KEMENTERIAN PENGAJIAN TINGGI
JABATAN PENDIDIKAN POLITEKNIK DAN KOLEJ KOMUNITI

POLITEKNIK MALAYSIA
KUCHING SARAWAK

# NRICON 2022

## NATIONAL RESEARCH AND INNOVATION CONFERENCE

# PROGRAMME BOOK

"Research Culture As A Transformation Practice In Learning And Education Sustainability"

18th October 2022

**Politeknik Kuching Sarawak**
**Malaysia**

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# Welcome Message

**Dr. Riam A/P Chau Mai**
**Director of Research and Innovation Center**
Department of Polytechnic and
Community College Education

**Greetings to the *Keluarga Malaysia*.**

Congratulations to Kuching Sarawak Polytechnic for successfully organizing the National Research and Innovation Conference 2022 (NRICon'22). The organization of this bi-annual conference aims to bring together leading academics, scholars, and researchers to share their knowledge and new ideas and discuss current developments in education, engineering, and technology.

In addition, this conference also offers opportunities for academics and industry experts to meet and interact with conference participants. I hope that all parties make the most of the opportunity at this conference. I believe organizing this conference will help raise the corporate image of TVET institutions in Sarawak.

Finally, I hope this conference will continue to be organized in the future. Besides, it is also my wish that the participants' papers presented at the NRICon conference will be able to be published in high-impact academic journals such as SCOPUS and EMERALD Journal. With that, I believe it will help to raise the image of the NRICon conference and Kuching Sarawak Polytechnic directly in the eyes of academics.

Lastly, once again, congratulate everyone who has been involved in organizing NRICon'22. Hopefully, today's excellence will be the core for institutions under the Department of Polytechnic Education and Community Colleges to continue to move as a leading TVET institutions

# Welcome Message

**Hikmatullah bin Hajid Ahmad Khan**
**Director**
Polytechnic of Kuching Sarawak

**Assalamualaikum warahmatullahi wabarakatuh, peace and greetings to the *Keluarga Malaysia*.**

First of all, I would like to thank Allah Subhanawata'ala because, with His permission, we can organize the National Research and Innovation Conference 2022 (NRICon'22) organized by Polytechnic Kuching Sarawak.

Indeed, this conference is significant, considering that we have been able to gather local and foreign scholars and industry experts to discuss online. I believe that the organization of this conference is more than capable of making Kuching Sarawak Polytechnic a TVET institution under the Ministry of Higher Education that is conducive enough for the proliferation of knowledge and intellectual minds from various parties involved in Sarawak.

In that regard, I am happy to create a friendly relationship between Kuching Sarawak Polytechnic and local and foreign scholars and industry experts. The close relationship that has been forged will undoubtedly help achieve the aspirations of the vision and mission of Kuching Sarawak Polytechnic as one of the leading TVET institutions in Sarawak.

In addition, I believe that this conference ensures that Kuching Sarawak Polytechnic moves in line with the current development and needs of the industry, which requires appropriate steps, including building strategic partnerships with local and international industry players. With the existence of such a conference, a 'bridge' of cooperation between Kuching Sarawak Polytechnic and industry players has been established for mutual benefit.

Finally, congratulations to the NRICon'22 conference committees. May today's excellence be a solid foundation to continue Kuching Sarawak Polytechnic's glorious journey with pride and confidence in the future.

# Welcome Message

**Ts. Dr. Muhd Nazmi bin Ismail**
**Programme Director of National Research and Innovation Conference 2022**
Polytechnic of Kuching Sarawak

**Assalamualaikum warahmatullahi wabarakatuh, Salam Sejahtera, dan Salam *Keluarga Malaysia.***

I gratefully extend a warm greeting to all participants to the National Research and Innovation Conference 2022 (NRICon'22). As the organizing committee member, we are proud to become the host of this conference for the fifth time.

Through this NRICon'22 platform, participants will be able to present their research and innovations. In keeping with Politeknik Malaysia's vision and objective to produce graduates that are well rounded in academics, innovation, and possessing the entrepreneur spirit, this will leverage their research and innovation skills.

I would like to express my gratitude to the management of Politeknik Kuching Sarawak and Pusat Penyelidikan dan Inovasi, Jabatan Pendidikan Politeknik dan Kolej Komuniti, Kementerian Pengajian Tinggi Malaysia for their unwavering support in making NRICon'22 a great success.

Last but not least, a heartful thank you to all participants of NRICon'22 for your priceless effort and invaluable contributions.

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# ABOUT THE CONFERENCE

**Background of NRICon'22**

National Research and Innovation Conference (NRICon) organized by Politeknik Kuching Sarawak (PKS) will be held on 18th October 2022 in Kuching, Sarawak.

