Ahmad Mokhtar, Mohd Fuad Ibrahim and Rasyidi Abdullah	Mohd Fuad Bin Ibrahim	Politeknik Seberang Perai
3:40pm-3:55pm	TECHON 2021: 035-020	Tahap Pengetahuan Dan Kemahiran Pensyarah Matematik Kejuruteraan Di Politeknik Malaysia Terhadap Pengajaran Dalam Talian	Suhana Ramli, Noorain Ithnin and Nor Ridzuan Hashim	Noorain binti Ithnin	Politeknik Port Dickson
3:55pm-4:10pm	TECHON 2021: 116-078	The Relationship between Leadership Styles and Employees' Performance among academicians at Politeknik Mukah, Sarawak	Nur Anisah Ezuddin and Ahmad Nabil Mohamad	Nur Anisah binti Ezuddin	Politeknik Mukah

ROOM 5 (EDUCATION)

Msteam Link : http://shorturl.at/vyAZ0
Session Chair : Dr. Rohani M. M Yusoff
Moderator : Ts. Haji Hamdan bin Samdin

Time	Paper ID	Paper Title	Author	Presenter	Affiliation
2:00pm-2:15pm	TECHON 2021: 071-046	English Language Competency in Enhancing Technical and Vocational Education Training (TVET) Graduates Marketability in The Malaysian Workplace: A Literature Review	Mohamad Sobri Suhaili, Maslawati Mohamad and Hanis Wardah Parjan	Mohamad Sobri Suhaili	Politeknik Mukah
2:15pm-2:30pm	TECHON 2021: 091-063	Speech Pro Apps: An Innovative Approach In Enhancing Tertiary Students' Presentation	Yong Hua Ying, Katherine Livan Kehing, Mohamad Sobri Suhaili and Melor Md Yunus	Katherine Livan Kehing	Politeknik Mukah
2:30pm-2:45pm	TECHON 2021: 104-102	Kepentingan Pendidikan PraPerkahwinan Bagi Pasangan Yang Ingin Berkahwin	Nur Khamsiah Adan	Nur Khamsiah Adan	Politeknik Port Dickson
2:45pm-3:00pm	TECHON 2021: 042-038	Identifying the Correlation between the Students Achievement in SPM Mathematics and Semester 1 and 2 Overall Performance for the Electrical Department of Politeknik Kota Bharu	Chung Boon Chuan, Melissa Khor Suan Chin and Udom A/L Ewon	Chung Boon Chuan	Politeknik Kota Bharu
3:00pm-3:10pm	10 minutes break				

3:10pm-3:25pm	TECHON 2021: 089-059	Kesan Persekitaran Organisasi Terhadap Kepuasan Latihan Pembelajaran Berasaskan Kerja Pelajar Politeknik Kota Kinabalu	Naisah Ujin, Nina Shenna Kosumin and Noor Intan Tahir	Naisah Ujin	Politeknik Kota Kinabalu
3:25pm-3:40pm	TECHON 2021: 102-072	Peranan Teknologi Dalam Isu Dan Cabaran Pendidikan TVET Di Malaysia	Mas Nordiana Haji Rusli, Ahmad Nabil Mohamad, Izan Fahmee Nordin and Mohd Aly Rajaie Halim	Ahmad Nabil Bin Mohamad	Politeknik Mukah
3:40pm-3:55pm	TECHON 2021: 113-077	Analysing the Validity of Lower Secondary School Students' Personality towards Design and Technology	Yusrin Shharudin, Irdayanti Mat Nashir and Mohammad Firdaus Ahmad	Mohd Yusrin Bin Shharudin	Universiti Pendidikan Sultan Idris
3:55pm-4:10pm	TECHON 2021: 031-026	Tahap Kesediaan Pelajar Melaksanakan Amali Sains Kejuruteraan Berpandukan Video Di Politeknik Port Dickson	Noorain Ithnin, Suhana Ramli and Syafarizan Nasroddin	Suhana binti Ramli	Politeknik Port Dickson

ROOM 6 (OTHER MULTIDISCIPLINE)

Msteam Link : http://shorturl.at/rCHIU
Session Chair : Professor Ts. Dr. Chong Khim Phin
Moderator : Fairose binti Mohtar

Time	Paper ID	Paper Title	Author	Presenter	Affiliation
2:00pm-2:15pm	TECHON 2021: 039-021	Students' core course performance and learning behaviors through online learning and teaching (PdPdT) in the pandemic of Covid-19	Mohamad Shukri Muda and Norazimah Mejri	Norazimah binti Mejri	Politeknik METrO Betong Sarawak
2:15pm-2:30pm	TECHON 2021: 036-025	Development of Digital Railway in Malaysia - An Approach for Implementation Post COVID -19 Pandemic	Sri Viknesh Permalu, Yuslizar Daud and Karthigesu Nagarajoo	Sri Viknesh Permalu	Universiti Tun Hussein Onn
2:30pm-2:45pm	TECHON 2021: 083-081	Work From Home (WFH) During Pandemic of Covid-19: Occupational Health Risks, Strategies and Control Measures	Syarifah Hannan Sayed Abd Rahman	Syarifah Hannan binti Sayed Abd Rahman	Politeknik Ibrahim Sultan
2:45pm-3:00pm	TECHON 2021: 024-010	Entrepreneurial Intention: Establishment of Startup company in Pontianak	Zulfikar , Arianto, and Lestari Pramudita, Melati	Zulfikar	Politeknik Negeri Pontianak
3:00pm-3:10pm	10 minutes break				

3:10pm-3:25pm	TECHON 2021: 079-051	Penerimaan aplikasi Cakeculator dalam kalangan penduduk Mukah	Muhammad Ashraf, Goh Si Ying, Nurul Fathun Nisa and Shatila Shani	Mohamad Ashraf Bin Zaaba	Politeknik Mukah
3:25pm-3:40pm	TECHON 2021: 096-065	Persepsi Peserta Program Latihan UAV Dron di Politeknik Seberang Perai Terhadap Elemen 'Program Latihan' dan 'Motivasi Latihan'	Sharipah Khadijah S. Hashim, Hasnieza Mokhtar and Hasmiza Taib	Sharipah Khadijah binti S.Hashim	Politeknik Seberang Perai
3:40pm-3:55pm	TECHON 2021: 140-121	Tahap Keberkesanan Aplikasi Mudah Alih M-SAF (M-Simplifying Algebraic Fractions) dalam pembelajaran Matematik	Rasyidah Abd Rahman, Nor Syahidal Arshaini Shamsudin and Nurul Amalina Ibrahim	Nor Syahidal Arshaini binti Shamsudin	Politeknik Mukah
3:55pm-4:10pm	TECHON 2021: 101-070	Review on Smart Agriculture: Internet of Things (IoT) Application Layer Protocols	Amir Haziq Loh Bojeng, Nurhazura Hassan and Rozaida Halil	Rozaida Binti Halil	Politeknik Mukah

Day 2 : Wednesday, September 15, 2021
(9.00am - 11.40am, Malaysian time. UTC +08:00)

ROOM 1 (ENGINEERING)

Msteam Link : http://shorturl.at/mnGQY
Session Chair : Ts. Dr. Hoh Wei Siang
Moderator : Ts. Lim Che Chien

Time	Paper ID	Paper Title	Author	Presenter	Affiliation
9:00am-9:15am	TECHON 2021: 066-101	Development of Bluetooth Control Car Jack	Kamarul Ariff Abu Mansor, Mohd Khairul Nizam Abdul Talib and Dennis Mark A/L Jouph	Kamarul Ariff Bin Abu Mansor	Politeknik Mersing
9:15am-9:30am	TECHON 2021: 064-044	Development of Smart Keyless using Android for Car Safety System	Mohd Ariff Ramli, Norfadhilah Hasan and Masriani Mansor	Mohd Ariff bin Ramli	Politeknik Sultan Mizan Zainal Abidin
9:30am-9:45am	TECHON 2021: 120-090	Characterisation of flexural properties of glass fibre / pineapple leaf fibre (PALF) hybrid composite	Mawarnie Ismail, Marlina Mohamad, Leanna Yunos and Mohammad Hazim Mohamad Hamdan	Mawarnie binti Ismail	Politeknik Mukah
9:45am-10:00am	TECHON 2021: 028-015	Non-Stationary Vibratory Signatures Bearing Fault Detection Using Alternative Novel Kurtosis -based Statistical Analysis	Nur Adilla Kasim, Mohd Ghafran Mohamed and Mohd Zaki Nuawi	Dr. Nur Adilla Kasim	Politeknik Mukah
10:00am-10:10am	10 minutes break				

10:10am-10:25am	TECHON 2021: 040-027	Experimental on Internal Crude Oil Pipeline Surface Corrosion of Different Acidic Concentrations	Mohd Fuad Ibrahim, Zul Azri Razuan and Ahmad Azlan Ahmad	Mohd Fuad Bin Ibrahim	Politeknik Seberang Perai
10:25am-10:40am	TECHON 2021: 045-031	Merekabentuk Jig Mencanai Mata Alat Bagi Proses Melarik	Muhammad Nur Azuan Kamaruddin, Khairulbadri Ahmad and Alfan Serail	Alfan Bin Serail	Politeknik Mukah
10:40am-10:55am	TECHON 2021: 053-054	Characterization of Physical Properties for Diesel-alcohol and Biodiesel-alcohol Blends	Mohd Hafizil Mat Yasin, Mohd Rosdi Salleh and Mohd Hafiz Ali	Mohd Hafizil Mat Yasin	Politeknik Sultan Mizan Zainal Abidin
10:55am-11:10am	TECHON 2021: 124-094	Gamified AR Application as a Learner Model for CNC Milling Machine during COVID 19 Pandemic	Salahuddin Yusoff, Mohanadhas Kanagaraj and Nadia Abdul Rani	Mohanadhas Kanagaraj	Kolej Komuniti Kepala Batas
11:10am-11:25am	TECHON 2021: 127-095	Effect of Mesh Size on the Natural Frequencies of Lathe Spindle	Mohd Hazri Omar, Mohamad Nazri Abdul Halim and Mohd Zulkiflee Faizal Saleh	Mohd Hazri Omar	Politeknik Sultan Abdul Halim Muadzam Shah

ROOM 2 (ENGINEERING)

Msteam Link : http://shorturl.at/avELO
Session Chair : Professor Ts.ChM Dr Sheikh Ahmad Izaddin Sheikh Mohd Ghazali
Moderator : Lorothy Anak Morrison Buah

Time	Paper ID	Paper Title	Author	Presenter	Affiliation
9:00am-9:15am	TECHON 2021: 117-085	Modelling and Simulation of a Direct Ethanol Fuel Cell: Electrochemical Reactions and Mass Transport Consideration	Christopher Janting Liew Chalu	Christopher Janting Liew Chalu	Politeknik Kuching Sarawak
9:15am-9:30am	TECHON 2021: 076-111	The Use of Polystyrene and Xylene Liquid for Strong Wood Surface Glue: A Preliminary Study	Habsah Mohd Sabli, Muhammad Sufyan Safwan Mohamad Basir and Muhammad Amir Faisal Nor Azhar	Muhammad Sufyan Safwan Mohamad Basir	Politeknik Mukah
9:30am-9:45am	TECHON 2021: 043-030	Energy Consumption, Investment, Carbon Dioxide Emission and Economics Growth based on Granger Causality in Time Series Using R: The Case of Indonesia	Samuel Dendy Krisandi, Zulfikar	Samuel Dendy Krisandi	Pontianak State Polytechnic
9:45am-10:00am	TECHON 2021: 003-004	Faktor Penghalang Sistem Perkongsian Basikal di Bandaraya Ipoh	Muhamad Razuhanafi Mat Yazid, Nik Mohd Iznan Tuan Yaakub, Muhamad Nazri Borhan, Sharinatol Akmanida Jamaludin and Nurul Aisyah Abdul Rashid	Nik Mohd Iznan Tuan Yaakub	Politeknik Ungku Omar

10:00am-10:10am	10 minutes break				
10:10am-10:25am	TECHON 2021: 005-005	Penghasilan Komposit Blok Hiasan daripada Bahan Sisa Pepejal Dikitar Semula	Masalinda Mansor, Rosmalati Aman Shah and Roziah Zainal Abidin	Rosmalati Binti Aman Shah	Politeknik Mukah
10:25am-10:40am	TECHON 2021: 041-028	Jejak Karbon Di Bangunan Staff Politeknik Kuching Sarawak	Redzuan Safri Abdul Rahman, Norain Ali, Ayub Abdullah and Che Zaidi Che Hassan	Norain Binti Ali	Politeknik Kuching Sarawak
10:40am-10:55am	TECHON 2021: 136-109	Kombo Piket	Zainap Haji Lamat, Mohamed Yusup Mohamad Yackub and Alvadjuri Affandie	Zainap Binti Haji Lamat	Politeknik Kuching Sarawak
10:55am-11:10am	TECHON 2021: 080-115	Kesedaran Pelajar Jabatan Perdagangan Politeknik Mukah Terhadap Teknologi Hijau	Shatila Shani, Siti Khadijah Sebli Joney and Nur Azlinda Md Saru	Nur Azlinda binti Md Saru	Politeknik Mukah

ROOM 3 (INFORMATION TECHNOLOGY)

Msteam Link : http://shorturl.at/gxL45
Session Chair : Mr. Mohd Helmy Abd Wahab
Moderator : Tn Hj Mohd Azlan bin Ab. Aziz

Time	Paper ID	Paper Title	Author	Presenter	Affiliation
9:00am-9:15am	TECHON 2021: 059-083	Factors Affecting Student Participation and Performance in Online Learning	Lydia Desmond Bangga, Gregory Evan Nanson and Ruzaini Abd Razak	Lydia Desmond Bangga	Politeknik METrO Betong Sarawak
9:15am-9:30am	TECHON 2021: 130-098	Kajian Kes Keberkesanan Penggunaan Aplikasi 'Microsoft One Notes' Bagi Kursus DBM20023 Engineering Mathematics 2	Syamimi Muhamad and Muhammad Hafizzullah Zakaria	Syamimi Binti Muhamad	Politeknik Mukah
9:30am-9:45am	TECHON 2021: 111-108	Keberkesanan Penggunaan Aplikasi Mudah Alih EPT Pocket Apps bagi Kursus DJJ6182 Engineering Plant Technology dalam Pengajaran dan Pembelajaran Jarak Jauh	Norazlina Mat Nayan and Kamil Sahidin @ Salehudin	Norazlina binti Mat Nayan	Politeknik Mukah
9:45am-10:00am	TECHON 2021: 129-112	Persepsi Pelajar Terhadap Keberkesanan Penggunaan Aplikasi CABE Sebagai Alat Bahan Bantu Mengajar Dalam Kursus Anggaran Kos & Ukur Kuantiti	Aini Nurrasyidah Md Zokhi	Aini Nurrasyidah Binti Md Zokhi	Kolej Komuniti Jelebu
10:00am-10:15am	TECHON 2021: 098-068	Lecturers' Reflections on Online Teaching in a Higher Education Institution During CoViD-19: A Case Study Approach	Vikash Jugoo, Murimo Bethel Mutanga and Abdultaofeek Abayomi	Dr Bethel M. Mutanga	Mangosuthu University of Technology, P O Box 12363 Jacobs, Durban 4026, South Africa

10:15am-10:25am	10 minutes break				
10:25am-10:40am	TECHON 2021: 013-007	Development of e-LogBook for Civil Engineering Project Modules	Nurulaini Hafizah Mohd Hafir, Muhammad Amirul Affendy, Nurul Syafinah Nahar, Nursyukurina Ismail and Brandnevel Jalong Henry	Nurulaini Hafizah Mohd Hafir	Politeknik Mukah
10:40am-10:55am	TECHON 2021: 054-039	Kajian Keberkesanan Penggunaan Inovasi Helaian Amali Dengan Teknologi Realiti Bertambah Berasaskan Web (HATARW) Terhadap Pensyarah Di Kolej Komuniti	Muhamad Azlin Ismail, Norzalina Mohd Yusof and Muhammad Afiq Norazman	Muhamad Azlin Bin Ismail	Kolej Komuniti Bagan Datuk
10:55am-11:10am	TECHON 2021: 112-086	Penilaian dan Penggredan Menggunakan Pendekatan Dalam Talian: Kajian Kes Di Jabatan Teknologi Maklumat dan Komunikasi, Politeknik Mukah	Mariati Masduki, Mohd Faiz Tony and Athirah Musa	Mohd Faiz bin Tony	Politeknik Mukah
11:10am-11:25am	TECHON 2021: 112-087	Automasi Sistem Fail Menggunakan Kaedah e-BDR	Mariati Masduki, Muhammad Thariq Abdul Razak and Muhamad Azizi A. Rahman	Muhamad Azizi bin A.Rahman	Politeknik Mukah
11:25am-11:40am	TECHON 2021: 123-093	Birkhoff's Aesthetic Measure and Common Aesthetic Values in Digital Design	Hafizah Abdullah Ali and Husniza Husni	Hafizah Binti Abdullah @ Ali	Politeknik Tuanku Syed Sirajuddin

ROOM 4 (SOCIAL SCIENCE)

Msteam Link : http://shorturl.at/yIO15
Session Chair : Dr. Yusman bin Yacob
Moderator : Kartini binti Che Ibrahim

Time	Paper ID	Paper Title	Author	Presenter	Affiliation
9:00am-9:15am	TECHON 2021: 108-076	Pengelasan Persepsi Pekerja di Syarikat Industri Berat: Satu Ulasan berdasarkan Tinjauan	Mohd Azlan Ab Aziz and Hasnah Ngah	Hasnah Binti Ngah	Politeknik Mukah
9:15am-9:30am	TECHON 2021: 023-009	The relationships between Dynamic Incentives towards Microentrepreneurs Firm Performance in Malaysia	Habsah Mohamad Sabli, Mohammad Fardillah Wahi and Sari Lestari Zainal Ridho	Habsah Binti Mohamad Sabli	Politeknik Mukah
9:30am-9:45am	TECHON 2021: 075-084	A Preliminary Findings on A Social Support and Perceived Academic Achievement in TVET Institutions in Malaysia During Covid-19 Pandemic	Rosmanizah Derahman, Zamri Yusoff and Ahmad Syaffiq Md Baharudin	Zamri Bin Yusoff	Politeknik Bagan Datuk
9:45am-10:00am	TECHON 2021: 133-103	Indeks Kualiti Laluan Pejalan Kaki Sebagai Alat Penilaian Dalam Perancangan Fasiliti Lestari	Muhammad Shaiful Azmi Abdul Rahman	Muhammad Shaiful Azmi Bin Abdul Rahman	Politeknik Sultan Abdul Halim Muadzam Shah
10:00am-10:10am	10 minutes break				

10:10am-10:25am	TECHON 2021: 083-107	Awareness of Personal Protective Equipment Compliance in Shipyard Industry	Syarifah Hannan Sayed Abd Rahman and Mohd Yusof Md Daud	Syarifah Hannan binti Sayed Abd Rahman	Politeknik Ibrahim Sultan
10:25am-10:40am	TECHON 2021: 139-117	Kajian Persepsi Tahap Kebolehgunaan dan Kepuasan Penggunaan Aplikasi e-ODE Terhadap Pelajar Di Politeknik Mukah, Sarawak	Anis Abdul Kahar, Nurul Amalina Ibrahim and Nor Syahidal Arshaini Shamsudin	Nurul Amalina Binti Ibrahim	Politeknik Mukah
10:40am-10:55am	TECHON 2021: 063-045	Relay Trainer : The Effectiveness of Its Use in Electronic Project Course	Norfadhilah Hasan, Masriani Mansor and Mohd Ariff Ramli	Norfadhilah bt Hasan	Politeknik Sultan Mizan Zainal Abidin

ROOM 5 (EDUCATION)

Msteam Link : http://shorturl.at/vyAZ0
Session Chair : Dr. Hanifah Jambari
Moderator : Richard bin Simon

Time	Paper ID	Paper Title	Author	Presenter	Affiliation
9:00am-9:15am	TECHON 2021: 114-079	The Impacts of Suggestopedia on Learning English Vocabulary	Priscilla Rebecca Elvis, Helen Abang and Alhaji Malah Galti	Priscilla Rebecca Elvis	Politeknik Mukah
9:15am-9:30am	TECHON 2021: 110-080	Challenges of Communicative Learning and Teaching (CLT) in Politeknik Mukah	Sara Ruran Fabian and Helen Abang	Helen Anak Abang	Politeknik Mukah
9:30am-9:45am	TECHON 2021: 137-113	Kajian Penggunaan Alat Bantu Mengajar EASY MBOARD Dalam Pengajaran Dan Pembelajaran	Zainatul Fakih Zainon	Zainatul Fakih Binti Zainon	Kolej Komuniti Jelebu
9:45am-10:00am	TECHON 2021: 106-114	Pendidikan Tarannum Al-Quran	Muhd Syahazizamir Sahmat, Dayangku Farah Azeila Awg Mohammat and Shakinah Mustapha	Muhd Syahazizamir Bin Sahmat	Politeknik Mukah
10:00am-10:10am	10 minutes break				

10:10am-10:25am	TECHON 2021: 128-118	Kajian Pelaksanaan Penilaian Berterusan Kursus Secara Tugasan Berkumpulan Semasa Pandemik COVID-19 di Politeknik METrO Johor Bahru	Nurul Hana Ab Nasir	Nurul Hana binti Ab Nasir	Politeknik METrO Johor Bahru
10:25am-10:40am	TECHON 2021: 121-119	FlashBiz Challenge: Examining the Impact of Gamified Approach in Entrepreneurship Education towards the Entrepreneurial Career Intention	Rozaida Halil, Mohammad Nor Ihsan Md Zin and Mohamad Ruzaini Mohd Roni	Rozaida binti Halil	Politeknik Mukah
10:40am-10:55am	TECHON 2021: 109-089	Perisian Geogebra Dalam Pengajaran Dan Pembelajaran Matematik: Satu Kajian Literatur	Amizan Abdullah and Dzatiah Mohamad	Amizan Bin Abdullah	Politeknik Mukah
10:55am-11:10am	TECHON 2021: 070-056	Virtual Reality for Teaching and Learning Industrialised Building System (IBS) among TVET students	Nurshikin Mohamad Shukery, Kherun Nita Ali, Shamsulhadi Bandi, Norhazren Izatie Mohd, Mohd Azwarie Mat Dzahir and Ahmad Faiz Azizi Ahmad Fauzi	Nurshikin Mohamad Shukery	Universiti Teknologi Malaysia
11:10am-11:25am	TECHON 2021: 115-091	Perlaksanaan Kaedah Pembelajaran Berasaskan Projek Dalam kursus Penghayatan Etika dan Peradaban	Dzatiah Mohamad and Amizan Abdullah	Amizan Bin Abdullah	Politeknik Mukah

ROOM 6 (OTHER MULTIDISCIPLINE)

Msteam Link : http://shorturl.at/rCHIU
Session Chair : Assoc. Prof. Dr. Sari Lestari Zainal Ridho
Moderator : Zulaikha binti Abdullah

Time	Paper ID	Paper Title	Author	Presenter	Affiliation
9:00am-9:15am	TECHON 2021: 056-040	Clean Water Crisis at Tourism Attraction of Tanjung Batu, Pemangkat District: A Qualitative Swot Analysis	Hikmah Trisnawati and Nurchalis	Hikmah Trisnawati	Politeknik Negeri Sambas
9:15am-9:30am	TECHON 2021: 020-050	Post Covid-19 Outbreak, Perception and Employability Rate: The Case Study of Alumni of Politeknik METrO Betong Sarawak	Budi Syaripuddin and Clarina Rehat	Budi Bin Syaripuddin	Politeknik METrO Betong Sarawak
9:30am-9:45am	TECHON 2021: 037-116	Community Participation and Barriers in Community Based Tourism: A Case Study in Kampung Penurin, Betong.	Anderian Baling Piang, Ahmad Nazrin Ab Aziz and Muhammad Hanif Hasan	Anderian Baling Anak Piang	Politeknik METrO Betong Sarawak
9:45am-10:00am	TECHON 2021: 026-013	The Optimisation of Processing Condition Towards Kenaf Seed Extract Physicochemical Properties:An Investigation Using Response Surface Methodology	Abdul Fattah Ab Razak, Mohd Zahid Abidin, Mohd Shahril Osman, Mohd Syafiq Abdullah, Mohammad Hafsanjani Salleh and Norhasmillah Abu Hassan	Abdul Fattah Ab Razak	University College Of Technology Sarawak
10:00am-10:10am	10 minutes break				

10:10am-10:25am	TECHON 2021: 027-019	The Evaluation of the Effectiveness of the Interactive Multimedia Weblog Coursewere in the Learning of Hydrology Engineering	Ishak Johari, Syed Abdul Malik Syed Mohamad, Rasyidi Johan, Maizam Alias and Nurhidayah Seetha Abdullah	Dr. Ishak Johari	Universiti Pendidikan Sultan Idris
10:25am-10:40am	TECHON 2021: 038-023	Response Surface Methodology Application in Optimisation of Pineapple Juice Concentration Process by Reverse Osmosis	Mohammad Hafsanjani Salleh, Mohd Zahid Abidin, Mohd Shahril Osman, Ashraf Abdul Razak and Abdul Fattah Abdul Razak	Mohammad Hafsanjani Bin Salleh	University College of Technology Sarawak (UCTS)
10:40am-10:55am	TECHON 2021: 118-082	An Integration of Smart Garden with IoT Technology	Muhammad Thariq Abdul Razak, Aaron Lennon and Ernymayan Nyalu	Muhammad Thariq Bin Abdul Razak	Politeknik Mukah
10:55am-11:10am	TECHON 2021: 126-097	The Readiness of Online Distance Learning During Covid-19 Pandemic Among Students	Laila Musa and Nadzri Che Karnis	Laila Binti Musa	Politeknik Tuanku Syed Sirajuddin

ABSTRACT

ELECTRICAL & ELECTRONIC ENGINEERING

ELECTRICAL & ELECTRONIC ENGINEERING

A DEVELOPMENT OF ENERGY HARVESTING FLOOR USING PIEZOELECTRIC SENSORS

Michael Sillang and Susie Patricia
Politeknik Mukah Sarawak

ABSTRACT

The goal of this research is to create a power generation system that is fueled by human actions. The system generates voltage using footstep force and can be used to create electricity from non-conventional sources. The hardware is set up by employing piezoelectric material to make a tile, which converts mechanical energy into force energy, transformed into electricity by a dc generator. A piezoelectric tile generates voltage supplied into a battery, subsequently recharged and utilized to power dc loads. An inverter receives the generated voltage and distributes it to all ac loads. In its ultimate form, the prototype floor tile can be used for several purposes where power is limited or non-existent. We can utilize this project to both Alternating Current (AC), and Direct Current (DC) loads based on the force we apply to the piezoelectric sensor. As a result, this prototype project aims to boost renewable energy output while reducing dependency on finite fossil energy sources, with generated power precisely proportional to individual mass.

PROGRAMMABLE LOGIC CONTROLLER TRAINER FOR POLYTECHNIC STUDENTS

Roslinda Ismail and Suhairi Suaibun
Politeknik Kota Bharu

ABSTRACT

Innovation in education is always seeking knowledge that will support new and unique ideas in instructional techniques that will teach the students in more effective and exciting ways. The best way to learn Programmable Logic Controller (PLC) is to get hands-on experience. A low cost PLC trainer known as ProPLC has been designed, built and used for introducing PLC for students at Polytechnic Kota Bharu. Other than introducing student to industry standard component, the trainer also will interpret industrial wiring diagram. As a result, students are better prepared for industrial design regarding PLC controlled manufacturing equipment.

AN EFFICIENT OF OVERLAPPING GRID METHOD WITH SCATTERING TECHNIQUE IN TIME DOMAIN FOR NUMERICAL MODELLING

Bong Siaw Wee, Kismet Hong Ping and Shafrida Sahrani
Politeknik Mukah, Sarawak, Universiti Malaysia Sarawak

ABSTRACT

Electromagnetic (EM) scattering problems can be classified into two types: direct scattering problem and inverse scattering problem. Finite-Difference Time-Domain (FDTD) method is a numerical analysis technique used for solving EM scattering problems. It can investigate multiple frequencies without requiring any additional computational resources. However, the FDTD method is restricted to inherent orthogonal grids, it has difficulty modelling the curved boundaries and small features. In this research, the Overlapping Grid method with scattering technique in the time domain was proposed and developed for solving the direct and inverse scattering problems. The Overlapping Grid method with spline interpolation in a direct scattering process was demonstrated using a two-dimensional (2D) numerical image model. It found that the absolute error of the amplitude of the electric field increased when the sub-grid, increased. The results also showed that the absolute error of the amplitude E_z increased when the ratio of grid size increased. Hence, it has been proven that smaller spaces or cell sizes of the grid and a finer size grid can produce accurate results. In order to solve inverse scattering problems, the Overlapping Grid method with spline interpolation was extended by incorporating the Forward-Backward Time Stepping (FBTS) inverse technique. As a result, the proposed method was successfully reconstructed the relative permittivity and conductivity profiles of the circular object and square object in the Region of Interest (ROI). The proposed method achieved significantly lower Mean Square Error (MSE) of reconstructed dielectric profiles than the FDTD method in FBTS. The relative permittivity profile had a difference in the accuracy of 27.06%, while the conductivity profile had a difference of 20%. It has been proven that the proposed method able to produce more accurate, smooth, and efficient interpolation to determine the curved boundaries and small features. Hence, the proposed method can produce sharper and better-reconstructed images as compared to the FDTD method in FBTS.

DEVELOPMENT OF SMART KEYLESS USING ANDROID FOR CAR SAFETY SYSTEM

Mohd Ariff Ramli, Norfadhilah Hasan and Masriani Mansor
Politeknik Sultan Mizan Zainal Abidin

ABSTRACT

Nowadays, there is always news of a child dying in a car after becoming trapped inside. This is due to consumers' carelessness in dealing with this issue. Various methods used by the general public to save a victim from being trapped in a car until a criminal case is brought. Therefore, this Smart Keyless using Android for car safety system is designed to solve this problem. Furthermore, this project can help car owners to open the vehicle easily using the application downloaded in their personal phone. The main objective of this project is to reduce the incidence children died because of a heat stroke. This prototype use an PIC18F4580 as part of the processor. This project includes a Bluetooth module that serves to receive and send signals to control the movement of windows and car locks. With the presence of Smart Keyless using Android, child death cases in the car can be avoided and prevented.

SWITCHED RELUCTANCE MOTORS: REVIEW ON FUNDAMENTALS, CONTROLS AND APPLICATIONS

Hamadi Ahmad and Norliza Abd Razak
Politeknik Mukah Sarawak

ABSTRACT

The aim of this article is to review about fundamental, controls and application of Switch Reluctance Motor(SRM). The usage of motor become very important in electric and hybrid electric vehicles. This new type of vehicles requires large power and high efficiency motor. Switched reluctance motor (SRM) has been used to overcome the demand of have large power and high efficiency motor. The features of SRM such as, simple stator and rotor development, smooth stator windings, no permanent magnet, simple cooling system, reliable and good performance over a large speed range.

EASY MEASUREMENT EQUIPMENT

Norliza Abd Razak and Hamadi Ahmad
Politeknik Mukah Sarawak

ABSTRACT

The problem faced in measuring process in electrical wiring bay has brought the idea of developing a special measurement equipment for domestic wiring used. The ordinary measuring equipment usually has one standalone function such as when drawing a straight line, user will need to use a ruler together with water level to get an appropriate schematic drawing. The system works according to the equipment in order to accomplish the task needed that will lead to cost increment. The present invention discloses of single measuring equipment with multiple usage of measurement. The scale of the ruler makes measurement of length can be done easily and very much helpful with the attachable water level. Moreover, measurement of various angles solved by the appearance of angle measurement and the unique L-shape at one end of the equipment makes angle of 90 degree ready on the go to be used. This study aims to design and build an easy measuring equipment to set the angle indicator. The system works according to the angle at 45-degree, 135-degree and 90-degrees. The angles are determined by the typical angle that is used to draw the circuit in the laboratory. The best part of the invention is design holes at both ends to simply help user in measuring cables quickly. The multipurpose measuring equipment was successfully designed and tested.

INVESTIGATE THE PERFORMANCE OF LINE FOLLOWING ROBOT WITH DIFFERENT IR SENSOR POSITION MOUNTED

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ABSTRACT

Line following is one of the methods used in mobile robotic to navigate to other places. Commonly, infrared (IR) sensors were used to sense the line with its black line on a white surface. There are several methods to improve performance in line following navigation such as by using advanced algorithm line sensor detection, improving sensor configuration strategy, and vision-based approached. However, the previous studies are limited to investigate the effect of the different positions of IR sensors on the performance of line following robots. Determination of line following sensor position is important to improve the navigation performance. This study aims to investigate the performance of line following robots with different IR sensor positions mounted. Different lines following circuit track which are circle and rectangle shape were tested. Results indicated that location 2 ($L2_{20}$) and location 1 ($L1_{25}$) were the best locations mounted for rectangle and circle track respectively. The finding shows that location 3 ($L3_{15}$) can be declared as the best position with 12.10 s and 13.60 s of mean time for rectangle and circle circuits. Therefore, an appropriate IR sensor position tends to give an optimum performance of the line following the robot to navigate.

DEVELOPMENT OF BLUETOOTH CONTROL CAR JACK

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ABSTRACT

The manual car jack is commonly available in every vehicle nowadays. Manual load lifting of a vehicle to replace punctured tire require physical efforts, thus exposing human to injuries. This study aims to investigate the reliability of motorized car jack to overcome ergonomics problems. The car jack is motorized with a maximum lifting capacity of 1 ton. The operation of the car jack is controlled remotely via Bluetooth of the Android OS application. The power source of the DC motor utilizes the 12V battery from the car itself and is connected through the adapter of the cigarette lighter in the vehicle. Another option is to use a rechargeable battery. The running DC motor is connected to a gear, operating the jack into lifting the vehicle. By using the Android application installed on the smartphone, the upward and downward movement of the jack mechanism can be controlled. This controlling method can be easily operated by any person, hence significance in reducing the risk of injuries from bending or squatting as operating a manual car jack. The project intended to be efficient in cutting down user time and effort in using car jack. Arduino and Bluetooth modules are used as the controller for the hardware.

ELECTRICAL POWER PREDICTION OF A SMALL-SCALE HYDROKINETIC TURBINE

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ABSTRACT

Hydrokinetics is a technology that extracts kinetic energy from river currents of almost zero elevation. Even though the technology is considered as a potential solution for electric power supply applications in off-grid rural communities, there is no recorded electrical power for a small-scale hydrokinetic turbine available in Malaysia. Software design tool such as Turbem was used for the numerical simulation of the system. However, the software prediction is usually higher than actual power and tends to overestimate the operating point where the maximum power is extracted. In this paper, electrical power prediction graphs were produced for a specific hydrokinetic turbine. The performance of the proposed method was then compared with actual data gathered from field site measurement. The load condition experiment was conducted to identify the correlation between power produced by a generator and its rotational speed. Permanent Magnet DC generator was used to feed the 12 V DC LED bulbs as a load resistance. A rotation speed ranging from 198 rpm to 217 rpm was applied to the generator. At each test flow speed, the generator load was manually adjusted so that the terminal voltage could be maintained within 12 V. A peak power coefficient of 0.25 was applied during manual generator loading. The results showed that the power line had R^2 value of 0.9965, which shows a strong agreement in the relationship. The performance of the proposed methods was compared with the measurement gathered from field site. For that purposed, the Horizontal Axis Hydrokinetic Turbine system with a blade length of 0.3 m and a tip-speed ratio of 5 was fabricated and deployed at Sungai Sarawak Kiri, Malaysia. The measurement was observed under flow conditions of 1.2 m/s and recorded by a data logger. The prediction graphs of output power and rotational speed of generator were suffered 16% and 5% of error, respectively. The prediction graph is plausibly within the range of river velocity around 0.8 – 1.4 m/s.

ABSTRACT

MECHANICAL & MANUFACTURING ENGINEERING

CHARACTERIZATION OF PHYSICAL PROPERTIES FOR DIESEL-ALCOHOL AND BIODIESEL-ALCOHOL BLENDS

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ABSTRACT

Alternatives to conventional fossilized fuels include biodiesel and its alcohol blend fuels. The physical properties of the fuel are one of the most significant aspects in assessing its efficiency. Strict protocols are used in observation and calculation to describe the actual properties of biodiesel and its alcohol blend fuels to obtain the density, viscosity, Cetane number (CN), flash point, and energy content quantity. These discovered properties are beneficial in every arithmetical simulation for further research. These characteristics help to explain how the engine works with certain fuels in terms of efficiency, combustion, and emission characteristics. The study of biodiesel and its alcohol mix fuels was carried out in the UMP Chemical laboratory using several analytical instruments such as a KEM portable density/specific gravity meter, KV1000 Koehler Digital constant temperature kinematic viscosity bath, Shatox Cetane Number SX-300, Pensky-Martens closed tester and a Parr B41 calorimeter with an oxygen combustion bomb. Mineral diesel, palm biodiesel (PBD), diesel-alcohol (DBu10, DE10), and biodiesel-alcohol (BBu10, BE10) blends of 10% butanol and ethanol were compared in terms of properties. When mixing biodiesel with mineral diesel, the inclusion of butanol and ethanol allows reducing the viscosity and density of the biodiesel concentration. A significant rise in Cetane number due to increased alcohol content in biodiesel blend fuels compared to PDB. Biodiesel and its alcohol blends, on the other hand, satisfy the EN14214 requirements.

EXPERIMENTAL ON INTERNAL CRUDE OIL PIPELINE SURFACE CORROSION OF DIFFERENT ACIDIC CONCENTRATIONS

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ABSTRACT

Internal corrosion caused most of the failures, which were more common than external corrosion. Because of the vast volume of crude oil that needs to be transported, pipeline is the most efficient mode of transportation in the petroleum industry The focus of the experiment is observing the effect of sulfur acidic concentrations as the contributor to the corrosion rate of pipeline steel of crude oil. The study begins with sample preparation, which includes taking a sample from crude oil pipelines and cutting it into 10mm x 20mm dimensions. This sample was put through a corrosion test to collect and analyze data obtained by Scanning Electron Microscopy (SEM) to determine surface morphology and cross sectional of the corrosion layer. According to the findings of this report, corrosion rates increase when there is a high concentration of H_2SO_4 in the natural gas composition. This study's findings may be utilized to better monitor pipelines and take preventative actions to extend the pipeline's life cycle.

MEREKABENTUK JIG MENCANAI MATA ALAT BAGI PROSES MELARIK

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ABSTRAK

Kajian ini membincangkan tentang proses merekabentuk jig mencanai mata alat bagi proses melarik. Matlamat kajian ini adalah bertujuan untuk menyediakan satu rekabentuk jig yang boleh digunakan di dalam proses pengajaran dan pembelajaran bagi kursus Amalan Bengkel Mekanikal untuk pelajar program Diploma Kejuruteraan Mekanikal di Jabatan Kejuruteraan Mekanikal, Politeknik Mukah, Sarawak. Faktor utama pembangunan jig mencanai mata alat bagi proses melarik adalah untuk memenuhi kehendak silibus yang dikeluarkan. Proses merekabentuk jig ini melibatkan beberapa peringkat proses iaitu kajian berkaitan permukaan, sudut dan arah yang perlu dicanai dan merekabentuk jig secara terperinci dengan menggunakan perisian CATIA. Dengan menggunakan jig yang direkabentuk ini, proses mencanai mata alat menjadi lebih cepat dan lebih selamat. Di samping itu, pelajar juga dapat memahami fungsi dan kepentingan setiap jenis sudut mata alat. Secara tidak langsung, tahap pemahaman pelajar terhadap proses mencanai mata alat dapat dipertingkatkan.

EFFECT OF MESH SIZE ON THE NATURAL FREQUENCIES OF LATHE SPINDLE

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ABSTRACT

Improved computer numerical control (CNC) machine tool performance is critical in machining accuracy as modern manufacturing advances, particularly high-speed and high-precision machining. As a fundamental component of CNC machine tools, the dynamic properties of a spindle have a significant impact on machining performance. Modal analysis is one method for assessing the dynamic characteristics of mechanical components. Modal analysis is a process of extracting modal parameters (natural frequency and mode shape). This study aims to investigate how the mesh size of the finite element model affects the natural frequencies of the spindle. A three-dimensional model of the spindle was developed and analyzed in Autodesk Inventor software. Observation on changes of the natural frequencies was carried out by using a range of mesh sizes. The mesh size was controlled by varying the value of the average element size in Al modal analysis tool. The number of nodes and elements of the finite element models were compared, as well as the percentage of total error. Results revealed that mesh sizes have a significant effect on the accuracy in predicting natural frequencies. Differ in natural frequencies depend on the size of the mesh. Finally, significant research prospects are extensively explained based on present studies and will be critical in conducting modal analysis for machine tools spindle.

CHARACTERISATION OF FLEXURAL PROPERTIES OF GLASS FIBRE / PINEAPPLE LEAF FIBRE (PALF) HYBRID COMPOSITE

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ABSTRACT

The rising awareness of sustainability in recent industrials was carried out about natural resources domain. Replacing the material with more environmentally friendly is a priority today, especially from wasted natural materials such as pineapple leaf fibre (PALF). Therefore, the study aims to investigate the mechanical properties of glass fibre / pineapple leaf fibre (PALF) hybrid composite. The hand layup and cold compression methods were used to manufacture this hybrid composite plates, which provides 30 wt % of fibre and 70 wt % of the matrix. The form of hybrid composite was unidirectional with size 30 cm ×30 cm ×3 cm and sandwich stacking. The flexural test was conducted using Universal Testing machine. It was highlighted that 5 wt % of PALF and 25 wt % bi-directional glass fibre showed the highest flexural strength with 290.11 MPa.