The objective of the conference is to gather leading academicians, scholars, and researchers to share their knowledge and new ideas as well as to discuss current development in the fields of education, engineering, and technology.

In addition, the conference offers opportunities for academicians and industry experts to meet and interact with local and international participants.

Conference topics:

- Action Research
- Business and Management
- Education Studies Languages
- Social Sciences
- Engineering
- Information Technology

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# PROGRAMME SCHEDULE

| TIME | ACTIVITY |
|---|---|
| **8.00 – 8.15 am** | **Registration and participants preparation** |
| **8.15 – 8.30 am** | **Prayer Recitation**<br>**Welcoming Speech**<br>***Tn. Hikmatullah bin Hajid Ahmad Khan***<br>***Director of Politeknik Kuching Sarawak*** |
| **8.30 – 9.00 am** | **Officiation and Opening Ceremony**<br>***Dr. Riam A/P Chau Mai***<br>***Director of Research and Innovation Center***<br>***Jabatan Pendidikan Politeknik dan Kolej Komuniti (JPPKK), KPT.*** |
| **9.00 – 12.00 pm** | **Oral Presentations** |
| **12.00 – 2.30 pm** | **BREAK** |
| **2.30 – 4.00 pm** | **Oral Presentations** |
| **4.15 pm** | **DISMISS** |

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# PARALLEL SESSIONS

**ROOM 1 (SESSION 1)**
**MODERATOR: PN. SITI NOOR AISHAH BINTI MOHAMMAD**

| TIME | PAPER ID | TITLE | PRESENTER |
|---|---|---|---|
| **9.00 am – 9.15 am** | ARSS12 | MENGENALPASTI NILAI AMBANG BAGI PENGESANAN BOTNET HTTP | WAN AHMAD RAMZI BIN WAN YUSUF |
| **9.15 am – 9.30 am** | ARSS04 | PENGGUNAAN ALAT BANTU AUDIO-VISUAL DALAM MENINGKATKAN PENGUASAAN KEMAHIRAN PELAJAR MENGHASILKAN PRODUK UMAI | MOHAMMAD ZAHIR BIN MOHD YAZID |
| **9.30 am – 9.45 am** | ARSS08 | EVALUATION OF MODULUS OF ELASTICITY OF LOCAL HARDWOOD TIMBER | MOHAMMED AZMI BIN LADI |
| **9.45 am – 10.00 am** | ARSS06 | EFFECTIVENESS OF BKA APPLICATION FOR SELF-LEARNING AMONG MAS GADING COMMUNITY COLLEGE STUDENTS | LIU TSE HUI |
| **10.00 am – 10.15 am** | ARSS05 | THE METHOD ON REDUCING TURBO LAG IN TURBOCHARGED ENGINE: A REVIEW | MOHD FITRI BIN SAFE'I |
| **10.15 am – 10.30 am** | | **BREAK** | |

# PARALLEL SESSIONS

**ROOM 1 (SESSION 2)**
**MODERATOR: PN. ROHAYA BINTI MOHAMAD**

| TIME | PAPER ID | TITLE | PRESENTER |
|---|---|---|---|
| **10.30 am – 10.45 am** | ARSS09 | SOLID WASTE GENERATION AND COMPOSITION IN POLITEKNIK KUCHING SARAWAK | MASLINA BINTI BUANG |
| **10.45 am – 11.00 am** | ARSS01 | IMPAK PEMBELAJARAN DALAM TALIAN TERHADAP KESIHATAN PELAJAR KOLEJ KOMUNITI | NUR ANGRIANI BINTI NURJA |
| **11.00 am – 11.15 am** | ARSS13 | SIKAP DAN PENGETAHUAN PENSYARAH KOLEJ KOMUNITI SEBERANG JAYA TERHADAP PENYELIDIKAN | HEROL AZLI BIN MOHD ZAINI |
| **11.15 am – 11.30 am** | ARSS10 | DEVELOPMENT OF STUDENT INDUSTRIAL TRACKING (SIT) APPLICATION FOR POLYTECHNIC STUDENTS' INDUSTRIAL TRAINING | MOHD NIZAR BIN HASHIM |
| **11.30 am - 12.00 am** | ARSS11 | ANALISIS KEPERLUAN APLIKASI INTERAKTIF DOA QUNUT | AZIZAH BINTI MAHADI |
| **12.00 am 2.30 pm** | | **BREAK** | |