GAMIFIED AR APPLICATION AS A LEARNER MODEL FOR CNC MILLING MACHINE DURING COVID 19 PANDEMIC

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ABSTRACT

The COVID-19 pandemic has forced many organizations around the world to make full use of a variety of emerging online communication platform technologies due to movement control order (MCO) enforcement. TVET system implementation is based on skill practices. Therefore, students were unable to accomplish the learning outcome (LO) which required hands-on activities. This paper shares the work in developing and implementing a gamified (AR) application, CNC Milling Interactive Learning (CMiL) for students and trainees to understand the Boxford VMCi 300 CNC Milling machine standard operation for tool set-up procedure. In this gamification learning platform, an immersive AR application has been developed to assist the understanding through visualization, interactive, simulation, and task completion. The assessment feature with immediate feedback was embedded within the gamification platform, which aims to help students assess their level of understanding and help instructors monitored the learning progress of the students. The students' scores obtained, shows the increment of percentage, where the lowest value was 25% of improvement and the highest value was 42.62% with several attempts of CMiL usability. The 3rd LO of the CNC Machining course (SMN2034) was measured by using this gamified AR application, CMiL. As a conclusion, the learner model guided by technology-based learning design, support and enhance the psychomotor phase in human skills development as well as a tool of cybergogy concept with virtual application technology.

NON-STATIONARY VIBRATORY SIGNATURES BEARING FAULT DETECTION USING ALTERNATIVE NOVEL KURTOSIS-BASED STATISTICAL ANALYSIS

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ABSTRACT

Vibration signature-based analysis for detection and diagnosis is the commonly used technique in the monitoring of rotating machinery. Reliable features will determine the efficacy of diagnosis and prognosis result in the field of machine condition monitoring. This study intends to produce a reliable set of signal features through an alternative statistical characteristic before available relevant prediction methods. Given the above advantage of Kurtosis, a newly formed feature extraction analysis is adapted to extract a single coefficient out of EMD-based pre-processing vibration signal data for bearing faults detection monitoring. Each set of the IMFs data will be analyzed using the Z-rotation method to extract the data coefficient. Afterwards, the Z-rot coefficients, ^{R}Z are presented on the base of the specification of the defect vibratory signal to observe which IMF data set has the highest correlation over the specification given. Throughout the analysis studies, the ^{R}Z shows some significant non-linearity in the measured impact. For that reason, the Z-rotation method has effectively determined the strong correlation that existed in some of the IMFs components of the bearing fault. It corresponds to the first IMF for the inner race and the rolling ball specified a strong ^{R}Z coefficient with the highest correlation coefficient of R^2 = 0.9653 (1750 rpm) and R^2 = 0.9518 (1772 rpm), respectively. Whereas, 4th IMF decomposition for the outer race bearing fault scored R^2 = 0.8865 (1772 rpm). Meanwhile, the average R-squared scored in the correlation between ^{R}Z coefficient and bearing fault throughout the study is R2 = 0.8915. Thus, it can be utilized to be the alternative feature extraction findings for monitoring bearing conditions.

DEVELOPMENT OF OIL PALM SHELL-REINFORCED 316L STAINLESS STEEL COMPOSITE PREPARED BY POWDER METALLURGY ROUTE

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ABSTRACT

Metal matrix composite (MMCs) gained interest of researcher over the past decades due to demanding of excellent and stiff materials. MMCs offer several advantages like high specific strength and modulus, improved elevated temperature properties, low coefficient of thermal expansion, enhanced electrical performance, wear and abrasion resistance. 316L Stainless steel composite was prepared by powder metallurgy route. Stainless steel type 316L act as metallic powder was mixed with Polyvinyl Alcohol (PVA) and Oil Palm Shell (OPS) as reinforcement and the mixture was compacted using uni-axial compaction machine. The samples were sintered at 1150˚C using tube furnace. Then, physical observation and shrinkage percentage of the resulting samples was analyzed. From the result, the observational best results were shown by sample with 55 wt. % stainless steel content, 45 wt. % oil palm shell, and 5 wt. % polyvinyl alcohol as porosity are present and their ability to maintain the cylindrical shape of the compacted sample.

ABSTRACT

CIVIL ENGINEERING & ARCHITECTURE

KAJIAN PENGGUNAAN PERLITE, ABU DASAR (BOTTOM ASH) DAN GENTIAN SABUT KELAPA SEBAGAI PENGGANTI AGREGAT HALUS DALAM MENGHASILKAN NISBAH CAMPURAN PONTOON KONKRIT RINGAN

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ABSTRAK

Kajian ini dijalankan adalah untuk menghasilkan produk konkrit ringan yang boleh terapung di atas permukaan air dengan menggunakan bahan-bahan buangan seperti Perlite dan Bottom Ash atau abu dasar. Perlite ialah mineral silika yang telah mengalami pemanasan pada suhu tinggi. Proses ini telah menyebabkan mineral telah melalui proses pengembangan seperti bertih jagung. Hasil daripada proses tersebut, mineral berkenaan akan menjadi steril dan mampu menyerap air dengan banyak dan sebaliknya boleh dikeringkan dengan cepat.Sehubungan dengan itu, bahan ini mampu meningkatkan isipadu, saliran dan pengudaraan pada campuran konkrit. Abu dasar (Bottom Ash) adalah sisa yang terhasil daripada pembakaran arang batu dari Loji Janakuasa Elektrik. Apabila arang batu dibakar dalam dandang, kira-kira 80% hingga 90% daripada arang batu yang tidak terbakar akan menjadi Abu terbang (Fly ash) dan baki 10% - 20% akan menjadi abu dasar yang berwarna kelabu gelap, sangat ringan dan berbutir sangat mikro tetapi berliang dan berpotensi menggantikan aggregate halus dalam campuran konkrit ringan. Tujuan kajian ini adalah untuk menghasilkan konkrit ringan yang tahan dari segi kekuatan mampatan dan menghasilkan konkrit ringan yang boleh terapung dan stabil diatas permukaan air bagi penggunaan menghasilkan pontoon yang merupakan struktur konkrit terapung diperbuat daripada bahan konkrit digunakan dalam kejuruteraan pelabuhan dan pantai seperti pembinaan jeti, pembinaan struktur luar pantai, pengorekan dan kemudahan pelabuhan. Sebanyak 36 buah kiub konkrit saiz 150 mm x 150 mm x 150 mm termasuk kiub kawalan dihasilkan dalam kajian ini akan menjalankan ujian untuk 7 hari, 14 hari, 21 hari dan 28 hari. Setiap konkrit yang dihasilkan adalah mempunyai ketumpatan yang berbeza iaitu berketumpatan kg/m3 dari 1215 kg/m3 - 1718 kg/m3. Kekuatan mampatan bagi konkrit nisbah 1:0.5:1.5 yang berketumpatan 1215 kg/m3 adalah 2.7 N/mm2 dan 5.7 N/mm2 pada hari ke 7 dan 28 proses penguringan.

Manakala bagi konkrit nisbah 1:1:1 yang berketumpatan 1551 kg/m3, kekuatan mampatan adalah 2.4 N/mm2 dan 5.2 N/mm2. Hasil daripada kajian yang dilakukan, semua kiub konkrit yang dihasilkan untuk kajian kekuatan mampatan untuk hari ke-28 didapati tidak gagal iaitu melebihi 2.5 MPa tetapi tidak memenuhi piawaian konkrit ringan iaitu 15-17 kN/mm2 dengan ketumpatan tidak kurang 2000 kg/m3. Namun konkrit yang dihasilkan mampu untuk terapung diatas permukaan air dimana semakin rendah ketumpatan konkrit yang dihasilkan, semakin tinggi daya keapungan bagi konkrit tersebut dan semakin tinggi ketumpatan bancuhan konkrit, semakin tinggi nilai kekuatan mampatan yang mampu diperolehi.

PROPERTIES OF PERVIOUS CONCRETE WITH RECYCLED OYSTER SHELLS AS PARTIAL AGGREGATES COMPONENT

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ABSTRACT

This study aims to investigate the performance of oyster shells as partial aggregates replacement in a pervious concrete mixture. The experiment was carried out by replacing coarse gravel aggregates in standard concrete formulations with 10%, 20%, 30%, and 40% manually-crushed pre-treated oyster shells. For periods of 7, 14, 28, and 52 days, primary concrete properties such as pH, carbonation depth, sorptivity, compressive strength, and permeability were investigated. According to the investigations, all modified specimens outperformed control specimens, and the performance of pervious concrete was directly related to the number of replacements. Calcium carbonate was added to the mixture, which improved physical performance. However, after 28 days, the quickly achieved initial compression strengths were reduced. This research has revealed that oyster shells have much potential as an alternative material in the construction business. Furthermore, the development of pervious concrete could be an alternate environmental option for solid waste management and urban storm water management.

THE USE OF POLYSTYRENE AND XYLENE LIQUID FOR STRONG WOOD SURFACE GLUE: A PRELIMINARY STUDY

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ABSTRACT

This paper proposes polystyrene and xylene liquid for wood surface glue. The mixture for the proposed glue includes 200-gram solid polystyrene waste dissolved into 500 ml of xylene liquid. Strength of the glue at wood surface was evaluated taking 36 plywood samples with three different group of storage time. The time taken before adhesion failures occur is recorded for each increment of loads at each sample test. The outcome indicated that proposed glue is able to withstand the adhesion failure at 400-gram load at maximum and for this case applicable for 1 hour storage time. The reliability of the proposed glue was determined based on comparative results from 3 different conventional wood glues on market with same setup.

KAJIAN KEKUATAN BATA TERMAMPAT BERASASKAN TANAH LIAT

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ABSTRAK

Bata berasaskan tanah merupakan produk mampan yang menggunakan bahan tempatan seperti tanah serta bahan tambah yang bertindak sebagai penstabil seperti simen Portland biasa (OPC) untuk meningkatkan kekuatannya. Dalam kajian ini, fizikal prototaip bata berasaskan tanah tanah liat dihasilkan bagi menggantikan saiz bata sebenar. Dua faktor utama yang mempengaruhi kekuatan prototaip bata tanah liat adalah berdasarkan kepada kekuatan mampatan dan kadar serapan air. Nisbah rekabentuk bancuhan yang digunakan dalam penghasilan prototaip adalah 1:10. Manakala siri tekanan yang diaplikasikan bermula dari 2000 psi, 3000 psi dan 4000 psi bagi menghasilkan prototaip dengan dimensi 100mm x 50mm x 40mm. Sampel diuji pada umur 7 dan 28 hari. Didapati bahawa kadar kekuatan yang paling optimum bagi prototaip bata berasaskan tanah liat adalah pada siri tekanan 4000psi dengan nilai kekuatan mampatan adalah 5.8 N/mm^2 dan kadar serapan air sebanyak 17%. Walaubagaimanapun, kadar kekuatan mampatan prototaip berasaskan tanah liat masih lagi dibawah tahap kekuatan yang telah ditetapkan dalam MS 76:1972 iaitu melebihi 7 N/mm^2 bagi bata bakar galas beban kelas satu (1). Hasil kajian menunjukkan bahawa peningkatan siri tekanan memberikan prestasi yang berbeza terhadap nilai kekuatan prototaip bata yang berasaskan tanah liat ini.

ABSTRACT

CHEMICAL ENGINEERING

MODELLING AND SIMULATION OF A DIRECT ETHANOL FUEL CELL: ELECTROCHEMICAL REACTIONS AND MASS TRANSPORT CONSIDERATION

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ABSTRACT

Mathematical modelling is developed for direct ethanol fuel cell (DEFC) by considering electrochemical reactions and mass transport. The model is validated against experimental data from previous research and showed good agreement with the data. The developed mathematical modelling for this research is based on the Butler-Volmer equation, Tafel equation and Fick's law. The model is used to investigate parameters such as ethanol concentration and cell operating temperature. The developed mathematical model simulated the data from previous research. Ethanol concentration plays a vital role to achieve high-performance DEFC. The higher the ethanol concentration, the higher current can be generated in DEFC. Nonetheless, the higher usage of the ethanol concentration, the higher the ethanol crossover may occur. The highest current density produced from the fuel cell is at 21.48 mA cm-2, for 2M of ethanol concentration. Operating temperature also affect cell performance. The higher the operating temperature, the higher power density can be generated—the peak power density of 5.7 mWcm-2 at 75 oC with 2M of ethanol. As for ethanol crossover, the highest ethanol crossover is at 12.4 mol m-3 for 3M concentration of ethanol. It proved that higher ethanol concentration led to higher ethanol crossover.

ABSTRACT

AGRICULTURAL ENGINEERING

GP NANGKA SMART FERTIGATION SYSTEM: INNOVATION RESEARCH FOR SARAWAK AGRICULTURE

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ABSTRACT

This paper is presenting a design of a smart agro system named GP Nangka SMART Fertigation System. As Internet of Things (IoT) nowadays becoming a trend in the technology's world, it has been implemented in designing and developing this system. There are three (3) main components in this system which is hardware unit, server and mobile application. In hardware unit, it consists of three main modules which includes an IoT module, actuator module and sensor module. The main module in hardware unit, which is an IoT module, are acting as a communicator and a brain of this system. The second module is an actuator module which is acting as a controller for the pump and the third module is a sensor module which will collect data from sensors attached to the system. The second component in this system, which is server units mainly to handle or act as an intermediary between hardware and mobile application in communication process. The third and the last component in this system is a mobile application designed to collect and display a real-time to enable the users to monitor and control the system from anywhere as long as their mobile devices are connected to the Internet. This system was tested and worked effectively on a chilli fertigation farm in Sibu, Sarawak. The results showing that the system was useful for Agricultural 4.0, in which technology can help farmers to increase their productivity while significantly decreasing costs with friendly used concepts.

DISTILLATION OF ESSENTIAL OIL THROUGH PORTABLE DISTILLER TO THE PARTNERS OF THE PROGRAM FOR DISSEMINATING TECHNOLOGY PRODUCT TO COMMUNITY

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ABSTRACT

Partner I has customary forests of 210 ha with various rare plants such as Tengkawang, Gaharu, Forest Orchids, palm, Bornean Ironwood, Resak, etc. They are being developed as aromatic raw ingredients (perfume). Partner II is a cultivated Agarwood farmer left by an irresponsible company. The total of Agarwood stands for essential oil is 9,220 trees ranging from 5 to 10 years. Constraints, distillation technology is needed in order to produce essential oil. The technology solution applied to partners is a portable distiller obtained from a grant; Steam Pressure Agarwood Destilator (SPAD), applicable, efficient, and effective Chipper Agarwood (CA) equipped with Good Manufacturing Practice (GMP)-based essential oil production procedures. The results of distillation training for partners were through direct practice; classification, sorting, resizing raw Gaharu for ingredients, installing SPAD machine, 20 hours process, and discussions about raw ingredients and market, purification, packing of essential oil of 0.05% yields (5 ml) (partner II) and 0.03% -0.05% yields (3 -5 ml) (partner I) as well as the basic practice of making perfume. The essential oil products produced by partners from the training potentially have a prospect in increasing the economic and social impact as well as the building of home industry partners. They are ready to start production with a business orientation.

THE SUPPLY CHAIN MANAGEMENT OF SAMBAS CITRUS

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ABSTRACT

Citrus is one of the agricultural commodities which exposed to agricultural risk. The purpose of this research was to determine the citrus supply chain or citrus farming network from seed supply, citrus production at the farmer level, to it's reaching the consumers in an area, so that an effective and efficient supply chain can be arranged. This citrus supply chain management analysis in Sambas District used a qualitative descriptive analysis framework using the supply chain development method proposed by the Asian Productivity Organization which consisted of chain objectives, network structure, chain management, chain resources, and chain performance. The research results show the target of the Sambas citrus supply chain is the domestic market with supply chain actors consisting of citrus farmers, traders, retailers, wholesalers, and consumers. Citrus supply chain performance in Sambas District has not been good because the existing performance as many as 7 criteria with 41.2% , does not exist performance as many as 4 criteria with 23.5%, and in progress performance as many as 6 criteria with 35.3%. Strategies to minimize the citrus farming risks in Sambas District was to encourage the growth of citrus processing units to reduce losses during the postharvest period and provide added value through processing.

RISKS IDENTIFICATION OF PONTIANAK CITRUS FARMING IN SAMBAS DISTRICT WEST KALIMANTAN

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ABSTRACT

Farmers always faced agricultural risks. The current condition of Pontianak Citrus plants in Sambas District has a very large risk, especially Pontianak Citrus farmers in Sambas District generally have narrow land and limited capital. The objectives of this study were to identify agricultural risks and risks scores at farm households based on the perception of Pontianak Citrus farmers. The study was conducted on 2018 in Sambas District. Primary data obtained directly from the field. To obtain these data using observations and direct interviews with questionnaires to 150 of Pontianak Citrus farmers in 5 Sub district in Sambas District. The analysis methods used in this study were qualitative descriptive. The results showed that based on farmers' perceptions, the agricultural risks included production risks, market risks, human risks, institutional risks and financial risks. The highest impact of the risks on farm was the production risk, mainly influenced by pests and diseases. Risk management strategies implemented by farmers were through the use of inputs. Meanwhile, if there was a failure that interfered with family income and the sustainability of farming, farmers would choose to use the income from off-farm work, or to borrow from other parties as a manifestation of risk management strategies.

NTRM (NON TOBACCO RELATED MATERIAL) MADURA SLICED TOBACCO CONTROLLING STRATEGY

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ABSTRACT

This study aims to examine the effectiveness of controlling NTRM of Madura sliced tobacco for partner farmers and non-partners farmers. The study had two treatments, each containing NTRM of Tobacco Company Partner Farmers and Non-Partner Farmers or free farmers. The research method used was purposive random sample or sample collection was carried out non-intentionally or (purposive sampling). NTRM observations are carried out by opening each tobacco balge, looking for NTRM and sorting each NTRM. Then each type of NTRM is weighed and expressed in grams. For NTRM observation, Mitra Farmers were conducted in the warehouse of purchase of P T. Sadana Arifnusa, while for Non-Partner Farmers were carried out in the farmer's house when the tobacco was ready to be sent to the warehouse of purchase. The result of this study is high value of NTRM in Madura sliced tobacco in non-partner villages is due to the lack of understanding of farmers on the dangers of NTRM, cultivation and processing technical standards, as well as how to present in trade in accordance with SNI-Tobacco Rajangan Madura. Whereas the low level of NTRM in Madura sliced tobacco to partner farmers is a positive impact of the partnership program implemented with a warehouse for the purchase of tobacco PT. Sadhana Arifnusa.

ABSTRACT

GREEN TECHNOLOGY

FAKTOR PENGHALANG SISTEM PERKONGSIAN BASIKAL DI BANDARAYA IPOH

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Universiti Kebangsaan Malaysia, Politeknik Ungku Omar

ABSTRAK

Sistem perkongsian basikal semakin popular dikebanyakan negara maju seluruh dunia termasuklah Perancis, London, Jerman, China, Belgium, Mexico dan Brazil. Sistem ini ternyata memberi manfaat yang besar kepada masyarakat kerana pengguna tidak perlu memiliki basikal sendiri. Sebaliknya, hanya perlu menyewa di lokasi strategik terpilih ketika memerlukan. Sistem perkongsian basikal diperkenalkan sejak tahun 1960-an dan semakin meningkat saban tahun di seluruh dunia termasuklah Malaysia. Di Malaysia, terdapat banyak pembekal yang menyediakan sistem penyewaan basikal untuk kegunaan masyarakat termasuklah Obike dan Mobike. Di Bandaraya Ipoh, sistem sewaan basikal yang digunakan ialah CycleDios. Kajian ini bertujuan untuk mengkaji faktor penghalang yang mempengaruhi responden untuk menggunakan sistem perkongsian basikal. Sepuluh faktor telah dikenalpasti bagi menentukan faktor paling dominan yang menghalang pengguna untuk beralih kepada sistem perkongsian basikal. Seramai 178 responden secara pensampelan rawak telah memberi maklumbalas daripada 200 borang yang diedarkan. Kaedah analisis data yang digunakan dalam penyelidikan ini ialah secara Indeks Purata (Average Index). Berdasarkan turutan, indeks purata tertinggi yang dicatatkan dengan nilai >4.00 ialah keadaan cuaca (panas dan hujan) mengurangkan minat untuk berbasikal dengan purata mata 4.71. Indeks ini diikuti dengan jarak perjalanan dari rumah ke bandar yang terlalu jauh untuk berbasikal dengan purata mata 4.57. Manakala nilai ketiga tertinggi ialah mengambil masa terlalu lama untuk sampai ke destinasi apabila berbasikal iaitu purata mata 4.43. Hasil kajian ini memberi implikasi bahawa elemen memperbanyak bilangan dan lokasi sewaan basikal perlu ditambah. Kehijauan bandar dengan penambahan bilangan pokok perlu ditingkatkan supaya ekosistem bandar kembali redup dan sejuk yang dapat menarik pengguna untuk berbasikal.

PENGHASILAN KOMPOSIT BLOK HIASAN DARIPADA BAHAN SISA PEPEJAL DIKITAR SEMULA

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ABSTRACT

Decorative block composites produced from recycled solid waste materials. This research is carry out to reduce construction costs at the same time able to minimize environmental pollution. The product is produce using a mixture of waste brick, rubber, plastic and glass. 1: 3, 1: 5 and 1: 7 is mixing ratios of the materials used. Water absorption tests performed on the samples produced. Decorative blocks using glass waste with a mixture ratio of 1: 3 and 1: 5, have the lowest percentage of water absorption rate that is 0.24% and 2%. Mixture of rubber with ratio of 1:7 have lowest of water absorption that is 2.37%, this water absorption test is based on British Standards (MS 7.6: 1972 / British Standard BS 3921: 1985). Rubber waste is the most suitable material used to produce decorative blocks compared to others. This is due to the appearance of the product; it is attractive and suitable for places with high moisture content. For further studies, the ratio of materials used needs to be change, to obtain better results.

KOMBO PIKET

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ABSTRAK

Ukur kejuruteraan adalah salah satu kursus yang perlu diambil oleh pelajar Diploma Geomatik (DGU) dan Diploma Kejuruteraan Awam (DKA). Salah satu bahan yang diperlukan untuk kerja lapangan ukur adalah piket. Piket adalah tanda yang digunakan bagi menandakan sempadan hakmilik tanah. Masalah kekurangan bekalan piket seperti tiada peruntukan kayu khas untuk penghasilan piket telah menyebabkan pelajar terpaksa mendapatkan mana-mana sumber kayu yang ada untuk dijadikan sebagai piket. Penggunaan kayu yang tidak sesuai seperti bentuk permukaan kayu boleh menyebabkan kecederaan seperti luka pada bahagian tapak tangan. Oleh itu, kajian ini dilaksanakan bagi menghasilkan kombo piket diperbuat daripada sisa paip besi bergalvani daripada bengkel paip. Borang soal selidik telah diedarkan kepada pensyarah kursus ukur kejuruteraan iaitu seramai 10 orang. Penilaian adalah dibuat berdasarkan keberkesanan penggunaan kombo piket. Penghasilan Kombo Piket mendapat maklumbalas yang baik daripada responden dan 100% menyatakan Kombo Piket adalah sesuai untuk kerja-kerja lapangan tetapi memerlukan sedikit penambahbaikan.

GREEN TECHNOLOGY

JEJAK KARBON DI BANGUNAN STAFF POLITEKNIK KUCHING SARAWAK

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ABSTRAK

Jejak karbon merupakan satu keperluan utama didalam mengetahui jumlah karbon CO_2 yang memberi kesan terhadap pencemaran alam sekitar. Bagi menyahut seruan kerajaan di dalam membawa negara Malaysia kearah kelestarian alam sekitar yang mampan, maka kajian terhadap pembebasan karbon telah dijalankan di bangunan staf Politeknik Kuching Sarawak. Tujuan utama kajian ini dijalankan adalah untuk mengetahui jumlah kecerahan yang dibebaskan oleh cahaya lampu dan perkakasan komputer. Daripada jumlah lux yang terhasil, dapatlah ditentukan nilai CO_2 yang dibebaskan dengan merujuk ISO 40764 , piawaian ASHRAE dan piawaian CIBSE. Objektif kedua kajian ini adalah mengenalpasti tahap keselesaan termal ruang bekerja dan seterusnya mengira jumlah pembebasan karbon yang terhasil di dalam bangunan staf tersebut. Kesinambungan daripada jumlah lux yang terhasil memberi kesan kepada tahap keselesaan termal dan tahap pencemaran gas rumah hijau.

Kajian ini dilaksanakan dengan menggunakan alat lux meter dan Infrared Camera FLIR E8. Dapatan kajian menunjukkan tahap keselesaan termal ruang kerja yang diperolehi adalah $37^{O}C$ dan ini diklasifikasi merujuk kepada piawaian ASHRAE suhu tersebut berada pada nilai maksimum termal selesa. Manakala jumlah pembebasan karbon yang terhasil daripada pengiraan yang dibuat adalah sebanyak 64.005 ton setahun. Oleh itu tindakan bagi mengurangkan pembebasan karbon seperti menukarkan penggunaan lampu kalimantang kepada lampu LED, ini kerana lampu LED menggunakan tenaga elektrik yang rendah dan pengurusan penggunaan komputer yang berhemah perlu diterapkan dikalangan pekerja. Penggunaan computer mengikut keperluan dan ditutup sekiranya tidak digunakan atau ketika staf tiada di meja dapat mengurangkan penggunaan tenaga elektrik dan seterusnya mengurangkan kadar pembebasan CO_2 di dalam ruang kerja. Demi memampankan kelestarian hijau dan menyelamatkan generasi akan datang penerapan nilai di dalam kepentingan mengurangkan pembebasan karbon harus diterapkan di kalangan masyarakat.

KESEDARAN PELAJAR JABATAN PERDAGANGAN POLITEKNIK MUKAH TERHADAP TEKNOLOGI HIJAU

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ABSTRAK

Pelan Pembangunan Polygreen Politeknik Malaysia telah mula diperkenalkan sejak tahun 2015 lagi. Namun, di Politeknik Mukah, kursus DUG30023 Green Technology akan hanya mula diperkenalkan kepada pelajar Diploma Pengajian Perniagaan Jabatan Perdagangan bermula sesi 1:2021/2022 ini. Oleh itu, kajian melalui kaedah kuantitatif ini telah dijalankan sebagai satu tinjauan awal untuk mengenalpasti tahap kesedaran, sikap dan amalan pelajar Jabatan Perdagangan Politeknik Mukah terhadap teknologi hijau. Daripada seramai 814 orang jumlah keseluruhan pelajar Jabatan Perdagangan Politeknik Mukah, sebanyak 392 orang pelajar telah menjawab soal selidik yang telah diedarkan. Kesemua data yang diperolehi telah dianalisis dengan menggunakan perisian Statistical Package for Social Sciences (SPSS) versi 20. Hasil kajian menunjukkan bahawa tahap kesedaran pelajar Jabatan Perdagangan Politeknik Mukah terhadap teknologi hijau adalah tinggi dan pelajar mempunyai sikap yang baik terhadap teknologi hijau. Walaubagaimanapun, didapati bahawa amalan para pelajar terhadap teknologi hijau adalah hanya berada pada tahap memuaskan dan tidak seiring dengan kesedaran dan sikap yang dimiliki oleh para pelajar. Oleh yang demikian, diharap kajian ini akan dapat membantu memperkasakan amalan teknologi hijau dikalangan para pelajar Jabatan Perdagangan Politeknik Mukah umumnya dan pelajar Diploma Pengajian Perniagaan, khususnya, seiring dengan pengenalan kursus baru DUG30023 Green Technology.

ENERGY CONSUMPTION, INVESTMENT, CARBON DIOXIDE EMISSION AND ECONOMIC GROWTH BASED ON GRANGER CAUSALITY IN TIME SERIES USING R: THE CASE OF INDONESIA

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ABSTRACT

This study aims to analyze the economic growth, energy consumption, investment, carbon dioxide emission as an environmental indicator that is related to economic growth in Indonesia. In this study case, the causal relationships between those variables imply the short-term and long-term equilibrium relationships. The Vector Error Correction Model (VECM) is used in this study to analyze cointegration in the long-term relationships and the granger causality test to examine the short-term equilibrium between those variables. The results found that economic growth, energy consumption, investment, and carbon dioxide emissions are cointegrated with each other in long-term relationships. Distinctly, the Granger causality test revealed that all those variables are Granger-causes in the short term. The relationships between economic growth and carbon dioxide emission are excluded in long-term relationships, those variables only have causal short-term relationships. In this study, progressively, the statistic tool which is used for the analysis is R programming.

ABSTRACT

INFORMATION TECHNOLOGY

TINJAUAN KEBERKESANAN PENGUNAAN INOVASI HELAIAN AMALI DENGAN TEKNOLOGI REALITI BERTAMBAH BERASASKAN WEB (HATARW) TERHADAP PENSYARAH DI KOLEJ KOMUNITI

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Muhammad Afiq Norazman
Kolej Komuniti Bagan Datuk

ABSTRAK

Inovasi Helaian Amali dengan gabungan realiti bertambah berasaskan Web (HATARW) merupakan satu inovasi sesi pembelajaran amali pelajar baharu yang terhasil daripada permasalahan pengalaman yang timbul ketika aktiviti pengajaran dan pembelajaran (PdP) amali. Tujuan kajian adalah untuk mengenalpasti keberkesanan produk terhadap proses amali pensyarah dari aspek persediaan, motivasi dan keyakinan pensyarah. Tinjauan elemen keberkesanan dilaksanakan dalam kalangan 30 orang pensyarah Kolej Komuniti yang sebelum ini menggunakan kertas amali konvensional tanpa elemen tambahan. Instrument kajian adalah melalui soalan kaji selidik bagi keberkesanan produk sebelum dan selepas dan sesi temubual bagi kesesuaian produk. Dapatan kajian keberkesanan menerusi sembilan (9) item soalan yang dibahagi kepada elemen persediaan pengurusan, motivasi dan keyakinan pensyarah menunjukkan bahawa terdapat perubahan 63.27 % pensyarah bersetuju bahawa HATARW memudahkan pengurusan sesi amali, 72.2 % bersetuju ianya meningkat motivasi pensyarah dan 67.76 memberikan keyakinan kepada pensyarah untuk melaksanakan aktiviti amali secara bersendirian. Dapatan kajian keberkesanan sebelum dan selepas penggunaan dianalisis melalui kaedah analisis statistik deskriptif secara peratusan dan nilai min dianalisa menggunakan perisian SPPS versi 20. Cadangan yang diutarakan adalah melaksanakan pengguna HATARW dengan lebih meluas kerana ianya amat menarik dan menyeronokan.

DEVELOPMENT OF E-LOGBOOK FOR CIVIL ENGINEERING PROJECT MODULES

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ABSTRACT

Updating and filling in a logbook is part of what students taking Civil Engineering Project 1 and 2 modules must do weekly. The logbook usage carries twenty per cent of the total marks for each module. However, students encounter some problems with the current paper-based logbook. From the pilot study, students sometimes forgot to bring their logbook during a meeting. Since they always have to carry it during their research activities, their paper logbook on some pages are tearing and wearing, and sometimes they even lost it. With these problems and the world currently facing the COVID-19 pandemic, having a face-to-face meeting is not advisable, so converting a paper-based logbook to a digitalised version is appropriate. Therefore, this study aims to develop a mobile app version for e-LogBook and assess the developed application's functionality and effectiveness. The first stage was to identify the content of the e-LogBook and the suitable platform(s) in developing mobile apps. The next phase was to assess the application by deploying a questionnaire survey to project supervisors and students currently taking the modules (June 2020 Session). Results indicated that most of the respondents are satisfied with the overall function and effectiveness of the e-LogBook apps developed. The average mean score for both categories is more than 4.00. Thus, the application eliminated the problems associated with the current use of paper-based logbook and appropriate to the current requirements due to the pandemic.

AUTOMASI SISTEM FAIL MENGGUNAKAN KAEDAH E-BDR

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ABSTRAK

Selaras dengan kehendak Revolusi Industri (IR) 4.0, automasi sistem fail menggunakan kaedah e-Bekerja Dari Rumah (e-BDR) merupakan satu inisiatif untuk membangunkan satu sistem bagi membaiki dan menambahbaik sistem manual yang sedia ada supaya dapat memberi kemudahan kepada staf. Sistem e-BDR merupakan sistem yang dibangunkan untuk digunapakai oleh staf di Jabatan Teknologi Maklumat dan Komunikasi (JTMK) Politeknik Mukah (PMU). Tujuan asal pembangunan sistem ini adalah untuk membenarkan staf JTMK menyediakan laporan harian BDR serta memudahkan Ketua Jabatan Teknologi Maklumat dan Komunikasi (KJTMK) untuk menyemak dan mengesahkan laporan BDR yang telah disediakan. Sistem ini juga membolehkan staf menyediakan laporan BDR secara dalam talian dan boleh diakses di mana-mana sahaja, mengurangkan penggunaan kertas, menjimatkan masa dan kos serta pengurusan yang lebih cekap dan sistematik. Isu penyediaan dan semakan laporan BDR dapat diatasi dengan mudah berbanding sebelum pembangunan sistem ini.. Sistem ini dibangunkan menggunakan bahasa pengaturcaraan Hypertext Preprocessor (PHP) dan pangkalan data My Structure Query Language (MySQL). Seramai 33 orang responden telah menjawab soal selidik yang diberikan secara dalam talian. Data soal selidik dianalisis menggunakan perisian Statistical Package for the Social Sciences (SPSS) v26. Berdasarkan skor min 3.76 bagi item S14: Pretasi keseluruhan sistem amat baik dan skor min 3.73 bagi item S15: Secara keseluruhannya, operasi sistem adalah jelas, menunjukkan automasi sistem pengurusan laporan harian BDR menggunakan kaedah e-BDR di JTMK adalah sistematik dan efektif.

PENILAIAN DAN PENGGREDAN MENGGUNAKAN PENDEKATAN DALAM TALIAN: KAJIAN KES DI JABATAN TEKNOLOGI MAKLUMAT DAN KOMUNIKASI, POLITEKNIK MUKAH

Mariati Masduki, Mohd Faiz Tony and Athirah Musa
Politeknik Mukah Sarawak

ABSTRAK

Sistem penilaian dan penggredan secara dalam talian diklasifikasikan sebagai satu paradigma dalam persekitaran teknologi maklumat dan komunikasi ini. Perkembangan teknologi yang disusuli dengan trend Revolusi Industri (IR) 4.0 meletakkan sistem seumpama ini mendapat perhatian dalam bidang Pendidikan. Kemampuan sistem untuk melaksanakan penilaian dan penggredan projek akhir dalam talian memberi manfaat kepada pensyarah dan individu lain yang turut menggunakan sistem ini berbanding kaedah konvensional sebelum ini. Sebagai permulaan sistem ini digunakan di Jabatan Teknologi Maklumat dan Komunikasi (JTMK) Politeknik Mukah (PMU) bermula Sesi Jun 2020 dan penggunaan akan diperluaskan ke peringkat yang lebih tinggi. Kajian ini dijalankan untuk melihat keberkesanan penggunaan Sistem Penilaian dan Pengredan Secara Dalam Talian (Online Evaluation and Grading System (OEGS)) di JTMK PMU. Seramai 32 orang responden telah menjawab soal selidik yang diberikan secara dalam talian. Data soal selidik dianalisis menggunakan perisian Statistical Package for the Social Sciences (SPSS) v26. Berdasarkan dapatan kajian jelas menunjukkan penerimaan responden terhadap OEGS adalah tinggi. Kajian ini sangat penting untuk menambahbaik pembangunan sistem ini dari masa ke semasa sejajar dengan keperluan dan impak penggunaannya.

BIRKHOFF'S AESTHETIC MEASURE AND COMMON AESTHETIC VALUES IN DIGITAL DESIGN

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ABSTRACT

This paper reviews the aesthetics of digital design with respect to Birkhoff's Aesthetic Measure, which is an important aspect that would lead to better usability, visual aspects, and perceived user experience. With limited literature focusing on aesthetics, this paper conducted a systematic literature review to uncover the basics and common measures of aesthetics that can be used in measuring digital design's 'appealing-ness'. The findings revealed fourteen common aesthetic values using Birkhoff's Aesthetic Measure that are related to screen and digital design, which is the scope of this review. These common values are potential to be used in measuring the aesthetics of any digital artefacts, including a digital graphic novel. From the fourteen, five measures are particularly interesting to be explored further with respect to digital graphic novel as discussed. It is a significant finding to establish a common and standard measure of the aesthetic in digital design and therefore in digital graphic novel as well.

ABSTRACT

COMPUTER & INFORMATION TECHNOLOGY

USABILITY TESTING ON PTSS CONFERENCE MANAGEMENT SYSTEM

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Politeknik Tuanku Syed Sirajuddin

ABSTRACT

PTSS Conference Management System (CMS) is a system that had been developed to cater and manage the registration, submission and reviews of conference paper being submitted to CIE-TVET Conferences. In order to have a high-quality system, a usability testing is needed to check on the effectiveness and interactivity of the elements in the system. This paper focuses on three types of elements which is the layout of the system, the navigation controls and the functionalities of the system. A questionnaire with 15 questions were given to 123 respondents whom had used the system. Based on the questionnaire, the majority of the results generated shows that this system provides a good structured interfaces which is easy for the user to use and the navigation of the system are also points to the correct intended pages. Lastly, the functionalities of the system also work perfectly based on the feedback being gathered from the respondents. In the future, different types of usability testing should be compared and analyzed in order to have better feedback from the respondents.

APPLICATION DESIGN FOR CATHOLIC CHURCH ADMINISTRATION IN SAMBAS REGENCY

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ABSTRACT

The Catholic Church is not only a place of worship, the church also use to serve God which is manifested in church service activities. The target of PKM activities in 2020 is the Catholic Church of Christ the King of Sambas Parish which was established in 1900. The congregation will be recorded in the main book when someone is baptized in Christ the King Church. The master book data will be updated when the congregation marries and dies (and some other church activities). The problem faced by partners is that with the large number of congregations and the limited number of administrative officers that make it quite difficult to find data on congregations that have lost their baptismal certificates. The solution is to design and build a church administration information system application. The method used is a waterfall in system design equipped with a MySql database. The system that has been created has been tested technically and user views. The result of the test shows that it is easier to manage people's data to improve services.

KAJIAN KEBERKESANAN SISTEM PENGURUSAN UNIT JAMINAN KUALITI (UJQMS) POLITEKNIK MUKAH

Aisyah Suhailla Jili and Fairose Mohtar
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ABSTRAK

Sistem Pengurusan Unit Jaminan Kualiti (UJQ) atau UJQ Management System (UJQMS) dibangunkan dengan tujuan untuk mengurus sistem pemfailan dan dokumen yang dikendalikan oleh UJQ sendiri secara lebih sistematik. Fungsi utama UJQ adalah untuk merancang, menyelaras, melaksanakan dan memantau sistem pengurusan kualiti di organisasi selaras dengan keperluan standard, dokumen dan peraturan kualiti yang berkuatkuasa. Oleh yang sedemikian, pengurusan UJQ banyak terlibat dalam menyelaraskan dokumen yang diperlukan oleh pengurusan dalam organisasi. Oleh itu, pengurusan sistem pemfailan dan dokumen yang sistematik amat diperlukan untuk membantu akses kepada maklumat dan dokumen penting yang dikelolakan oleh UJQ. UJQMS atas talian ini telah dibangunkan berdasarkan keperluan pengurusan UJQ sendiri untuk mengurus sistem pemfailan dan dokumen oleh UJQ sendiri. Teknologi yang digunakan untuk membangunkan sistem ini ialah pelayan XAMPP,PHP,HTML5, CSS dan MySQL sebagai pusat pangkalan data. Sistem ini didaftarkan untuk kegunaan Penyelaras Kualiti Jabatan (PQJ) dan Ketua Program untuk memudahkan capaian maklumat dan dokumen penting yang disimpan di bilik UJQ pada bila-bila masa yang diperlukan tanpa perlu datang ke bilik khas UJQ sendiri. PQJ diberi akses sebagai pengguna yang akan menguruskan dokumen dan maklumat yang berkaitan dengannya Pengurusan UJQ dalam sistem ini. Manakala Ketua Program (KP) didaftarkan sebagai pengguna untuk mengakses dokumen kualiti berkaitan program pengajian seperti silibus dan kurikulum sebagai rujukan di peringkat jabatan. Ketua Unit Jaminan Kualiti (KUJQ) pula diberi status Pentadbir Sistem untuk menguruskan penggunaan sistem dengan lebih efisien dan terkawal. Kajian keberkesanan sistem telah dijalankan bagi menilai aspek berikut iaitu objektif pelaksanaan sistem, capaian sistem, mesra pengguna dan impak produktiviti kerja. Instrumen soal selidik telah diedarkan kepada pihak pengurusan tertinggi dan sasaran pengguna sistem yang telah dikenalpasti.

Hasil kaji selidik mendapati UJQMS mampu memberi kesan yang positif untuk meningkatkan keberkesanan pengurusan organisasi dan mencapai objektif sebagai platform untuk memudahkan akses atau capaian dokumen kualiti dengan lebih cepat dan terkawal.

ABSTRACT

E-LEARNING

A CORRELATIONAL STUDY ON THE RELATIONSHIP BETWEEN STUDENTS' READINESS AND ATTITUDES TOWARDS ONLINE ENGLISH LANGUAGE LEARNING

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ABSTRACT

Malaysia's teaching and learning practices have transformed substantially since the Covid-19 pandemic outbreak. This study examined the relationship between students' readiness and attitudes for Online English Language Learning. The data for this study were gathered using a set of questionnaires distributed to 34 Semester 1 students pursuing a Diploma in Accountancy and a Diploma in Marketing from Politeknik Kota Bharu. The findings indicated that there was a positive relationship between readiness and attitudes for Online English Language Learning among students. Many challenges that hindered OELL were also identified. This study brings new insight into the lecturers' pedagogical implementations. Thus, training or workshop on online learning advancements for the lecturers was recommended to meet the 21st-century learning demands.