# PARALLEL SESSIONS

**ROOM 1 (SESSION 3)**
**MODERATOR: EN. MUAHMAAD ALIAS BIN OMAR ABDUL AZIZ**

| TIME | PAPER ID | TITLE | PRESENTER |
|---|---|---|---|
| **2.30 pm – 2.45 pm** | ARSS07 | KEBERKESANAN SESI PENGAJARAN DAN PEMBELAJARAN ATAS TALIAN SEMASA PERINTAH KAWALAN PERGERAKAN DALAM KALANGAN PELAJAR POLITEKNIK KUCHING SARAWAK | HERMAN NORDIADI BIN ABD WAHAB |
| **2.45 pm – 3.00 pm** | EGEE14 | REKABENTUK SMART POLE BERSENSOR | NURHUDA BINTI ISMAIL |
| **3.00 pm – 3.15 pm** | EGEE 18 | COLUMN ADSORPTION STUDIES FOR OIL REMOVAL IN POME BY USING ESTERIFIED SAGO BARK | HIDAYAH BINTI JULAIHI |
| **3.15 pm – 3.30 pm** | EGEE16 | FINGERPRINT RECOGNITION WITH GSM-BASED SECURITY SYSTEM | JOSHUA ANAK RIBI |
| **3.30 pm – 3.45 pm** | EGEE03 | PIPELINE SITE INVESTIGATION WITH SATELLITE IMAGERY APPROACH | TIONG HUA SANG |
| **3.45 pm – 4.00 pm** | EGEE21 | A CROSS SECTIONAL STUDY ON FOOD SAFETY KNOWLEDGE AMONG STUDENTS AT POLITEKNIK KUCHING SARAWAK | MOHD NOR FADLI ABU KASIM |

# PARALLEL SESSIONS

**ROOM 2 (SESSION 1)**
**MODERATOR: PN. CHEN MEI CHING**

| TIME | PAPER ID | TITLE | PRESENTER |
|---|---|---|---|
| **9.00 am – 9.15 am** | EGEE06 | THE EFFECT OF CONSUMER LOAD BALANCING ON THE MAINTENANCE COST OF POWER DISTRIBUTION AT SARAWAK FEDERAL COMPLEX BUILDINGS | VICTOR TENG KOK LEONG |
| **9.15 am – 9.30 am** | EGEE20 | KAJIAN PENAMBAHBAIKAN KAEDAH PENGENDALIAN BAHAN MENGGUNAKAN KONSEP KARUKURI DI STESEN KERJA PEMASANGAN PULL CUP | SHAIPUL ANUAR BIN MOHAMED ZAINUDIN |
| **9.30 am – 9.45 am** | EGEE15 | UNCOVERING SOCIAL MEDIA ADDICTION TOWARDS STUDENTS' LEARNING MOTIVATION AND ACADEMIC PERFORMANCE IN ONLINE LEARNING | JULIANA BINTI NAWAWI |
| **9.45 am – 10.00 am** | EGEE02 | SELECTION OF EDM DIE SINKING OPTIMAL CONDITION TO MACHINE AISI L3 TOOL STEEL MATERIAL USING ANT COLONY OPTIMIZATION | AHMAD AZLAN BIN MOHAMAD |
| **10.00 am – 10.15 am** | EGEE17 | CONVECTIVE HEAT TRANSFER IN AIR CONDITIONING DUCTING (INTERNAL FLOW) | MOHD NAZRIN BIN NAHAR |
| **10.15 am – 10.30 am** | | **BREAK** | |

# PARALLEL SESSIONS

**ROOM 2 (SESSION 2)**
**MODERATOR: PN. FARRAH WAHEDA BINTI ABDULLAH**

| TIME | PAPER ID | TITLE | PRESENTER |
|---|---|---|---|
| **10.30 am – 10.45 am** | EGEE10 | SUITABILITY OF GARNET TO GRADING AND FINENESS MODULUS AS BEDDING SAND LAYER IN CONCRETE BLOCK PAVEMENT | MOHD ZAWAWIV BIN AZIZ |
| **10.45 am – 11.00 am** | EGEE22 | A COMPARISON OF AS-BUILT POSITION COMPUTATION | LEE KONG FAH |
| **11.00 am – 11.15 am** | EGEE25 | PEMBANGUNAN HAND WASH TIMER MENGGUNAKAN LITAR ARDUINO | NEELAM AMELIA BINTI MOHAMAD REJENI |
| **11.15 am – 11.30 am** | EGEE05 | FABRICATION OF VALVE SPRING COMPRESSOR | MOHD FITRI BIN SAFE'I |
| **11.30 am – 12.00 am** | EGEE11 | DEVELOPMENT OF INDUSTRIALISED BUILDING SYSTEM AND WORKSPACE ISSUE - A REVIEW | SYAHIRA BINTI MOHD ZAYADI |
| **12.00 am 2.30 pm** | | **BREAK** | |