THE FACILITATING CONDITIONS WITH CIDOS 3.5 UTILISATION

Adi Jaya Adam, Salinda Rosli and Habsah Mohamad Sabli
Politeknik Mukah Sarawak

ABSTRACT

Curriculum Information Document Online System or CIDOS is a web-based application to facilitate the online teaching and learning among lecturers and students. Implementing on full online learning due to Movement Control Order (MCO) due to Covid-19 pandemic restrains the lecturers and students learning via face to face. Facilitating conditions (FC) play important role to facilitate lecturers and students online leaning using CIDOS 3.5 This study aims to examine the relationships between facilitating conditions with CIDOS 3.5 utilisations among the lectures in Politeknik Mukah Sarawak (PMU). A total of 103 lecturers from seven departments participated in this study. The results show FC is significantly positive with CIDOS 3.5 utilisations. The outcomes of this research can benefit the decision maker of Malaysian polytechnics to enhance CIDOS 3.5 utilisation and promote its effectiveness in teaching and learning activities as well as strengthening the quality of teaching delivery.

SIKAP MAHASISWA POLITEKNIK TERHADAP YOUTUBE SEBAGAI SUMBER MAKLUMAT

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ABSTRAK

YouTube merupakan laman web berasaskan video yang paling popular dan memberi ruang kepada pengguna memuat naik pelbagai jenis video dalam pelbagai bidang. Ia menjadi trend kehidupan masyarakat moden dewasa ini untuk mendapatkan sebarang maklumat yang diperlukan. Justeru itu kajian ini dijalankan untuk menilai sikap mahasiswa Politeknik terhadap kebolehpercayaan maklumat yang diberikan di dalam YouTube. Seramai 152 pelajar Politeknik Kota Kinabalu, Sabah terlibat dalam kajian ini. Data diperoleh daripada borang soal selidik yang diedarkan secara rawak, dan dianalisis menggunakan SPSS v.22. Dapatan kajian ini akan dianalisis secara deskriptif dan hasilnya akan ditunjukkan dalam jadual agar mudah difahami. Hasil analisis mendapati bahawa majoriti pelajar mempunyai sikap yang sederhana iaitu skor min 3.81 terhadap YouTube sebagai sumber maklumat. Kajian ini penting untuk menilai gelagat remaja masa kini terhadap maklumat-maklumat yang disebarkan oleh YouTube. Implikasi dan cadangan dasar turut dibincangkan dalam kajian ini.

THE E-LEARNING CENTRALISED SYSTEMS ADOPTION DURING THE COVID-19 PANDEMIC

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ABSTRACT

Online learning had become more important than ever during the unprecedented COVID-19 pandemic worldwide as the series of Movement Control Order (MCO) implemented by the Malaysian Government had restricted face-to-face teaching and learning sessions. The online learning system in Politeknik Mukah Sarawak (PMU) namely the Curriculum Information Document Online System (CIDOS) was implemented based on the Centralised System (CS) routed through one major central hub under the Department of Polytechnic Education and Community College Education (JPPKK). This centralised systems (CS) however forbids educators to share information and documents with the other higher institutions. Hence, this study aims to examine the level of ICT Knowledge and Skills and Access to the Internet and the relationships between centralised systems (CS) towards the adoption of e-learning among the lecturers in Politeknik Mukah Sarawak (PMU). The Unified Theory of Acceptance and Use of Technology (UTAUT) was employed in this study. Both descriptive and correlation analysis were conducted to explain the finding of the study. A total number of 103 lecturers from seven academic departments participated in this study. The results of this study indicate that the adoption between the Centralised Systems and CIDOS was significantly positive. The outcomes of this research can benefit the decision-maker of Malaysian polytechnics in enhancing and strengthening the quality of online learning and teaching delivery as well as promoting its effectiveness.

CABARAN PEMBELAJARAN DAN PENGAJARAN DALAM TALIAN (PDPDT) : KAJIAN SOROTAN LITERATUR BERSISTEMATIK

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ABSTRAK

Penularan pandemik Covid-19 telah memberi implikasi yang cukup besar terhadap semua sektor di Malaysia termasuk sektor pendidikan. Bagi mengekang wabak ini terus tersebar, institusi pendidikan terpaksa mengubah norma pendidikan secara drastik dari pembelajaran secara bersemuka kepada Pembelajaran dan Pengajaran Dalam Talian (PdPDT). Pelaksanaan PdPDT ini telah memberikan cabaran kepada pelajar dan para pengajar. Tujuan sorotan literatur bersistematik ini dibuat adalah bagi mengenalpasti cabaran yang dihadapi pelajar dan para pengajar dalam melaksanakan PdPDT. Tinjauan ke atas artikel dibuat antara tahun terbitan 2017-2021 dengan menggunakan carta alir Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) dan data diambil daripada dua pengkalan data iaitu emerald insight dan Google Scholar. Antara cabaran kepada pelajar dalam pelaksanaan PdPDT adalah capaian internet yang lemah, persekitaran pembelajaran yang tidak kondusif dan kesediaan melaksanakan PdPDT. Manakala cabaran yang dihadapi oleh para pengajar pula adalah pemilihan platform yang sesuai dan penyediaan bahan untuk PdPDT untuk pelajar.

FACTORS AFFECTING STUDENT PARTICIPATION AND PERFORMANCE IN ONLINE LEARNING

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ABSTRACT

Institutions in Malaysia have implemented online learning from pre-school right up to tertiary level since the start of the year 2020 due to the Coronavirus (COVID-19) pandemic. By implementing such method in delivering knowledge and skills, it allows students to be more convenient in accessing the learning platform from anywhere. One of the benefits for millennials is that they are adept with all of the latest technology there is – devices, applications, and software. Technologically skilful students are not a guarantee that they are able to exhibit exemplary participation as well as achieving good results in online classes. This study is to address this issue. It aims to investigate whether online learning experiences, the accessibility of online learning platforms, and self-efficacy to learn online, induce a difference in their participation and performance in online learning. Data collected from 138 students of Politeknik METrO Betong Sarawak (PMBS) who were directly involved in online learning showed that the respondents' participation and performance are affected greatly by online learning experience, accessibility, and self-efficacy. The most preferred online learning method is pre-recorded lectures. Most of the respondents stated that the biggest challenge in online learning is insufficient internet data or quota. In the future, the Government should come out with a well-devised plan to help students who come from rural areas in Malaysia. Institutions need to introduce offline e-learning to help students receive sufficient but quality education from distance learning.

PERSEPSI PELAJAR TERHADAP KEBERKESANAN PENGGUNAAN APLIKASI CABE SEBAGAI ALAT BAHAN BANTU MENGAJAR DALAM KURSUS ANGGARAN KOS & UKUR KUANTITI

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ABSTRAK

Kecemerlangan graduan bukan sahaja datang dari gaya pembelajaran seseorang pelajar, malah ianya juga berpunca daripada kaedah pengajaran dan pembelajaran (PdP) oleh pensyarah ketika di dalam kelas. Alat bahan bantu mengajar amat penting dalam proses PdP. Aplikasi CABE merupakan salah satu daripada alat bahan bantu mengajar yang dihasilkan berdasarkan beberapa permasalahan dan kekangan yang timbul ketika sesi PdP dijalankan. Kajian ini dijalankan untuk mengenalpasti tahap keberkesanan penggunaan Aplikasi CABE sebagai alat bahan bantu mengajar dalam proses PdP bagi kursus Anggaran Kos & Ukur Kuantiti. Kajian rintis dan kajian sebenar telah dijalankan dalam kajian ini. Nilai keseluruhan Cronbach Alpha bagi kajian rintis dan kajian sebenar masing-masing menunjukkan 0.924 dan 0.969 yang berada pada tahap amat baik. Seramai 106 orang pelajar semester 3 Sijil Teknologi Pembinaan Bangunan, Kolej Komuniti Jelebu telah terlibat dalam kajian ini. Dalam kajian ini, borang soal selidik telah diedarkan kepada pelajar setelah kajian tinjauan awal yang melibatkan kaedah pemerhatian dilakukan. Kaedah Kuantitatif dan Perisian Statistical Packages for the Social Sciences (SPSS) digunakan untuk menganalisis data. Kesemua item yang diuji, mencapai tahap skor min tinggi iaitu antara skala 3.68 – 5.00. Justeru itu, dapat disimpulkan bahawa penggunaan Aplikasi CABE berkesan dan dapat memberikan impak yang positif kepada pelajar serta melancarkan proses PdP.

KEBERKESANAN PENGGUNAAN APLIKASI MUDAH ALIH EPT POCKET APPS BAGI KURSUS DJJ6182 ENGINEERING PLANT TECHNOLOGY DALAM PENGAJARAN DAN PEMBELAJARAN JARAK JAUH

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ABSTRAK

Pandemic Covid-19 telah mengubah corak pengajaran dan pembelajaran (PdP) secara bersemuka kepada PdP secara pembelajaran atas talian. M-pembelajaran menjadi alternatif untuk memastikan PdP terus berjalan dan boleh diakses pada bila-bila masa dan tempat. Kajian ini bertujuan untuk mengkaji Keberkesanan Penggunaan Aplikasi Mudah Alih EPT Pocket Apps bagi Kursus DJJ6182 Engineering Plant Technology dalam Pengajaran dan Pembelajaran Jarak Jauh. Kajian ini mempunyai tiga objektif iaitu mengenalpasti tahap penerimaan pelajar terhadap aplikasi EPT Pocket Apps yang dibangunkan, mengenalpasti tahap kepuasan pelajar terhadap pengalaman pembelajaran menggunakan EPT Pocket Apps dan mengenalpasti keberkesanan penggunaan EPT Pocket Apps terhadap pencapaian pelajar. Responden kajian terdiri dariapada 53 orang pelajar yang mengambil kursus DJJ6182 Engineering Plant Technology di Politeknik Mukah. Instrumen kajian adalah soalselidik yang terdiri dari 5 bahagian serta ujian pra dan post sebelum dan selepas penggunaan aplikasi mudahalih. Kajian rintis dilaksanakan ke atas 14 orang pelajar dengan nilai Alpha Cronbach's yang diperolehi ialah 0.924 menunjukkan tahap kebolehpercayaan sangat tinggi. Analisa yang dilakukan adalah statistik diskriptif yang menunjukkan frekuensi dan skor min yang dijana menggunakan perisian Statistical Package for Social Science (SPSS). Keberkesanan penggunaan aplikasi dikaji dengan membuat perbandingan skor min Ujian Pra & Post dan analisa Paired Sample T-test. Didapati nilai skor min markah pelajar meningkat dan dari analisa Paired Sample T-test menunjukkan terdapat kesan positif terhadap pencapaian pelajar selepas didedahkan dengan EPT Pocket Apps.

REQUIREMENT MODEL TO OPTIMIZE FEATURES SELECTION FOR WEB-BASED E-LEARNING ON LEARNING MANAGEMENT SYSTEM (LMS)

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ABSTRACT

It is logically known that each phase of requirement engineering can be used to check the compliance of applications such in web-based e-learning development. This research indicates that basic aspects of web-based e-learning can be identified to elicit early requirement and classify it into the functional and non-functional approach. We found that even in LMS Based, some of the use of web-based e-learning is in different goals so it's challenging to develop a web-based e-learning system by getting the requirement focus at the early phase and select the feature that can fill the needs. In this study, we proposed a requirement model to describe the web requirement focus and decompose every web requirement aspect through logical modeling. Analysis due to the interaction and coverage of web-based e-learning is combined with web modeling aspects including content, interaction, functional, navigation, and configuration to show the relation among detail requirements. Requirements are found in a systematic way by modeling its logic. The result from this requirement model proves that web-based e-learning requirements are sustainably identified to complement each other and it can be implemented to classify the specific requirement to select the appropriate web-based e-learning features from early-phase development.

FAKTOR YANG MEMPENGARUHI HASIL PEMBELAJARAN PELAJAR DALAM PEMBELAJARAN ATAS TALIAN: KAJIAN KES DI POLITEKNIK KOTA KINABALU

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ABSTRAK

Penularan COVID-19 telah memberi kesan terhadap sektor pendidikan dimana institusi pendidikan telah ditutup kerana ingin meminimumkan dan mengehadkan pertemuan secara bersemuka sebagai usaha untuk mengekang penyebaran virus COVID-19. Keadaan ini sekaligus telah memberikan implikasi terhadap hasil pembelajaran pelajar disebabkan oleh perubahan drastik daripada pembelajaran secara tradisional ataupun kelas secara bersemuka digantikan dengan pembelajaran sepenuhnya atas talian. Kajian ini bertujuan untuk mengenalpasti pengaruh faktor motivasi pelajar, interaksi kelas dan aktiviti kelas terhadap hasil pembelajaran kursus pelajar dalam pembelajaran atas talian. Seramai 162 orang pelajar Politeknik Kota Kinabalu dari pelbagai semester pengajian telah mengambil bahagian dalam kajian ini. Teknik structural equation modeling (SEM) digunakan bagi menganalisis data dengan menggunakan perisian SmartPLS 2.0. Keputusan kajian menunjukkan bahawa motivasi pelajar dan interaksi kelas secara signifikan mempengaruhi hasil pembelajaran pelajar dalam pembelajaran atas talian. Ekoran pembelajaran secara atas talian telah menjadi alternatif utama bagi semua institusi pendidikan tatkala dalam pandemik COVID-19, kajian ini boleh dijadikan panduan kepada institusi dan tenaga pengajar dalam usaha meningkatkan hasil pembelajaran pelajar bagi pembelajaran secara atas talian.

LECTURERS' REFLECTIONS ON ONLINE TEACHING IN A HIGHER EDUCATION INSTITUTION DURING COVID-19: A CASE STUDY APPROACH

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ABSTRACT

At the onset of the year 2020, the CoViD-19 pandemic outbreak forced universities worldwide to close their campuses. The closures disrupted learning, research and academic activities of millions of learners, research institutions and families' ways of lives. Several countries implemented e-learning and distance-learning approaches on different platforms to minimise disruptions of academic activities. Online learning meant that both students and staff members must have devices and reliable internet connection. However, in many cases, both staff members and students were not prepared for the drastic changes brought by online learning. These changes necessitate the adoption of new teaching methods. However most lecturers were not trained in these techniques. As a result, lecturers had varying expectations and experiences from the new ways of teaching. This paper, therefore, makes a critical analysis of the experiences of academic staff on online learning at a University of Technology in South Africa during the CoViD-19 pandemic. In particular, the paper examines the experiences from the Information, and Communication Technology courses lecturers' perspectives to harvest the challenges encountered and lessons learnt. Online google forms were used to collect qualitative data and a thematic analysis was used to analyse the findings. In particular, behavioural and instructional approaches were utilised to capture the online teaching experiences from the lecturers. Most lecturers noted that it was difficult to get full participation of the students. However, online learning was found to provide some advantages over face-to-face physical classes. From our findings, we can conclude that the migration to online learning require more than physical resources. Proper planning and training for both students and staff is essential.

KAJIAN KES KEBERKESANAN PENGGUNAAN APLIKASI 'MICROSOFT ONE NOTES' BAGI KURSUS DBM20023 ENGINEERING MATHEMATICS 2

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ABSTRAK

Kaedah Pengajaran dan Pembelajaran (PdP) secara tradisional adalah antara pilihan pensyarah. Kemudian pada tahun 2014 Politeknik telah melaksanakan Pembelajaran secara Teradun. Malangnya sejak Pandemik Covid-19 melanda dunia, para pensyarah perlu menukar kaedah pengajaran dan pembelajaran secara dalam talian (PdPDT). Oleh itu, pelbagai penggunaan aplikasi telah digunakan bagi memudahkan sesi PdPDT. Aplikasi yang sering digunakan pensyarah ketika pandemic adalah whiteboard didalam aplikasi Microsoft Teams (MSTeam), tetapi ia didapati kurang mesra pengguna. Jadi Microsoft One Notes telah dipilih sebagai medium utama untuk digunakan di kala Pandemik. Sehubungan itu, kajian telah dilaksanakan untuk mengetahui keberkesanan penggunaan aplikasi Microsoft One Notes menerusi Pengajaran dan Pembelajaran atas Talian (PdPDT) yang dijalankan semasa Pandemik Covid-19. Kursus DBM20023 Engineering Mathematics 2 bagi sesi Disember 2020 telah dipilih untuk menggunakan aplikasi ini. Ia melibatkan seramai 32 responden dari kelas DEE 2B dan DKA 2A bagi membantu melengkapkan soal selidik ini. Dapatan kajian ini mengenalpasti sebanyak 50% dari jumlah responden mengalami masalah liputan internet di kawasan tersebut. Setelah pensyarah mengajar dengan menggunakan aplikasi Microsoft One Notes, purata keseluruhan Min yang telah dinilai adalah 4.04. Ini bermakna tahap keberkesanan menggunakan aplikasi ini adalah sangat tinggi walaupun pelajar mengalami kekangan dari segi liputan internet. Oleh itu, cadangan penambahbaikan hasil dari dapatan kajian menunjukkan bahawa setiap pensyarah perlu mendapat kursus serta bimbingan untuk menggunakan aplikasi ini di masa akan datang.

ABSTRACT

SOCIAL SCIENCES

THE RELATIONSHIPS BETWEEN DYNAMIC INCENTIVES TOWARDS MICROENTREPRENEURS FIRM PERFORMANCE IN MALAYSIA

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ABSTRACT

Dynamic incentives granted to the micro entrepreneurs for good loan repayment to increase their business growth. This study is to examine the relationships between dynamic incentives with microentrepreneur's firm performance in Malaysia. Cross-sectional data from the questionnaire were collected from 470 micro-entrepreneurs operating under the micro-financing scheme. Hence, the present study aimed to revisit the dynamic incentives towards micro-entrepreneur firm performance using the approach in PLS-SEM. The dynamic incentives and micro-entrepreneur firm performance were constructed as a reflective measurement model. The survey findings further revealed that dynamic incentives are significantly associated with micro-entrepreneur firm performance. This research's outcomes can benefit decision-makers such as Malaysian governments, microfinance organizations, and the decision-makers regarding distributing funding and promoting successful micro-entrepreneur performance in the long-run.

HUBUNGAN KEKERAPAN BERMAIN PERMAINAN DALAM TALIAN DENGAN MOTIVASI BELAJAR PELAJAR KEJURUTERAAN DI POLITEKNIK PORT DICKSON

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ABSTRACT

Online games are games played over the internet or other available computer networks. The world of technology sees the majority of teenagers in the world in general and in Malaysia, in particular each has their own gadgets. Therefore, this study is aimed to find out the relationship of online gaming frequency with student's learning motivation. The scope of the study was limited to engineering students at Politeknik Port Dickson. This study applies a quantitative method where questionnaire forms were distributed online with a sampling of 371 students. Purpose sampling was used whereby the respondents were engineering students who played online games only. Study data were analyzed using SPSS 26 applying descriptive test and Spearman Rank correlation. In conclusion, this study indicated a relationship between the frequency of playing online games with students' learning motivation but the strength of the relationship is at a weak level with a correlation coefficient value of 0.175 **. The effect of online gaming on engineering students at Politeknik Port Dickson from a social aspect is at a low level with a mean score of 1.89. This shows that they are involved with online games yet they can maintain social relationships with family, friends, and the community.

TAHAP PENGETAHUAN DAN KEMAHIRAN PENSYARAH MATEMATIK KEJURUTERAAN DI POLITEKNIK MALAYSIA TERHADAP PENGAJARAN DALAM TALIAN

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ABSTRACT

The purpose of the study was to examine the level of knowledge and skills of Engineering Mathematics lecturers at the Malaysian Polytechnic on online teaching. This knowledge and skills are related to the teaching preparation before, during, and after the teaching session. The scope of the study was limited to Engineering Mathematics lecturers at Malaysian Polytechnic due to the challenges of teaching mathematics faced from previous studies. This study applies a quantitative method where questionnaires forms were distributed online with a sampling of 209 people. A pilot study was conducted on 31 lecturers to determine the reliability of the research instrument. The outcomes from the pilot study showed that all items had high reliability and could proceed. Study data were analyzed using SPSS 26.0 program. Descriptive statistical analysis was adapted to analyze mean, standard deviation, frequency, and percentage. The study findings show that the level of knowledge of Engineering Mathematics lecturers on online teaching is at a high-level mean score of 4.07. However, the level of skills of Engineering Mathematics lecturers towards online teaching is at a moderate level mean score of 3.65. This study implicates the need to consider that medium use skills and online teaching skills reserve a better study for the future.

SIFAT KEBIMBANGAN DI KALANGAN ATLET FUTSAL POLITEKNIK MALAYSIA SEMASA KEJOHANAN LIGA IPT

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ABSTRACT

This study was conducted to examine the nature of anxiety among Malaysian Polytechnic Futsal athletes during the IPT Futsal League competition. The main objective of this study was to identify the level of anxiety of athletes and to identify the influence of secondary education and level of participation influencing the nature of anxiety of athletes. The importance of the study is for the athletes themselves as well as being a reference material for team management before competing in any tournament. A total of 24 athletes were selected as study respondents. The SCAT (Sport Anxiety Test) questionnaire developed by Marten, R. et al. (1990) were used in this study and distributed 7 days before the competition took place. This questionnaire uses 3 Likert scale measures namely Rarely (1 point), Sometimes (2 points) and Always (3 points). A total of 7 athletes have played at the highest level in Malaysia, namely the National Futsal League and the rest of the players only play at the polytechnic level. The results of the study found that all athletes had a high level of anxiety before competing. To see the nature of players 'anxiety based on Secondary Education and Participation Level, the researchers conducted a Multiple Regulation Test. The results of the study found that the variable of Secondary Education (Beta = 0.561, p <0.05) is the best predictor that is significant compared to the Participation Level (Beta = 0.439, p <0.05) with an overall value of R^2 = 0.945. Both variables have a positive B value and this indicates that there is a positive relationship between the two variables with the anxiety score. Therefore, the researcher will apply the elements of psychology or anxiety management among athletes in the team training program to overcome this problem.

PENGELASAN PERSEPSI PEKERJA DI SYARIKAT INDUSTRI BERAT: SATU ULASAN BERDASARKAN TINJAUAN

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ABSTRAK

Pembukaan Taman Perindustrian Samalaju dalam Kawasan Koridor Tenaga Diperbaharui Sarawak (SCORE) membuka banyak peluang pekerjaan kepada penduduk tempatan mahupun dari luar negeri. Permintaan tenaga kerja meningkat dengan lebih banyak bagi memenuhi keperluan industri dikawasan tersebut. Namun, situasi pandemik COVID-19 yang melanda negara dan dunia memaksa pekerja asing kembali ke tempat asal mereka. Ini menyaksikan perusahaan tempatan perlu mengurangkan pergantungan terhadap pekerja asing ini dan berusaha untuk meningkatkan tenaga kerja dalam kalangan rakyat tempatan. Oleh itu, kajian ini dijalankan bagi mengenalpasti persepsi pekerja terhadap faktor perhubungan antara majikan dan pekerja, persekitaran kerja, imbuhan gaji serta semangat berpasukan dalam menentukan kepuasan pekerja. Kajian ini akan dibangunkan dalam bentuk kuantitatif menggunakan borang soal-selidik untuk mendapatkan maklum balas. Hasil dari kajian ini dapat membantu industri mengenalpasti persepsi pekerja untuk meningkatkan lagi kepuasan kerja yang maksimum dikalangan pekerja mereka. Ini kerana pekerja yang mempunyai kepuasan kerja yang tinggi mampu menyumbang hasil kerja yang berkualiti serta akan setia berkhidmat dengan lebih lama dalam syarikat. Selain itu, ianya boleh menjadi satu rujukan kepada pihak politeknik untuk menekankan elemen berkenaan dalam kalangan pelajar bagi membantu meningkatkan lagi kebolehpasaran pelajar.

INDEKS KUALITI LALUAN PEJALAN KAKI SEBAGAI ALAT PENILAIAN DALAM PERANCANGAN FASILITI LESTARI

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ABSTRAK

Fasiliti laluan pejalan kaki yang mesra pengguna perlu disediakan untuk memenuhi keperluan komuniti bandar. Tahap perkhidmatan laluan pejalan kaki (PLOS) yang tidak berkualiti akan menyumbang kepada permasalahan penggunaan yang rendah kerana ianya gagal memenuhi keperluan pengguna. Oleh yang demikian, penetapan strategi perancangan yang berkesan perlu dibentuk sebagai proses penambahbaikan fasiliti tersebut. Kajian ini mencadangkan Indeks Kualiti Laluan Pejalan Kaki (IKLPK) digunakan sebagai alat penilaian tambahan kepada penilaian PLOS dalam pembentukan strategi tindakan perancangan fasiliti yang lestari. Metodologi kajian adalah secara kuantitatif iaitu melalui pengauditan kualiti dan kondisi fizikal yang melibatkan 23 rangkaian laluan pejalan kaki di pusat bandaraya Alor Setar, Kedah. Penganalisaan tahap PLOS diterjemahkan kepada tahap perkhidmatan A [Sangat terbaik] hingga F [Sangat lemah] dengan menggunakan analisis statistik skor min. Kemudiannya, hasil analisis PLOS digabungkan menggunakan model Analisis Multi-kriteria untuk menghasilkan matrik keputusan yang dinamakan sebagai IKLPK. Keputusan IKLPK berfungsi sebagai penyenaraian ranking tahap penambahbaikan dan penyelenggaraan yang perlu diberi keutamaan berdasarkan interpretasi indeks A [Sangat berkualiti tinggi] hingga F [Sangat tidak berkualiti]. Dapatan kajian menunjukkan bahawa analisis pencapaian PLOS di pusat bandaraya Alor Setar adalah mencapai tahap D [Sederhana] manakala tahap kualiti melalui IKLPK secara keseluruhannya adalah tahap indeks C [Berkualiti]. Berdasarkan ranking, tiga rangkaian laluan perlu diberi keutamaan untuk kerja-kerja penambahbaikan dan penyelenggaraan kerana mencapai tahap indeks E. Manakala pencapaian tahap bagi rangkaian lain ialah indeks D (empat), indeks C (14) dan indeks B (dua). Berbantukan tahap indeks tersebut, ianya memudahkan Pihak Berkuasa Tempatan untuk melaksanakan program penambahbaikan mengikut tahap permasalahan atau kekurangan yang telah dikenalpasti mengikut keutamaannya.

THE RELATIONSHIP BETWEEN LEADERSHIP STYLES AND EMPLOYEES' PERFORMANCE AMONG ACADEMICIANS AT POLITEKNIK MUKAH, SARAWAK

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Politeknik Mukah Sarawak

ABSTRACT

The purpose of this research is to see how different leadership styles, such as transformational leadership, democratic leadership, and laissez-faire leadership affect employees' performance among academicians at Politeknik Mukah in Sarawak. The sample size comprised of 148 participants from seven departments in Politeknik Mukah with non-probability sampling, and a structured questionnaire had been used to collect responses from the respondents. The study's major findings demonstrated that democratic leadership had the greatest impact on employee performance. However, the majority of academicians felt that these three leadership styles help them perform better. This was supported by the findings, which revealed that all of the researched leadership styles have a significant association on employees' performance. Furthermore, at the completion of the research, the researcher suggests that all three leadership styles can be used in order to improve the performance of the academicians, and raise the sample size for future research.

A PRELIMINARY FINDINGS ON A SOCIAL SUPPORT AND PERCEIVED ACADEMIC ACHIEVEMENT IN TVET INSTITUTIONS IN MALAYSIA DURING COVID-19 PANDEMIC

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ABSTRACT

Advisory and mentoring come in different styles and concepts. Hence it purposely enhance student-enabled learning. However different varying types of advisory would lead to different outcomes. Technical Vocational Education and Training (TVET) in Malaysia offers specific types of advisory and committee. The type of advisory given has become a conflict to either the academic advisor and TVET students. Academic advisors expects the students to be more independent and require less mentoring and advising. However students' expectation require much more expectation on advising with less monitoring. Thus this study is aiming at crystallizing the actual perspectives of academic advisors among TVET students. This cross-sectional study aiming at determining how social support is related to the perceived academic achievement of TVET students. This study will examine emotional, appraisal, and instrumental support would benefit Malaysia TVET students. This quantitative study will utilize four sets of adapted items and would be distributed to all TVET institutions in Malaysia. The questionnaire will be conducted on 30 samples of a pilot test before could be administered to the samples using simple random sampling. The finding is expected to give quite an impact and infer to an academic advising committee in Malaysian education.

THE LINK BETWEEN TEACHERS' ENGLISH LANGUAGE PROFICIENCY AND TEACHERS' COMPETENCE IN ESL CLASSROOM

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ABSTRACT

This concept paper is proposed to examine the relationship between English language teachers' proficiency and teachers' competence in terms of their knowledge about the language. The researchers will also refer to teacher competence as subject-matter knowledge. In Malaysia, all English language teachers are required to achieve at least Band 5 in MUET or C1 in APTIS or CEFR Readiness Test beginning 2019. There are three aspects which would affect English language teachers' proficiency and knowledge about the language, namely curriculum, teaching and learning and assessment. This conceptual framework will be used to identify the factors affecting teachers' language proficiency and their subject-matter knowledge. The study will further identify the gaps and issues related to the previous and current programmes related to English language proficiency among teachers. The concept paper is significant as it will help policy makers to review the current initiatives related to the teaching and learning of English language in Malaysia to further improve the programmes in order to enhance English language teachers' proficiency and knowledge about the language. Based on the study, there are several ways to improve teachers' English language proficiency and subject-matter knowledge. One of it is to review the role of SISC+ to assist English language teachers to score a minimum CEFR C1 in the English language proficiency test.

AWARENESS OF PERSONAL PROTECTIVE EQUIPMENT COMPLIANCE IN SHIPYARD INDUSTRY

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ABSTRACT

Advisory and mentoring come in different styles and concepts. Hence it puThis research is conducted to assist management to improve of Personal Protective Equipment (PPE) compliance among shipyard workers by emphasizing on contributing factors that influence PPE compliance among shipyard workers. The purpose of this research is to investigate the factors on awareness of PPE compliance among workers in shipyard industry in order to suggest the improvements on shipyard workers' PPE compliance to prevent future occupational accidents. Quantitative online survey questionnaire was conducted among 61 workers in Pasir Gudang shipyard by simple random sampling. The instruments of questionnaire were adapted and adopted from existing questionnaire from previous literatures. A pilot test was conducted to measure the reliability of the questionnaire for all contributing factors by assessing Cronbach's Alpha acceptable value and questionnaire's validity is assessed by experts. Then, the questionnaire was disseminated via online survey to all respondents to assess their awareness on the PPE compliance in shipyard. The data collection from the respondents was collected and analyzed using IBM Statistical Package for Social Science (SPSS) version 26 and Microsoft Excel version 16. The results shown high awareness of PPE compliance among shipyards workers in Pasir Gudang influenced by attitudes and beliefs, demographic characteristics, supervision and training. Training, supervision and attitude and belief are the strong positive significant factors on awareness on PPE compliance. Management team can improve PPE compliance among workers by improving PPE attributes and establishing reward systems as well as implementation of continuous training dan supervision to influence safety attitude among shipyard workers.

RELAY TRAINER : THE EFFECTIVENESS OF ITS USE IN ELECTRONIC PROJECT COURSE

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ABSTRACT

Engineering courses generally use relays during the learning process. This is due to the fact that many relay applications are used in electrical and mechanical appliances. However, students are still confused about the concepts how relay is operate. As a result, this Relay Concept Trainer is intended to help engineering students grasp the fundamentals of the concept. This module is designed to explain the concept of relay, which is frequently used by electrical engineering students, especially during their final project. It also demonstrates the fundamental principle of an electromagnet using a wire coil. A relay is basically a switch that automatically opens and closes when an electrical current is applied to it. Most students do not understand this concept because they cannot see the interior of the relay. As a result of their confusion over Normally Open (NO) and Normally Closed (NC) pins, they are more likely to mount the circuit incorrectly. This is based on surveys made during final project evaluations. However, students who used this trainer before connecting their own project appear to have connected it more accurately. Therefore, the purpose of this research is to see how it affects students who utilise it in practise to complete their electronic projects. Students can see how relays work closely with this trainer. In fact, this demonstrates that the students have a thorough understanding of the relay concept.

KAJIAN PERSEPSI TAHAP KEBOLEHGUNAAN DAN KEPUASAN PENGGUNAAN APLIKASI E-ODE TERHADAP PELAJAR DI POLITEKNIK MUKAH, SARAWAK

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ABSTRAK

Kajian berbentuk diskriptif ini adalah bertujuan bagi mengenalpasti tahap kebolehgunaan, kepuasan dan mengenalpasti perbezaan antara persepsi pelajar Kejuruteraan Elektrik (DEE & DEP) dan pelajar Kejuruteraan Mekanikal (DKM) terhadap penggunaan aplikasi e-ODE terhadap pelajar di Politeknik Mukah, Sarawak. Kaedah soal-selidik telah digunapakai bagi mendapatkan hasil dapatan kajian. Instrumen soal-selidik terbahagi kepada 2 bahagian iaitu Bahagian 1 (A) dan Bahagian 2 (B,C,D,E,F). Bahagian 1 adalah Demografik. Manakala Bahagian 2 pula terdiri daripada soalan yang mewakili faktor- faktor tahap kebolehgunaan (4 bahagian) dan kepuasaan kepenggunaan aplikasi kepada pelajar (1 bahagian). Respondan kajian adalah terdiri daripada 100 pelajar yang mengambil kod kursus DBM30043-Electrical Engineering Mathematics (DEE & DEP) dan DBM30033-Engineering Mathematics 3 (DKM) bagi Sesi Jun 2020. Kajian ini menggunakan perisian SPSS (Statistical Packages for Social Sciences) untuk menganalisa data soal-selidik dan ditunjukkan dalam bentuk kekerapan, min, peratus dan nilai-t. Justeru itu, Ujian t digunakan dalam kajian ini, adalah bagi melihat perbezaan persepsi pelajar Kejuruteraan Elektrik (DEE & DEP) dan pelajar Kejuruteraan Mekanikal (DKM) terhadap kebolehgunaan dan kepuasan penggunaan aplikasi e-ODE ini. Hasil dapatan kajian menunjukkan 3 domain yang dipilih iaitu rekabentuk/reka letak, kebolehfungsian dan kebolehgunaan adalah merupakan faktor utama yang mempengaruhi persepsi pelajar terhadap penggunaan aplikasi e-ODE ini, berikutan hasil kajian menunjukkan faktor-faktor ini telah mendapat skor min pada tahap tinggi.

ABSTRACT

SCIENCE & TECHNOLOGY

RESPONSE SURFACE METHODOLOGY APPLICATION IN OPTIMISATION OF PINEAPPLE JUICE CONCENTRATION PROCESS BY REVERSE OSMOSIS

Mohammad Hafsanjani Salleh, Mohd Zahid Abidin, Mohd Shahril Osman, Ashraf Abdul Razak and Abdul Fattah Abdul Razak
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ABSTRACT

Reverse osmosis is a classical method in the water treatment industry and has been an interest as an alternative for fruit juice concentration. However, the process only practical for fruit juice pre-concentration and lack of study of optimisation technique employed for this process were done. Therefore, this study looks into the possibility of utilising response surface methodology (RSM) to optimise the pineapple juice concentration by reverse osmosis. The variables selected were temperature (20°C, 40°C and 60°C) and transmembrane pressure (20, 40 and 60 bar), while the response chosen is the total soluble solids obtained. The optimisation using response surface methodology on the reverse osmosis process was successful, and the pineapple juice capable of being concentrated up to 31°Brix at selected optimised condition (20 °C of temperature and 60 bar of transmembrane pressure).

THE OPTIMISATION OF PROCESSING CONDITION TOWARDS KENAF SEED EXTRACT PHYSICOCHEMICAL PROPERTIES: AN INVESTIGATION USING RESPONSE SURFACE METHODOLOGY

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ABSTRACT

The Box-Behnken design was employed to investigate the effects of the four factors of processing condition, namely, soaking time (150, 255 and 360 min), soaking temperature (30°C, 45°C and 60°C), grinding time (60, 90 and 120 s) and grinding water temperature (30°C, 55°C and 80°C) to assess kenaf seed extract (kse) physicochemical properties (responses) that include: colour differences, crude protein, crude fat, total soluble solid and yield. Results show that the data were adequately fitted into two second-order polynomial models and all the responses obtained were close to its predicted value. Based on the findings, the processing condition with a soaking time for 360.00 min, soaking temperature at 46.32°C, grinding water temperature at 38.31°C and grinding time for 83.39 sec yielded the best outcome. The development of such models offers an excellent foundation for optimising kse responses using response surface methodology.

THE EVALUATION OF THE EFFECTIVENESS OF THE INTERACTIVE MULTIMEDIA WEBLOG COURSEWERE IN THE LEARNING OF HYDROLOGY ENGINEERING

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Maizam Alias and Nurhidayah Seetha Abdullah
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ABSTRACT

This study aimed to assess the effects of learning using an interactive multimedia weblog courseware with the conventional method in the learning of hydrology engineering. A quasi-experimental study was conducted to evaluate the high-level cognitive skills achievement based on the Bloom and Anderson taxonomies. The study sample comprised 105 students who were taking the hydrology engineering course. The ANOVA analysis showed a significant difference in the high-level cognitive skills achievement which were high-level short-term memory and high-level long-term memory. The conclusion was that the study findings indicated that the interactive multimedia weblog courseware was more effective as an alternative learning method compared to the conventional method ; in fact its usage could support an abstract and complex learning approach which could contribute positively towards learning achievement in hydrology which had been viewed as a difficult to score course.

REVIEW ON SMART AGRICULTURE: INTERNET OF THINGS (IOT) APPLICATION LAYER PROTOCOLS

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ABSTRACT

The Internet of Things (IoT) is one of computing field that currently growth and hottest trend for any related field in current years. The IoT is a concept where it enables every "things" or devices to connect, communicate and make a decision for the application in many fields including healthcare, disaster recovery, home automation, automation vehicle, Agriculture and etc. During the last century, the basic agriculture technology likes machines has been used. Nowadays, the modern technology adoption for the agriculture improvement. Though the modern technology, the farmers able to do a better job or are slightly improved from their predecessors. This paper review on the previous works that are related to the IoT protocols and this review is to identify the possible IoT protocol that could be used to develop an IoT System for agriculture. This review also focusing on the protocol that could working in a constrained environment. From the finding, Message Queue Telemetry Protocols (MQTT) are suitable to be used in a constrain environment (low communication bandwidth and unstable connection) and be able to operate in high latency environment, lightweight, and the most importance is reliable to be used in the smart agriculture applications.

AN INTEGRATION OF SMART GARDEN WITH IOT TECHNOLOGY

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ABSTRACT

Internet of Things (IoT) is a domain of technology that brings remarkable advancement in every field of life, whether it's industry or agriculture. Our lives are essentially dependent on agricultural development. IoT is a domain of computer science that provides mechanisms and techniques to interconnect a wide range of digital devices to automate real-life systems. Gardeners facing problems in their gardens regarding the maintenance and availability of proper gardeners. This research paper has proposed an IoT-based approach for smart gardens using the NodeMCU microcontroller that helps the users in identifying current parameters of temperature, moisture, and humidity of their homegrown plants and gardens. The objective of this study is: 1) to design and develop the prototype product smart garden; 2) To integrate the smart garden with IoT technology; and 3) To validate the integration of smart garden with IoT technology by conducting the Unit Testing. Agile modal is implemented to ensure the product can be developed according to the specific period of time. A prototype has been implemented to show the real illustration of the proposed approach. A telegram bot application has been developed to display the real-time profiles of environmental factors like temperature, moisture, and humidity. With the help of this product, users will be able to treat their gardens in a better way in terms of plant growth, maximize the output while minimizing the cost of production.

ABSTRACT

BUSINESS & MANAGEMENT

PILIHAN BARANGAN DAN GELAGAT PEMBELIAN PENGGUNA ATAS TALIAN

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Politeknik Kota Kinabalu

ABSTRAK

Pada masa kini, membeli-belah dalam talian adalah fenomena yang berkembang pesat. Dengan pertumbuhan perniagaan atas talian yang pesat selari dengan teknologi internet dan telefon pintar, ramai individu beralih kepada pembelian atas talian berbanding dengan pergi ke pasar raya untuk pembelian barangan tertentu. Semakin ramai pengguna berbelanja dalam talian untuk membeli barang dan perkhidmatan, mengumpulkan maklumat produk atau bahkan mencari keseronokan apabila berbelanja atas talian. Justeru itu, kajian ini dijalankan untuk menilai gelagat pembeli atas talian dan item yang menjadi perhatian pembeli online. Sampel kajian ini adalah daripada kalangan pelajar dan komuniti Politeknik Kota Kinabalu, Sabah. Instrumen yang digunakan dalam kajian ini adalah soal selidik yang diedarkan secara rawak. Sebanyak 80 pelajar telah mengambil bahagian. Data yang diperoleh akan dianalisis secara deskriptif dan regresi linear menggunakan perisian SPSS v.22. Hasil kajian mendapati bahawa barangan elektrik merupakan item yang paling banyak dibeli dalam talian, diikuti oleh pakaian dan makanan. kajian ini mencadangkan supaya semua individu perlu memberi keutamaan kepada barang penting atau asasi terlebih dahulu dalam membuat pembelian, dan bukan semata-mata pengaruh iklan dalam media sosial.