# PARALLEL SESSIONS

**ROOM 2 (SESSION 3)**
**MODERATOR: PN. LIYANA BINTI NORIZAN**

| TIME | PAPER ID | TITLE | PRESENTER |
|---|---|---|---|
| **2.30 pm – 2.45 pm** | EGEE12 | A REVIEW ON WORK SPACE ISSUES AND CONFLICTS AT THE CONSTRUCTION SITE | SYAHIRA BINTI MOHD ZAYADI |
| **2.45 pm – 3.00 pm** | EGEE08 | PENILAIAN TAHAP KESELESAAN TERMA BANGUNAN AKADEMIK POLITEKNIK KUCHING SARAWAK | NAZMIAH BINTI NAWI |
| **3.00 pm – 3.15 pm** | EGEE24 | ELECTRIC CONSUMPTION IN RURAL AREA BY USING DUAL AXIS SOLAR TRACKER WITH LDR MODULE | AIDA NURAZALILA BINTI ALI HASSAN |
| **3.15 pm – 3.30 pm** | EGEE23 | STUDY THE EFFECTIVENESS OF SODIUM NITRATE AS ADMIXTURE IN OPC | MUNIRAH BINTI DAWI SAIFUDDIN |
| **3.30 pm – 3.45 pm** | EGEE01 | KESAN ENDOKARP BIJI GETAH DAN SEKAM PADI TERHADAP CIRI FIZIKAL PAPAN PARTIKEL | ZURAIDAH BINTI AHMAD |
| **3.45 pm – 4.00 pm** | EGEE19 | WATER QUALITY ASSESSMENT OF POINT AND NON-POINT SOURCE OF SUNGAI KANGKA, POLITEKNIK KUCHING SARAWAK | MUHAMAD NAZRI BIN ABU SHAH |

# PARALLEL SESSIONS

**ROOM 3 (SESSION 1)**
**MODERATOR: PN. SUJANURIAH BINTI SAHIDI**

| TIME | PAPER ID | TITLE | PRESENTER |
|---|---|---|---|
| **9.00 am – 9.15 am** | ESLG01 | PENGGUNAAN APLIKASI CANVA SEBAGAI MEDIA PEMBELAJARAN DALAM MPU12012 KEUSAHAWANAN | NUR ANGRIANI BINTI NURJA |
| **9.15 am – 9.30 am** | ESLG02 | THE INFLUENCE OF STUDENT SELF-EFFICACY TOWARDS ONLINE LEARNING ENGAGEMENT: A STUDY IN PRIVATE INTERNATIONAL UPPER SECONDARY SCHOOLS IN MALAYSIA | JESSICA CHING SHU-YI |
| **9.30 am – 9.45 am** | ELSG06 | DEVELOPMENT OF LICENSE PLATE RECOGNITION SYSTEM FOR POLITEKNIK KUCHING SARAWAK | AHMAD SAPUAN BIN HASAN |
| **9.45 am – 10.00 am** | ELSG14 | TINJAUAN TERHADAP PENGURUSAN EMOSI DALAM KALANGAN PELAJAR | NURUL NISA BINTI MOHD NASIR |
| **10.00 am – 10.15 am** | ELSG03 | KECACATAN RUMAH DALAM INDUSTRI PERUMAHAN DI MALAYSIA – SUATU ULASAN | MUHD NAZMI BIN ISMAIL |
| **10.15 am – 10.30 am** | | **BREAK** | |

# PARALLEL SESSIONS

**ROOM 3 (SESSION 2)**
**MODERATOR: PN. NUR MARDIANA BINTI RAMLI**

| TIME | PAPER ID | TITLE | PRESENTER |
|---|---|---|---|
| **10.30 am – 10.45 am** | ELSG05 | MEASURING SAFETY PRACTICES IN A MECHANICAL WORKSHOP | AHMAD SAPUAN BIN HASAN |
| **10.45 am – 11.00 am** | ELSG10 | TINJAUAN PENGGUNAAN PERKHIDMATAN PERPUSTAKAAN POLITEKNIK KUCHING SARAWAK DALAM KALANGAN PELAJAR | HERMAN NORDIADI BIN ABD WAHAB |
| **11.00 am – 11.15 am** | ELSG13 | PERSEPSI PELAJAR TERHADAP KELAS BERSEMUKA SEMASA FASA PERALIHAN PANDEMIK KE ENDEMIK COVID 19 | NURUL NISA BINTI MOHD NASIR |
| **11.15 am – 11.30 am** | ESLG07 | DORMITORY FRIENDLY LOW ENERGY DRYER | REMINJUS ANAK ANDING |
| **11.30 am – 12.00 am** | ELSG04 | DEVELOPMENT OF EASY TILING TROWEL BOX | MUHD NAZMI BIN ISMAIL |
| **12.00 am 2.30 pm** | | **BREAK** | |