KEPERLUAN UNIT PEMERIKSAAN DALAMAN BAGI PROSES PENAMBAHBAIKAN KERJA-KERJA PENYELENGGARAAN KENDERAAN RASMI INSTITUSI

Arman Haji Ahmad Sapawi, Zuraiti Haji Che Amat and
Mohd Asmedi Yaacob
Politeknik Sultan Azlan Shah

ABSTRAK

Jangka hayat sesuatu kenderaan adalah merujuk kepada faktor penjagaan, cara pemanduan, pendedahan kepada kesan cuaca dan banyak lagi. Pada masa kini jabatan-jabatan kerajaan giat melaksanakan dasar atau langkah penjimatan bagi menampung perbelanjaan secara keseluruhannya. Oleh yang demikian, kajian dijalankan untuk merangka penjimatan dalam kerja-kerja penyelenggaraan kenderaan jabatan dengan menjadikan Politeknik Sultan Azlan Shah (PSAS) sebagai sampel kajian. Ia akan menjurus kepada dapatan perancangan kewangan jabatan tahunan khususnya berkenaan keperluan penyelenggaraan kenderaan. Rentetan daripada dapatan kajian, satu garis panduan pengurusan kenderaan jabatan dapat dibangunkan dengan mewujudkan dua unit berasingan iaitu unit pemeriksaan kenderaan dan unit pembaikan kerosakan kecil. Keberkesanan kelancaran operasi kedua-dua unit ini adalah melalui pemantauan berterusan pihak pengurusan tertinggi sesebuah institusi. Justeru itu, kajian ini berupaya mendatangkan kesan yang positif menerusi perancangan kewangan yang bersistematik, berfasa serta teratur. Adalah diharapkan agar ia dapat diaplikasikan ke institusi lain demi kepentingan tadbir urus kenderaan rasmi jabatan.

FINANCIAL LITERACY AMONG MICRO ENTREPRENEUR PERFORMANCE IN SARAWAK, MALAYSIA

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Mohammad Fardillah Wahi
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ABSTRACT

Financial literacy is critically important to ensure the success of firm performance. Therefore, the purpose of this study to examine the financial literacy factors affect the micro-entrepreneur firm performance in Sarawak Malaysia. The research is based on 400 sample respondents from the micro-entrepreneurs with non-probability sampling and structured questionnaire had been used to collect response from the respondents. The survey findings further revealed that financial literacy is significantly associated with micro entrepreneur firm performance. The outcomes of this research can benefit the decision makers such as governments, microfinance institutions and other related institutions to support micro entrepreneur not only for poverty provision but also successful in business performance.

ABSTRACT

ENTREPRENEURSHIP

PENERIMAAN APLIKASI CAKECULATOR DALAM KALANGAN PENDUDUK MUKAH

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ABSTRAK

Cakeculator merupakan satu aplikasi untuk mengira harga bahan yang digunakan untuk membuat kek. Kajian ini bertujuan untuk menilai kebolehgunaan dan kesan aplikasi mudah alih Cakeculator dalam kalangan penduduk Mukah. Tinjauan awal mengalami usahawan kecil di Mukah mengalami kesukaran dalam mengira jumlah harga yang telah digunakan untuk membuat kek. Sehubungan itu, menyebabkan mereka sukar untuk menetapkan harga jualan kek yang bersesuaian. Oleh kerana itu, aplikasi Cakeculator telah terhasil. Cakeculator merupakan satu aplikasi yang boleh digunakan untuk mengira harga bahan yang boleh digunakan untuk membuat sebuah kek. Aplikasi ini telah dirangka menggunakan Microsoft Excel dan Microsoft Powerpoint sebelum dicipta dalam MIT App Inventor. Untuk menilai perisian ini, kaedah tinjauan telah dipilih dengan menggunakan instrumen soal selidik yang telah diedarkan melalui platform Whatsapp dan Telegram secara rawak kepada warga Mukah. Hasil dapatan kajian ini mendapati semua responden berpuas hati terhadap aplikasi yang akan dibangunkan ini.

ENTREPRENEURIAL INTENTION: ESTABLISHMENT OF STARTUP COMPANY IN PONTIANAK

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ABSTRACT

One of the ecosystems for the growth of new businesses or better known as startups is universities or colleges. This makes higher education a key role in economic growth in the millennial era. This research is attempted in order to investigate and explain the factors that act as a passage for the millennial generation to establish a new business entity. Highlights will be given to aspects of personal intention, the role of entrepreneurship education in educational institutions and, the role of families in the decision to establish a new business entity (startup). The main idea of research is an application of the "Theory of Planned Behavior" (TPB), which is a model that explains the intention / plan of behavior that is based on an action / decision taken by an individual. The research question regarding "whether the relationship between entrepreneurial education and entrepreneurial intentions is mediated by the cultivation of behavior" and whether "the relationship between family involvement and entrepreneurial intentions is mediated by the cultivation of behavior" have been accepted empirically. The cultivation of entrepreneurial behavior partially mediates (partial mediation) of the relationship between "entrepreneurial education" and "entrepreneurial intentions", or it can also be said that "entrepreneurial education" has been found to have both an indirect effect and direct effect through the cultivation of behavior. Meanwhile, the effect of "family involvement" on the birth of entrepreneurial intentions in encouraging the establishment of startups is fully mediated through the cultivation of entrepreneurial behavior.

ABSTRACT

EDUCATION STUDIES

IDENTIFYING THE CORRELATION BETWEEN THE STUDENTS' ACHIEVEMENT IN SPM MATHEMATICS AND SEMESTER 1 AND 2 OVERALL PERFORMANCE FOR THE ELECTRICAL DEPARTMENT OF POLITEKNIK KOTA BHARU

Chung Boon Chuan, Melissa Khor Suan Chin and Udom A/L Ewon
Politeknik Kota Bharu

ABSTRACT

This study aims to identify the relationship between students' achievement in SPM Mathematics and the performance in engineering courses among students of the Department of Electrical Engineering for semesters 1 and 2. The objective of the study is to obtain certainty and validity that there are effects on the relationship of Electrical Engineering students' achievement and the admission prerequisites for SPM Mathematics subjects. This study is an exploratory study using secondary data based on the results of the students' semester examinations (continuous assessment and final examination for students of semester 1 and 2) for a period of five semesters (June 2017 - June 2019). The study sample of 969 students consisting of Diploma program students in the Department of Electrical Engineering was taken for the purpose of this study. Six hypotheses were constructed for this study. Statistical ANOVA method was used to analyze these hypotheses. The test results prove that there is a significant relationship between the achievement of the Discipline Core Courses and the Common Core Courses for semester 1 Electrical Engineering students and the SPM Mathematics achievement, but there is no significant relationship between the Discipline Core Courses and Common Core Courses and the SPM Mathematics achievement for semester 2.

TAHAP KESEDIAAN PELAJAR MELAKSANAKAN AMALI SAINS KEJURUTERAAN BERPANDUKAN VIDEO DI POLITEKNIK PORT DICKSON

Noorain Ithnin, Suhana Ramli and Syafarizan Nasroddin
Politeknik Port Dickson

ABSTRACT

The purpose of the study was to evaluate the level of student's readiness for the video-guided practical process and examine student's perceptions on the use of practical video from the aspect of video indicators. The scope of the study was limited to students who have registered in DBS10012 (Engineering Science) course at Politeknik Port Dickson. This study applies a quantitative method where the questionnaire forms were distributed online with a sampling of 257 students. A pilot study was conducted on 30 students to determine the reliability of the research instrument. The results of the pilot study showed that all items have high reliability and could be used in the actual study. Analysis of the study is done using SPSS 26.0 software. Descriptive statistical analysis was used to analyze mean, frequency and percentage. Findings of the study indicated that the level of student's readiness to do practical by referring to provided video was at a high level with a mean score of 4.07. Similarly, student's perceptions on the use of practical video studied from the aspect of video indicators is at a high level with a mean score of 4.06. This indicates that the use of practical videos in the practical process of Engineering Science at Politeknik Port Dickson is able to increase the readiness of students to conduct practicals. This may be due to practical video indicators that have an impact and effect on aspects of student readiness.

KESAN PERSEKITARAN ORGANISASI TERHADAP KEPUASAN LATIHAN PEMBELAJARAN BERASASKAN KERJA PELAJAR POLITEKNIK KOTA KINABALU

Naisah Ujin, Nina Shenna Kosumin and Noor Intan Tahir
Politeknik Kota Kinabalu

ABSTRAK

Pembelajaran Berasaskan Kerja (PBK) merupakan kaedah pembelajaran berstruktur yang dirangka oleh Jabatan Pendidikan Politeknik dan Kolej Komuniti untuk meningkatkan lagi kebolehpasaran graduan Politeknik bagi memenuhi keperluan industri. Kaedah pembelajaran PBK dilihat mampu memberi impak positif kepada pelajar namun kepuasan pelajar terhadap pelaksanaan PBK penting untuk dikenalpasti. Semasa menjalani PBK, pelajar mempunyai pengalaman pembelajaran yang berbeza bergantung kepada persekitaran organisasi di mana pelajar ditempatkan semasa menjalani PBK. Oleh itu, kajian ini bertujuan untuk mengenalpasti kesan peranan rakan sekerja, peluang pembelajaran dan kejelasan tugas terhadap kepuasan pelajar menjalani PBK. Responden adalah terdiri daripada pelajar Diploma Pengurusan Hotel di Jabatan Pelancongan dan Hospitaliti, Politeknik Kota Kinabalu. Sebanyak 84 responden yang sedang menjalani dan telah menamatkan latihan PBK telah mengambil bahagian menjawab soal selidik ini. Kaedah kuantitatif digunakan dalam pengumpulan data dengan mengedarkan soal selidik menggunakan Google form. Analisis data dilakukan dengan menggunakan perisian statistik SPSS versi 23 dan teknik structural equation modelling (SEM) menggunakan SmartPLS 2.0. Keputusan kajian menunjukkan bahawa rakan sekerja dan kejelasan tugas secara signifikan mempengaruhi kepuasan pelajar menjalani PBK. Walau bagaimanapun, dari segi peluang pembelajaran didapati tidak mempengaruhi kepuasan pelajar. Kajian di masa akan datang pengkaji perlu mengambilkira faktor lain seperti penyelia utama dan perkembangan individu dalam kajian bagi mendapatkan gambaran kepuasan pelajar menjalani PBK yang lebih jelas. Selain itu, kepuasan pelajar menjalani PBK di jabatan yang berbeza dan sampel kajian yang lebih besar perlu diambilkira bagi mendapatkan gambaran keseluruhan kepuasan pelajar politeknik menjalani latihan PBK.

PERANAN TEKNOLOGI DALAM ISU DAN CABARAN PENDIDIKAN TVET DI MALAYSIA

Mas Nordiana Haji Rusli, Ahmad Nabil Mohamad, Izan Fahmee Nordin and Mohd Aly Rajaie Halim
Politeknik Mukah Sarawak

ABSTRAK

Peranan Pendidikan Teknikal dan Latihan Vokasional (TVET) dalam revolusi perindustrian IR4.0 merupakan pemangkin ke arah negara maju. Peranan teknologi ketika pandemik covid-19 bukan sahaja mempercepatkan pelaksanaan IR4.0, peluang mengarusperdanakan pendidikan TVET melalui usaha kerajaan mengubah persepsi masyarakat dalam penyampaian TVET bagi menghasilkan tenaga pengajar mahir serta graduat berkualiti tinggi perlu dicapai. Mengetahui keperluan dan kepentingan teknologi ketika suasana pergerakan terhad (MCO) akibat pandemik, kertas kerja ini membincangkan tentang isu-isu dan cabaran dalam usaha kerajaan mengarusperdanakan TVET di Malaysia.

ANALYSING THE VALIDITY OF LOWER SECONDARY SCHOOL STUDENTS' PERSONALITY TOWARDS DESIGN AND TECHNOLOGY

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ABSTRACT

This research aims to explore the tendencies of students pertaining to learning Design and Technology (RBT). RBT is a new subject introduced by the Ministry of Education Malaysia to all schools nationwide. Following that, technical and vocational teachers in schools are to teach this subject to students replacing the subject that was taught beforehand: Integrated Living Skills. The research per se was conducted to analyze the instruments distributed examining to what extent it was regarding the tendencies of lower secondary school students in Malaysia who are learning RBT. The problem arises when students in school have to choose whether to study RBT or Basic Computer Science. In order to explore the interest of students using quantitative research, a survey instrument consisting of twenty four items was formulated by referring to previous researches. The survey was then administered to Form 1 students studying in a secondary school in Malaysia. In order to attain the best instrument, the Racsh model analysis was used for the purpose of refinement. The findings show that the items in the construct are positively skewed and it does not contradict with the constructed items to be measured. It is also shows that, the misfit order featuring two items having the biggest outfit Mean-Square (MNSQ) and one item of value resulting from the smallest outfit MNSQ. The research findings will help teachers and students to assess the students' interest whether to learn RBT or Basic Computer Science.

KAJIAN PENGGUNAAN ALAT BANTU MENGAJAR EASY MBOARD DALAM PENGAJARAN DAN PEMBELAJARAN

Zainatul Fakih Zainon
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ABSTRAK

Penggunaan Alat Bantu Mengajar dalam proses pengajaran dan pembelajaran adalah penting untuk memastikan penyampaian maklumat yang berkaitan dengan subjek yang diajar adalah lebih jelas dan sistematik. Sesebuah komputer mempunyai komponen-komponen utama bagi melengkapkan fungsi dan dapat menjamin keberkesanan penggunaannya. Oleh itu, penggunaan "Easy MBoard" dibina adalah untuk membantu dalam memudahkan sistem pengajaran dan pembelajaran bagi subjek SSK 1043 – Senibina Komputer di dalam topik 2 iaitu komponen sistem komputer. Antara masalah yang wujud adalah pelajar sukar mengingat kedudukan setiap satu komponen. Pelajar juga sukar untuk membuat amali pemasangan komponen kerana dikhuatiri meletop. Oleh itu, produk inovasi ini dibangunkan supaya pelajar mempunyai keyakinan sebelum menggunakan papan induk utama secara realiti. Objektif utama projek inovasi ini dilaksanakan adalah sebagai alat bantu mengajar bagi memudahkan pelajar untuk memahami modul SSK 1043 bagi topik 2 komponen sistem komputer dengan lebih mendalam dan dapat melaksanakan amali dengan baik. Selain itu, inovasi yang dibangunkan adalah berasaskan lego kerana ia dapat merangsang minda pelajar dalam mengingat komponen pada papan induk. Data kajian ini dianalisis dengan menggunakan perisian *SPSS* menunjukkan ada peningkatan sebelum dan selepas menggunakan produk inovasi iaitu sebelum penggunaan min menunjukkan 3.5 manakala selepas penggunaan min adalah 3.6. Ini terbukti produk inovasi ini sangat membantu pelajar dalam proses pembelajaran dan pengajaran. Cadangan penambahbaikan untuk projek inovasi Penggunaan *"Easy MBoard"* didalam proses pengajaran dan pembelajaran pada masa hadapan iaitu ianya dapat dilaksanakan dengan lebih terperinci bagi setiap satu komponen yang terdapat pada papan induk utama. Kesimpulan daripada hasil inovasi ini supaya dapat memudahkan pensyarah dan pelajar dalam proses pengajaran dan pembelajaran supaya ianya menjadi lebih mudah dan efektif.

Proses pembelajaran dan pengajaran juga mampu dilaksanakan dengan lebih mudah dan menjadikan objektif pengajaran dan pembelajaran bagi subjek SSK 1043 topik 2 tercapai.

PENDIDIKAN ILMU TARANUM AL-QURAN

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ABSTRAK

Guru merupakan individu penting dalam memastikan pengajaran dan pembelajaran berjalan lancar di sekolah. Dalam menghasilkan pengajaran yang berkesan, guru perlu menguasai kaedah dan teknik pengajaran dengan baik dan mahir dalam mata pelajaran yang diajar. Aspek-aspek ini penting untuk memastikan objektif pengajaran dan pembelajaran tercapai (Noor Fazillah Hassan et al., 2015). Penulisan ini bertujuan untuk mengenal pasti pendidikan ilmu taranum dari aspek kaedah, teknik, aktiviti pengajaran dan penggunaan ABM dalam pendidikan taranum al-Quran. Metodologi kajian ini menggunakan kaedah kajian literatur. Data yang diperoleh adalah hasil dapatan yang dikeluarkan daripada kajian-kajian yang pernah dilakukan tentang satu topik atau isu yang berkaitan dengan topik penulisan ini seterusnya membentuk satu penulisan yang baharu. Dapatan kajian menunjukkan terdapat beberapa kaedah yang boleh digunakan iaitu talaqqi musyafahah, takrar, tasmi' dan al-fahm. Hasil dapatan juga menunjukkan antara teknik pengajaran yang boleh digunakan dalam pendidikan taranum ialah teknik beransur-ansur, pengenalan asas taranum, pemanasan suara dan latihan taranum. Selain itu, antara aktiviti pengajaran yang boleh digunakan ialah mendengar bacaan qari dan qariah, berzanji dan marhaban, nasyid dan qasidah. Hasil dapatan juga menunjukkan antara ABM yang boleh digunakan ialah mushaf al-Quran, bahan elektronik seperti mp3, cd, video, komputer, pita rakaman, komputer, pembentangan slaid, papan tulis, pen, kertas, pena penanda dan kitab-kitab tafsir.

THE IMPACTS OF SUGGESTOPEDIA ON LEARNING ENGLISH VOCABULARY

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ABSTRACT

Suggestopedia existed in the 1970s and was founded by Bulgarian psychologist Georgi Lozano. The idea of Suggestopedia is incorporating reading and playing instrumental music at the same time. This method has acted as a medium to improve vocabulary memorization. However, fewer studies were done regarding Suggestopedia in teaching reading to enhance vocabulary memorization among language learners. Therefore, this study investigates the impacts of Suggestopedia in teaching English vocabulary. This study intends to determine if teaching using Suggestopedia would produce a measurable difference in the English vocabulary achievement of Year 3 students in SK Kulai, Johor and to determine the significant difference in students' achievement between teaching vocabulary in a classroom with and without Suggestopedia. The research design for this study is an experimental research design. This research was conducted on Primary 3 school students with intermediate proficiency in English in SK Kulai, Johor. The research sample comprises of 20 students, which is divided into two groups. The first group consisted of 10 students, whereas the remaining 10 students will be in the experimental group. Overall, the findings showed that pupils who studied with Suggestopedia or music as the background scored higher than students who did not study using this method.

CHALLENGES OF COMMUNICATIVE LEARNING AND TEACHING (CLT) IN POLITEKNIK MUKAH

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ABSTRACT

Communicative Language Teaching (CLT) is a practical approach and has been around since 1986. It permits learners to express their ideas while using the English language through enjoyable activities. Many studies have been conducted on Communicative Language Teaching (CLT). However, in the Malaysian polytechnic context, only a few studies have been made in regards to CLT, especially after the change in the syllabus, from English for Specific Purposes (ESP) to Communicative English (CE). After the adoption of Communicative English (CE) in polytechnics, the English proficiency level of polytechnic graduates are still not up to par that prompts this study to be conducted. Therefore, this study investigates the challenges and issues faced by lecturers in Politeknik Mukah regarding the use of CLT in the teaching of Communicative English I, II, III and English for Digital Technology and also the lecturers' understanding of CLT and the implementation of CLT in their class. A quantitative research method design was employed in obtaining the data. Research data was collected through a questionnaire completed by all English language lecturers in Politeknik Mukah, Sarawak. Overall, the findings show that students' proficiency and attitude towards the English language are the main challenges of CLT, even though the lecturers have an adequate understanding of CLT.

KAJIAN PELAKSANAAN PENILAIAN BERTERUSAN KURSUS SECARA TUGASAN BERKUMPULAN SEMASA PANDEMIK COVID-19 DI POLITEKNIK METRO JOHOR BAHRU

Nurul Hana Ab Nasir
Politeknik METrO Johor Bahru

ABSTRACT

Continuous assessments for all diploma courses offered in Politeknik Malaysia are conducted individually or in groups. Group assignments involved in assessments such as role play, discussion, project, e-folio and presentation. This study was conducted to identify students' views on group assignments continuous assessments that need to be completed in the form of new norms due to the occurrence of online teaching and learning (OTL) because of the stipulation of Standard Operating Procedures of Movement Control Order following the COVID-19 pandemic. The study was also conducted to identify students' perspectives on leadership, communication, teamwork and relationship building skills gained while conducting group assignments continuous assessments, even though the discussion and division of assignments were done online. This study used a quantitative method through a questionnaire instrument analyzed descriptively. The study found that students' acceptance of group assignments continuous assessments was good and should be continued with a mean score of 4.22 despite the constraints such as internet disruption and lack of cooperation from group members. 95.1% of students interacted using WhatsApp application and 91.2% of students used smartphone devices for completing assignments. For leadership sub-skills, task responsibility was the highest, with 90.7% of students saying they were responsible for completing assigned tasks. As for the teamwork sub-skills, 73% of the students said their work commitment skills improved while performing in a group for continuous assessment of the course. In conclusion, students can adapt to the implementation of group assignment continuous assessment for online teaching and learning.