# PARALLEL SESSIONS

**ROOM 3 (SESSION 3)**
**MODERATOR: CIK WEE CHIAU YEN**

| TIME | PAPER ID | TITLE | PRESENTER |
|---|---|---|---|
| **2.30 pm – 2.45 pm** | ELSG12 | PERCEPTION TOWARDS ELECTRONIC EXAM QUESTION BANK RECORD KEEPING SYSTEM | NUREDZAN BINTI ZALUDIN |
| **2.45 pm – 3.00 pm** | ELSG09 | THE DEVELOPMENT OF CLASS LOCATION FINDER APPLICATION: CASE STUDY FOR POLITEKNIK KUCHING SARAWAK | MUHAMMAD FIRDAUS BIN AMINUDDIN |
| **3.00 pm – 3.15 pm** | ELSG11 | KESESUAIAN KURIKULUM PROGRAM DIPLOMA TEKNOLOGI SENIBINA DENGAN KEHENDAK INDUSTRI DARIPADA PERSPEKTIF MAJIKAN | MUHAMAD HANIF BIN IBRAHIM |
| **3.15 pm – 3.30 pm** | ELSG08 | 3D CAMPUS FOR POLYTECHNIC KUCHING SARAWAK | MOHD NIZAR BIN HASHIM |
| **3.30 pm – 3.45 pm** | EGEE04 | GROUND SEARCH AND RESCUE (SAR) MAPPING APPLICATION: CASE STUDY LOCATE MISSING PERSON | PANG SIOW JUEN |

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# LIST OF REVIEWERS

| Reviewer |
| --- |
| Cr. Dr. Ling Ying Leh |
| Dr Zummy Dahria bt Mohamed Basri |
| Dr. Abd Rahim Bin Awang |
| Dr. Azuin Binti Ramli |
| Dr. Khairunnisa Binti A. Rahman |
| Dr. Kohilah A/P Miundy |
| Dr. Lily Siong @ Lily Binti Mahmud |
| Dr. Marzni Mohamed Mokhtar |
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| Dr. Norani Binti Abd Karim |
| Dr. Norleeza binti Muhammad @ Wan Mat |
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| Dr. Nur Adilla Binti Kasim |
| Dr. Nurhuda Binti Nizar |
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| Dr. Yusni Mohamad Yusak |
| Dr. Zamsalwani Binti Zamri |
| Dr. Zuraidah Binti Ahmad |
| Ts. Dr. Bong Siaw Wee |
| Ts. Dr. Choong Chee Guan |
| Ts. Dr. Hj. Zunuwanas Bin Mohamad |
| Ts. Dr. Sylvia Ong Ai Ling |

CONTENT

# LIST OF MODERATORS

| LIST OF MODERATORS |
| --- |
| Nur Mardiana binti Ramli |
| Nizar bin Ahmad |
| Siti Noor Aishah binti Mohammad |
| Rohaya binti Mohamad |
| Farrah Waheda binti Abdullah |
| Muahmaad Alias bin Omar Abdul Aziz |
| Chen Mei Ching |
| Sujanuriah binti Sahidi |
| Wee Chiau Yen |
| Liyana bin Norizan |

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# ABSTRACT

## SECTION 1: ACTION RESEARCH & SOCIAL SCIENCE

# Impak Pembelajaran dalam Talian Terhadap Kesihatan Pelajar Kolej Komuniti

Nur Angriani Nurja, Khairul Aizal Osman, Zarina Samin

**Abstract.** Education has not escaped the Covid-19 pandemic that has spread worldwide in the first quarter of 2020. The aftermath of the Covid-19 virus outbreak has prompted almost all countries to implement people's movement control in an effort to curb the spread of this dangerous virus. The Ministry of Higher Education has decided that teaching and learning sessions be conducted online to deal with the Covid-19 pandemic. Teachers, lecturers or educators have applied various online platforms such as Google Meet, Google Classroom, Zoom, Microsoft Teams, Telegram, YouTube and WebEx to continue teaching and learning activities with students. Furthermore, this study aims to identify the impact of online learning on health among Sabah community college students. The implications of online learning are seen from the aspects of the environment, emotions, physical health and self-reflection of students. This research instrument is a set of questionnaires distributed through Google Forms to obtain the findings of the study. Based on the findings of the study, aspects of the environment, emotions, physical health and self-reflection show a significant relationship with students' health during the implementation of online learning.