FLASHBIZ CHALLENGE: EXAMINING THE IMPACT OF GAMIFIED APPROACH IN ENTREPRENEURSHIP EDUCATION TOWARDS THE ENTREPRENEURIAL CAREER INTENTION

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ABSTRACT

FlashBiz Challenge designed by the authors to adapt gamification technique in teaching entrepreneurship education in Politeknik Mukah. FlashBiz Challenge let students play while learning entrepreneurship, and at the same time perhaps, can encourage students, as the participants, to enhance their skills on hard sell and to determine entrepreneurial career intention. To date, no study has been conducted to evaluate the impact of the FlashBiz Challenge on entrepreneurial intentions of students after participating in the activity. Therefore, we are unable to identify students' interest in entrepreneurship. In this study, we intend to measure the entrepreneurial intention among students after participating in the FlashBiz Challenge. This is because it is difficult for us to know which students are inclined to the field of entrepreneurship. The targeted samples for the study was all participants of the activity, which are the semester 3 students of Diploma in IT (Digital Technology), Politeknik Mukah. The data collection instrument was adapted from Five-level of Likert scale was used for the questionnaire. The questionnaire was distributed to the same sample twice, which are the first distribution was done two weeks before student participating the FlashBiz Challenge. While the second distribution is just after the activity completed. Simple analysis was used to interpreting the responds given of all respondents. Comparison was done to the result before and after participating FlashBiz Challenge. This study has shown that more than 70% of the participants was influenced to make entrepreneurship one of their main careers in the future. Overall, this study strengthens the idea that gamification approach in teaching entrepreneurship can attract students to love entrepreneurship and increase their entrepreneurial career intention.

ABSTRACT

EDUCATION FOR COMMUNITY

SPEECH PRO APPS: AN INNOVATIVE APPROACH IN ENHANCING TERTIARY STUDENTS' PRESENTATION

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ABSTRACT

In this digital and global age, the call for strong oral communication skills is deafening. Graduates are expected to have good oral presentation skills at the workplace. Therefore, oral presentation is frequently used in schools and at the tertiary level to assess student's performance in the classroom. However, students find it difficult in structuring and organizing their presentation which leads to poor presentation. The use of Speech Pro aims to assist students in improving their presentation using suitable phrases to achieve a more effective presentation. The research respondents consisted of 10 Diploma students who enrolled in Communicative English course in a Polytechnic in Sarawak, Malaysia. This research uses three research instruments mainly, pre-test and post-test together with an Oral Presentation Rubric for the course. Based on the findings, the use of this application has helped learners to reduce their anxiety and increase their confidence and motivation levels as well as helped them to formulate a better-structured presentation. Students found the application helpful and can be applied in other subjects as well.

ENGLISH LANGUAGE COMPETENCY IN ENHANCING TECHNICAL AND VOCATIONAL EDUCATION TRAINING (TVET) GRADUATES' MARKETABILITY IN THE MALAYSIAN WORKPLACE: A LITERATURE REVIEW

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ABSTRACT

TVET graduates contribute greatly to the country's development. Issues regarding the readiness of TVET graduates upon entering the industry have been raised especially on their level of proficiency in the English language. English language proficiency is important and has become one of the top five reasons for recruiting fresh graduates. Not only do TVET graduates need to excel in technical skills, but they also need to be equipped with other essential skills such as communication skills especially English language competency. TVET education content needs to be on par with the industrial demand and the active role of the industries in giving direct feedback to the educational institutions is crucial. Therefore, this study aims to highlight the importance of English competency and the challenges of teaching English in technical institutions. Apart from that, this study also suggests some measures that can be implemented in enhancing TVET graduates' marketability in the workplace.

KEPENTINGAN PENDIDIKAN PRAPERKAHWINAN BAGI PASANGAN YANG INGIN BERKAHWIN

Nur Khamsiah Adan
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ABSTRACT

Every couple who wants to getting married must dream of a happy, prosperous and harmonious family, filled with love, responsibility, understanding each other and surrounded with the presence of children, the light of the eyes as a reinforcer of happiness. However, not all marriages have happy endings. Recently, the number of divorces is increasing every year in Malaysia. Many heartbreaking incidents of marital problems, neglect of responsibilities either the husband or wife as well as emotional stress among family members have been reported in the press. Furthermore, the issue of the Covid-19 Pandemic that hit the world has exacerbated relationships between family members. Thus, this study aims to re-assert the importance of premarital knowledge and education that needs to be learned and understood for couples who want to get married so that the problems faced in married life can be overcome and resolved as best as possible to avoid worse tragedy. This study adopts literature-based research methodology that involves non-participant observation process and also the collecting and evaluation of both quantitative and qualitative data from books, journal articles, magazines and newspapers. The research findings show that the Islamic Education, Academic Education and General Knowledge need to be studied before getting married because education and knowledge are very important in forming a happy family blessed by Allah SWT.

ABSTRACT

TRANSFORMING EDUCATION

VIRTUAL REALITY FOR TEACHING AND LEARNING INDUSTRIALISED BUILDING SYSTEM (IBS) AMONG TVET STUDENTS

Nurshikin Mohamad Shukery, Kherun Nita Ali, Shamsulhadi Bandi,
Norhazren Izatie Mohd, Mohd Azwarie Mat Dzahir and
Ahmad Faiz Azizi Ahmad Fauzi
Universiti Teknologi Malaysia

ABSTRACT

Industrialized Building System (IBS) is a technology applied in construction. Due to the high demand for integrating IBS components in construction, skills and knowledge development in IBS is inevitable. This called for TVET institutions to lend its hands, as this supposed to prepare the industry with skilled and knowledge workers in IBS. Following the pandemic of Covid-19, the traditional face-to-face approach in teaching and learning in TVET institutions needs to change from hands-on learning to online learning. In this instance, Virtual reality (VR) can help enhance the students' understanding of IBS and a good option for a harmless learning experience. This paper aimed to identify the readiness among TVET students and the potential of teaching and learning IBS by using immersive virtual reality in TVET institutions. The instrument was administered to students and lecturers in Polytechnic. The result found that students are ready to learn IBS by using immersive virtual reality. However, lecturers required specific training to strengthen their skills and knowledge. The recent development of the 4th Industrial Revolution and the current pandemic situation has caused the education industry to a rapid digitalisation revolution.

PERISIAN GEOGEBRA DALAM PENGAJARAN DAN PEMBELAJARAN MATEMATIK: SATU KAJIAN LITERATUR

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ABSTRACT

The rapid and ever developing Malaysian landscape of today has also affected the country's education system. It is tailored to cater the talents of every individual through quality education by way of producing a critical and creative person. Among the efforts made in this regard is the use of technology-assisted instruction. The integration of technology into a lesson is said to be capable of producing a high-quality lesson. The objective of this concept paper is to observe the effectiveness of the integration of technology in a lesson through the application of the Geofraction software in a fraction-based lesson.

PERLAKSANAAN KAEDAH PEMBELAJARAN BERASASKAN PROJEK DALAM KURSUS PENGHAYATAN ETIKA DAN PERADABAN

Dzatiah Mohamad and Amizan Abdullah
Politeknik Mukah Sarawak

ABSTRACT

The Ethics and Civilisation course is a general education course that is mandatory for all Polytechnic students in Malaysia. The shortage of reference books has created a problem among Polytechnic students while the lesson is conducted. The objective of this research is to increase the skill of integrating new and present information by implementing a project of producing a Flipbook. The action research involves the accumulation and decoding of data to facilitate one's understanding of a phenomenon or problems at work. The findings of this study indicate that students favour project-based learning as it could increase their level of understanding towards the discussed topic. Furthermore, it might increase their communication skills. The study proposes that lecturers get tailored training on the most effective approach for implementing project -based learning. Apart from that, the researcher hopes that project-based learning is applied alongside problem-based learning, inquiry-based learning, and task-based learning.

ABSTRACT

ACTION RESEARCH

PERSEPSI PESERTA PROGRAM LATIHAN UAV DRON DI POLITEKNIK SEBERANG PERAI TERHADAP ELEMEN 'PROGRAM LATIHAN' DAN 'MOTIVASI LATIHAN'

Sharipah Khadijah S. Hashim, Hasnieza Mokhtar and Hasmiza Taib
Politeknik Seberang Perai

ABSTRAK

Program Latihan memberikan kepentingan dalam meningkatkan kemahiran, pengetahuan, sikap dan tingkahlaku pekerja dalam melaksanakan tugas yang diarahkan. Motivasi Latihan merupakan kepercayaan bahawa mereka boleh memperoleh pengetahuan, kemahiran dan kebolehan dari program latihan. Kajian yang dilaksanakan ini adalah untuk mengkaji Persepi Peserta Program Latihan UAV Dron di Politeknik Seberang Perai (PSP) Terhadap Elemen 'Program Latihan' dan 'Motivasi Latihan'. Elemen 'Program Latihan' dibahagikan kepada dua iaitu elemen Rangka Latihan dan Elemen Latihan Berkaitan Tugas. Satu set soal selidik yang diadaptasi daripada kajian lepas digunakan sebagai instrumen pengumpulan data. Kaedah kajian ialah kuantitatif dengan menggunakan instrumen soalselidik kepada sepuluh orang staf Penang Port Sdn. Bhd. yang telah menjalani Program Latihan UAV Dron di Politeknik Seberang Perai melalui Kaedah Persampelan Bertujuan bagi Kajian Kes Tunggal. Sejumlah lapan orang daripada mereka berjawatan RCAC Pilot, manakala dua orang adalah RCAC Maintenance Controller. Bahagian A daripada soalselidik memberi dapatan dari segi maklumat responden. Bahagian B pula memberikan dapatan kepada tiga elemen. Dapatan kajian ditunjukkan dalam bentuk kekerapan dan peratusan. Keseluruhan persepsi responden adalah positif terhadap Elemen 'Program Latihan' dan 'Motivasi Latihan'dengan julat peratusan di antara 60% - 90%. Dapatan kajian ini dijangkakan dapat membantu organisasi untuk melaksanakan program latihan kepada staf mereka. Organisasi dicadangkan untuk merekabentuk tugas dengan memastikan adanya keperluan penambahbaikan pengetahuan dan kemahiran bagi melaksanakan tugas dalam usaha meningkatkan motivasi latihan dan keberkesanan latihan. Cadangan akan datang agar dapat mengkaji elemen 'program latihan' dan 'motivasi latihan' terhadap 'keberkesanan latihan' dengan menggunakan bilangan responden yang lebih ramai menjalani latihan program.

ABSTRACT

MATHEMATICS

TAHAP KEBERKESANAN APLIKASI MUDAH ALIH M-SAF (M-SIMPLIFYING ALGEBRAIC FRACTIONS) DALAM PEMBELAJARAN MATEMATIK

Rasyidah Abd Rahman, Nor Syahidal Arshaini Shamsudin and Nurul Amalina Ibrahim
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ABSTRAK

Cabaran utama bagi proses pengajaran dan pembelajaran pada musim pandemik COVID-19 kini adalah kaedah penyampaian kurikulum yang berkesan kepada pelajar-pelajar. Pengintegrasian teknologi dalam pengajaran dan pembelajaran sangat penting bagi memastikan pelajar-pelajar sentiasa fokus dan faham apa yang cuba disampaikan oleh tenaga pengajar. Justeru itu, aplikasi mudah alih (mobile apps) adalah salah satu dari medium alternatif yang boleh digunakan untuk memudahkan dan meningkatkan kefahaman pelajar dalam proses pengajaran dan pembelajaran. Kajian ini bertujuan untuk mengkaji tahap keberkesanan aplikasi M-SAF (M-Simplifying Algebraic Fractions) dalam pembelajaran matematik khususnya dalam sub-topik operasi pecahan algebra dari aspek isi kandungan aplikasi, aspek interaktiviti aplikasi dan aspek antara muka aplikasi. Sampel kajian adalah terdiri daripada 37 orang pelajar program Diploma Kejuruteraan Mekanikal dan Diploma Kejuruteraan Elektrik dan Elektronik (Semester 1) yang mengambil kursus Engineering Mathematics 1 di Politeknik Mukah, Sarawak. Pengumpulan data dilakukan menggunakan set soal-selidik. Data terkumpul telah dianalisis dengan menggunakan statistik deskriptif. Dapatan kajian menunjukkan bahawa aspek isi kandungan, aspek interaktiviti dan aspek antara muka aplikasi M-SAF skor min adalah pada tahap tinggi. Isi kandungan aplikasi yang bersesuaian dan langkah penyelesaian yang teratur membantu pelajar mempelajari sub-topik operasi pecahan algebra. Secara keseluruhannya, aplikasi M-SAF berkesan dalam membantu pelajar dalam pembelajaran matematik. Namun begitu, penambahbaikan kepada aspek antara muka perlu dipertingkatkan bagi menarik minat pelajar menggunakan aplikasi mudah alih ini.

ABSTRACT

COVID-19 PANDEMIC

STUDENTS' CORE COURSE PERFORMANCE AND LEARNING BEHAVIORS THROUGH ONLINE LEARNING AND TEACHING (PDPDT) IN THE PANDEMIC OF COVID-19

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ABSTRACT

The study measures the effectiveness of online learning and teaching-based education (PdPdT) towards students' performance on the sole core course sat by third-semester students of Diploma in Banking and Finance, Politeknik METrO Betong Sarawak (PMBS) namely DPF30033: Financial Market Operation. The teaching method for this course was fully carried out using online learning platforms such as Microsoft Teams and Google Meets. PdPdT was approved and deemed a feasible initiative by the Ministry of Higher Education of Malaysia replacing the traditional face-to-face classroom as a means of curbing the spread of the Covid-19. Distinct from the previous practice, PdPdT was a transition phase to PMBS students and assumed a new norm to course instructors to the extent that PdPdT is expected to be impacting students' comprehension, knowledge and outcome in learning the course. A total of 30 students successfully attended both continuous and final assessments for the course consisting of test, quiz, video presentation, project as well as the alternative (final) assessment. The data from students' achievement in these assessments were compared and evaluated to indicate the effectiveness of PdPdT and how it influences students' learning behaviors. The study found that a majority of students managed to meet the target set by the course instructor that eventually defines PdPdT has been a panacea possessing positive impacts on students' progress in their studies and reliable enough to substitute traditional face-to-face classroom for its benefits to course instructors and students in higher institutions particularly to PMBS.

DEVELOPMENT OF DIGITAL RAILWAY IN MALAYSIA – AN APPROACH FOR IMPLEMENTATION POST COVID-19 PANDEMIC

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ABSTRACT

COVID-19 has impacted many railway transportations sectors globally. This unprecedented health crisis has opened up the eyes of many railway operators, government officers, and railway stakeholders to the future planning strategy and risk mitigation measures to be undertaken to ensure the sustainability of the rail network. Even though each railway operates quite differently from one another, the main objective of the business case is still fundamentally the same i.e., to maximize the real potential of the infrastructure investment for greater mobility of the passengers and freights services. In a situation such as the current COVID-19 pandemic, the railway had to implement many measures to curb the outbreak of the virus. Travel restrictions and social distancing are common measures put in place to mitigate the virus outbreak. Unfortunately, these measures do not support the sustainability of the railway network. This paper describes the literature review of how the implementation of Digital Railway will be able to assist the railway owners, infrastructure managers, operators, and railway stakeholders to ensure the availability and sustainability of the railway in the event of a similar pandemic situation in the future. Overall, this study contributes to the growing literature of Digital Railway especially in the case of implementation in Malaysia and it confirms that Digital Railway will be the future of railway operation.

THE READINESS OF ONLINE DISTANCE LEARNING DURING COVID-19 PANDEMIC AMONG STUDENTS

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ABSTRACT

Recently, the whole world has been struck with an infectious disease called Coronavirus (COVID-19) that gave major impact to every sector as well as education sector. Most of the education systems in the world shifted to a fully online learning method, either conducted in a synchronous or asynchronous method including Malaysian education system. In reality, the academic session in the Higher Learning Institution continued with the new norm and online learning has been implemented to ensure smooth process of teaching and learning throughout the pandemic. This paper is conducted to examine the readiness of students for emergency online distance learning due to the COVID-19 pandemic. Data collected from 2,917 students showed that generally the level of computer and internet literacy, self-dependent learning and motivation towards online distance learning is at a high level. Moreover, these three dimensions are significantly influenced with respect to their readiness of online distance learning in terms of computer and internet literacy, self-dependent learning and motivation. Findings indicated that students were moderate to strongly ready for their distance online learning. This study highly contributes to future research by looking at the needs and demands for the upcoming year for the whole world to shift to another phase of society development by implementing technology in daily life in facing a new norm.

WORK FROM HOME (WFH) DURING PANDEMIC OF COVID-19: OCCUPATIONAL HEALTH RISKS, STRATEGIES AND CONTROL MEASURES

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Politeknik Ibrahim Sultan

ABSTRACT

The unprecedented event of Covid-19 pandemic has caused great damage and loss of millions of lives throughout the world and be taken as current emerging crisis of the worldwide as it gives rise to negative consequences towards safety, health, environmental and economic aspects. Due to the lockdown in most countries, the pandemic of Covid-19 has also brought radical changes in the world of work as the employees are encouraged to Work-from-Home (WFH) if applicable in order to ensure business continuity. Since WFH is a new norm in Malaysia, its occupational health potential hazards and risks are still unclear and unknown among employers and employees in organizations. This paper is written to identify potential occupational health hazards and risks as well as to suggest and recommend appropriate interventions and counter measures to manage WFH potential health hazards and risks. Online research journals, online newsletters and documents are reviewed from various platforms (i.e. research gate and science direct), on WFH in Covid-19 pandemic and WFH's occupational health hazards, risks and occupational interventions. The findings have stated ergonomics and psychological are two potential occupational health risk factors and risks in WFH. Employers are encouraged to implement WFH risk management intervention on ergonomics and psychological risks to ensure employees in Malaysia are protected from WFH health risks during the Covid-19 pandemic.

ABSTRACT

TOURISM & HOSPITALITY

CLEAN WATER CRISIS AT TOURISM ATTRACTION OF TANJUNG BATU, PEMANGKAT DISTRICT: A QUALITATIVE SWOT ANALYSIS

Hikmah Trisnawati and Nurchalis
Politeknik Negeri Sambas

ABSTRACT

Tanjung Batu is a tourist attraction in Pemangkat District that potential to be developed into a tourist destination. The tourism sector has contributed income for local and regional communities. However, there is a crucial problem encountered by the local community, which is clean water availability. This study aims to determine the factors causing the clean water crisis, the efforts made, and also seek and formulate coping strategies. This research used qualitative methods for obtaining data or information and SWOT matrix analysis to get the strengths, weaknesses, opportunities, and threats. The informant selection was done by using the purposive sampling technique to choose those whose knowledge of Tanjung Batu Tourism Destinations. The selected informants were the government, such as the Sambas Regency Tourism, Youth and Sports Office, the Pemangkat Sub-district Office, Pemangkat City Head Village, Pemangkat District, private parties involved in managing local tourism, and the community who can explain the tourism conditions in Tanjung Batu, Pemangkat. The analysis shows that Tanjung Batu tourism attraction has a shortage of clean water every year due to climate and weather changes, wasting water, seawater intrusion, population growth, and PDAM water distribution. Alternative strategies for tackling the clean water crisis Tanjung Batu attraction in Pemangkat sub-district include: a) utilization of well water effectively and efficiently; b) utilizing PDAM services appropriately; c) savings on clean water use; d) optimal clean water storage use, e) drilling wells, f) processing of seawater into clean water for consumption, g) sharing of well water use to all communities fairly and equitably, and h) clean water recycling.

POST COVID-19 OUTBREAK, PERCEPTION AND EMPLOYABILITY RATE: THE CASE STUDY OF ALUMNI OF POLITEKNIK METRO BETONG SARAWAK

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ABSTRACT

The Covid-19 outbreak has stunted the growth of economies all over the world and affected the job market as a whole. Therefore, this study was conducted to examine the influence of post covid-19 outbreak in the relationship between perception and the employability rate of alumni from Politeknik METrO Betong Sarawak (PMBS). A total of 70 questionnaires were evaluated. The results revealed that there is no significant linear correlation between perception and employability rate. However, this study found that post Covid-19 outbreak moderates the relationship between perception and employability rate (6.6% (R^2 = .066)). The results of the study are beneficial for both the higher learning institution and industry so as to align their educational programs with the changes in market needs.

COMMUNITY PARTICIPATION AND BARRIERS IN COMMUNITY BASED TOURISM: A CASE STUDY IN KAMPUNG PENURIN, BETONG

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ABSTRACT

The existence of community-based tourism or CBT as part of market niche playing a vital role in tourism industry nowadays. However, several studies shows that there is showing that there are still many rural communities do not understand and did not engage in any activities involving tourism, especially community-based tourism. Local communities that live at the rural areas did not aware on the CBT development actually can help the community to improve their socioeconomic, preserved their customs and culture and protect the environment. The suggestion highlighted homestay program shall be developed at the Kampung Penurin, Betong as CBT product to be offered to the outsider in future. Thus, this study was done to address the objective of identifying the community participation and barriers in community-based tourism at the Kampung Penurin, Betong. There was a total of 47 families with 186 number of people staying at the villages. Nevertheless, only 26 head of the families (represented by 26 family) managed to participated in the interview in this qualitative study using convenience sampling. This is because many heads of families were not in the longhouse when this study was conducted. This study concludes that community-based tourism activities are still not well received among the community in Kampung Penurin, Betong as most of them did not engage in the CBT. Lack of knowledge and information on tourism in the community including lack of financial sources (Capital) to develop community-based tourism products were identified as the main factors that cause them not to engage in community -based tourism activities.

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