***Keywords:*** *Online learning, pandemic Covid-19, student's health, community college.*

## The Method On Reducing Turbo Lag In Turbocharged Engine: A Review

Mohd Fitri Bin Safe'i, Mohamad Shukri Bin Muda, Azlan Bin Adam

**Abstract.** A turbocharger is a system fitted to the vehicle engine to improve efficiency and performance. However, one of the disadvantages of turbocharged engine is turbo lag. Various research has been conducted to improve the transient performance of turbocharged engine. Therefore, this paper presents a review of different approaches to reduce turbo lag in the turbocharged engine. 10 recent research paper selected from Scopus database for extensive review. Relevant bibliographies from the article also have been reviewed. Attention given on the response time taken by turbocharger in transient condition. The review then concluded and suggestion for further investigations also stated.

***Keywords:*** *Turbocharger, Turbo Lag, Transient.*

## Effectiveness Of BKA Application For Self-Learning Among Mas Gading Community College Students

Liu Tse Hui**,** Nouraisyah Bt Hussen, Nursyafiqah Binti Abd Samad

**Abstract.** Nowadays, the classroom is no longer the only learning environment. Therefore, suitable teaching materials are important support materials to increase students' understanding while maintaining their learning interests. To help the students to learn in their self-learning time due to a lack of focusing and forgetting easily during class, a BKA mobile application is developed to enhance their comprehension of *MPU12022 Bahasa Kebangsaan A* course. Action research with the qualitative method and five (5) convenient sampling is preceded in this study, as well as supported by pre-test and post-test to investigate the extent to which effectiveness of BKA Application. The result showed there is an increment of 10.4% from average quiz scores in Topic 3. This study expects to understand the effect of using mobile technology in the teaching and learning area.

***Keywords:*** *Mobile Application, Self-Learning, Effectiveness.*

# Keberkesanan Sesi Pengajaran Dan Pembelajaran Atas Talian Semasa Perintah Kawalan Pergerakan Dalam Kalangan Pelajar Politeknik Kuching Sarawak

Nurul Nisa Binti Mohd Nasir, Herman Nordiadi Bin Abd Wahab

**Abstract.** This study was conducted to examine the readiness of students in following online teaching and learning sessions and to examine the effectiveness of students following online teaching and learning sessions among students of Polytechnic Kuching Sarawak (PKS). A total of 825 respondents were randomly selected where the questionnaire distribution process was done online to obtain and collect initial data. The results of the study show that the majority of students are unable to follow online teaching and learning sessions and understand the taught modules well. The stability factor of internet access and the uncomfortable atmosphere and learning space are the main factors that contribute to this situation. Students were found to be unable to fully focus during online teaching and learning.

***Kata Kunci:*** *keberkesanan, pengajaran dan pembelajaran, atas talian.*

# Evaluation Of Modulus Of Elasticity Of Local Hardwood Timber

Normah binti Jainudin, Mohammed Azmi bin Ladi

**Abstract**. Hardwood timber has been used thousand years ago as a structural member in the construction industry. The use of timber in building structures might be whole or partial. Nevertheless, the use of hardwood timber as an engineering material in building construction is decreasing year by year and being replaced by metal material. Even though metal materials replaced hardwood in building construction, we still cannot disregard the importance of hardwood in some building construction, especially in a traditional wooden house. In engineering study, the mechanical property of building materials such as the modulus of elasticity is very important to be identified in order to predict the behaviour of material when subjected to a force. Therefore, in this study, the evaluation of elasticity modulus, E of local Borneo ironwood (Eusideroxylon zwageri) which is also known as Belian hardwood was evaluated by comparing the values published by Malaysia Standard with Code of Practice. In this study, the samples of hardwood material were prepared as a cantilever beam, based on the requirement of the deflection test method of STR4 apparatus at Politeknik Kuching Sarawak. The results of elasticity modulus obtained by using the deflection test method were in a range of 12000N/mm$^2$ to 18000N/mm$^2$ where these values are categorized as a standard elasticity modulus of belian hardwood, published in Malaysia Standard with Code of Practice MS544:Part 2:2001. Therefore, the method of deflection test with STR4 equipment is reliable to determine the modulus of elasticity for beam materials. By using the same piece of hardwood, the moisture content (MC) was measured to approve that this type of timber is categorized under the strong group of timber, SG2 published in MS544:Part 1:2001. In order to be usable for a construction project, the MC must be greater than 19% and this study shows that the MC obtained was 25%, simultaneously it was proved that this type of hardwood is practically used in the construction project.

***Keywords:*** *Modulus of Elasticity, Belian Hardwood, Deflection, Moisture Content*

# Solid Waste Generation And Composition In Politeknik Kuching Sarawak

Maslina Binti Buang, Hidayah Binti Julaihi

**Abstract.** Politeknik Kuching Sarawak (PKS) is located at 28.5 km and take about 33 minutes from Kuching City, Sarawak. Solid waste management in PKS was managed by Majlis Perbandaran Padawan (MPP) and provided with 1100-litre mobile garbage bins which are emptied twice a week. The study included the estimation of generation rate on two distinct periods during regular semester and study break. The investigation was conducted during semester break 28th October to 14th November 2019 and for second season during current semester, 8th to 21th October 2019. This paper represents the generation, composition of solid waste and the strategy to have hygienic campus. The investigation of solid waste management problems was identified such as inadequate equipment used for waste collection and open dumping. The objectives of this study are to determine the generation and composition of the solid waste and to propose proper waste management strategies to Politeknik Kuching Sarawak. Finding shows the generation rate of solid waste during semester break is 0.13kg/day/capita and during current semester is 0.17kg/day/capita. The food waste was identified the highest average total waste generated in PKS and the most suitable approach is to use it for composting. Moreover, as the carbon to nitrogen ratio in this study at potential level resulting them would be a nutrient content as well. For the recyclable components, the potential higher demand is on aluminium, plastic and metal. To ensure sustainable solid waste management, a strategy to improve the scenario of solid waste management in Politeknik Kuching Sarawak were proposed.

*Keywords: solid waste, composition, generation*

# Development of Student Industrial Tracking (SIT) Application for Polytechnic Students' Industrial Training

Mohd Nizar Bin Hashim, Che Ku Ahmad Fuad Bin Che Ku Abdullah, Noor Khairul Idham Bin Nordin

**Abstract.** Application is computer program that running on mobile phone, tablet or watch and it known as an 'app'. This apps also can be used on other devices including desktop computers and laptops via web browser. This study attempted to develop Student Industrial Tracking (SIT) app for tracking the location of Polytechnic's students especially in Polytechnic Kuching Sarawak (PKS) that are attached in industry. Integration between Thunkable Software and integrated with Google Form has been used as a tool to generate the app and to collect students' information. Lecturers or supervisors can utilize the app to evaluate students' performance by automatically calculated to final mark. The SIT compatible to used either in android or IOS platform with minimal space of mobile storage. Thus, this study contributes on the smart management of students' industrial training assessment for polytechnic Malaysia.

***Keywords:*** *Industrial training, tracking apps, practical students*

# Analisis Keperluan Aplikasi Interaktif Doa Qunut

Azizah Mahadi, Suhaidal Mohd Daud, Rosnani Yahya

**Abstract.** The Covid-19 pandemic has had an impact on the world of education. It affects the rapid development of educational digital technology. It also makes blended learning a new norm in teaching in higher education institutions. This is to ensure that learning outcomes are achieved and in line with current learning desires. The research paper aims to identify the need for interactive application development using a mobile app (doa qunut) as a teaching aid. Data collection is through document analysis and structured interviews. Data were analyzed using thematic. The findings of the study found that the development of an interactive mobile app (doa qunut) is compatible with the current learning situation and can be used anywhere. It can also attract students' interest and keep them focused.

***Keywords****: Interactive Application of Mobile Applications, Teaching Aids, Higher Education Institutions*

# Mengenalpasti Nilai Ambang bagi Pengesanan Botnet HTTP

Wan Ramzi W. Y, Faizal M. A, Nur Hidayah M. S

**Abstrak.** Kebelakangan ini, botnet telah mendapat perhatian penyelidik di seluruh dunia. Banyak usaha telah diberikan untuk mengesan kehadiran botnet. Ramai penyelidik menumpukan pada membangunkan sistem dan membandingkan kaedah pengesanan untuk mengesan aktiviti botnet. Mengenal pasti nilai ambang yang sesuai adalah penting untuk membezakan antara trafik rangkaian biasa dan tidak normal. Nilai ambang yang sesuai boleh meminimumkan kadar positif palsu bagi aktiviti Botnet. Oleh itu, Kajian ini akan mengenal pasti nilai statik yang sesuai bagi ambang untuk mengesan botnet HTTP. Ujian nisbah kemungkinan dan jadual klasifikasi adalah dua ujian yang akan digunakan untuk mengakses kesesuaian model. Analisis perbandingan dengan penyelidik lain juga telah dijalankan. Keputusan yang ditemui menunjukkan kira-kira 95% daripada data diisytiharkan sebagai serangan apabila sampel data telah dibandingkan dengan nilai ambang. Oleh itu, nilai ambang adalah nilai yang boleh diterima untuk digunakan dalam mengesan aktiviti botnet HTTP sekaligus membantu mempertingkatkan pengesanan Botnet HTTP dalam trafik rangkaian.

***Keywords:*** *Threshold Value, Botnet Detection, Logistic Regression*

# Sikap dan Pengetahuan Pensyarah Kolej Komuniti Seberang Jaya Terhadap Penyelidikan

Mohamad Annuar bin Morzuke, Herol Azli bin Mohd Zaini, Noradilah binti Saad

**Abstract.** Research is one of the Key Performant Indicators (KPI) of the Polytechnic and Community College 2018-2015. This KPI is a catalyst for the initiative of Polytechnic and Community College lecturers in producing research. However, research is still not carried out at Seberang Jaya Community College (KKSBJ). This is because based on data from KKSBJ's Research and Innovation and Commercial Unit, in 2021 there were only 5 research papers that were successfully published while starting from January until July 2022 there were only 2 research papers that were successfully implemented. A total of 38.2 percent of lecturers were involved in writing research papers throughout the years 2021 and 2022. Therefore, this study was conducted to find out the attitude and knowledge of KKSBJ lecturers towards research. The study sample consisted of 33 KKSBJ lecturers. The research data is quantitative and uses a questionnaire as a research instrument with a Cronbach's Alpha value of .743. Statistical Package for Social Science (SPSS) Version 20 software was used to analyze the data in the form a mean. The results of the study found that the attitude and knowledge of KKSBJ lecturers were at a moderate level with mean scores of 3.69 and 3.57 respectively. The results of the study also found that there is a significant relationship between the attitude and level of knowledge of lecturers towards research through a correlation test with a value of .00 (sig) less than <.05 taking into account that the data is normal and r=.677. This shows that research is still not carried out at KKSBJ. Therefore, the college can take this initiative by holding courses related to research to inculcate research among lecturers and at the same time be able to produce innovations that benefit the community or industry and further contribute to the productivity and progress of the country of Malaysia.

***Keywords****: attitude; knowledge; research*

# Penggunaan Alat Bantu Audio-Visual Dalam Meningkatkan Penguasaan Kemahiran Pelajar Menghasilkan Produk Umai

Mohammad Zahir Mohd Yazid, Lesta Engkamat, Ngu Toh Onn, Ying-Leh Ling

**Abstract.** This study was conducted to examine the effectiveness of the use of audio-visual aids in improving students' mastery of skills in producing Umai products. Researchers found that students had trouble producing standard textures, appearances, sizes, and presentations of Umai products. A total of five Culinary Certificate students in Semester 1 Session 2 2021/2022 were selected as respondents for this study. A preliminary survey was conducted to identify students' problems by conducting structured observations and analyzing the results of the Sarawak Traditional Cooking Practical Training. To strengthen the existence of problems, the group of respondents have undergone a discussion session with the course lecturers to identify the weaknesses of students. Next, respondents will attend a video viewing session that has been produced by the researcher. Through the session, respondents will be asked to answer a questionnaire and comment on the video before undergoing the Sarawak Traditional Cooking Practical Test. The results of the Practical Test showed that there was an increase in students' mastery of skills in producing Umai products using audio-visual aids (video).

***Keywords***: *Audio-visual aids, texture, appearance, size, product presentation*

## SECTION 2: ENGINEERING

# Kesan Endokarp Biji Getah dan Sekam Padi terhadap Ciri Fizikal Papan Partikel

Zuraidah Ahmad, Nur Nadia Izzati binti Zamri, Adibah Izzati Fasihana binti Shamshul Bahrin

**Abstract:** The increase in demand for wood -based building materials have a negative impact on the sustainable use of forest resources. Therefore, the study of the use of agricultural waste in the production of particle board is becoming increasingly popular. Rubber seed endocarp and rice husk are agricultural wastes that have no significant industrial use. Therefore, the purpose of this innovation is to study the effect of the use of rubber seed endocarp and rice husk on the physical properties of particle board. Particleboard is produced using different ratios of rubber seed endocarp and rice husk particles. In addition, a suitable binder is mixed into the particle board mixture in a constant amount. Tests of fire resistance, acoustics, water absorption and swelling thickness were performed on the samples of particle board. The findings show that the use of higher ratio of rubber seed endocarp can improve the physical properties of particle board. Thus, the use of rubber seed endocarp and rice husk has a high potential in the manufacture of particle board, and is expected to help overcome the shortage of wood as the main raw material faced by the particle board industry today.

***Keywords:*** *Particle Board, Rubber Seed Endocarp, Rice Husk.*

# Pipeline Site Investigation with Satellite Imagery Approach

Pang Siow Juen , Tiong Hua Sang , Lee Kong Fah

**Abstract.** Pipeline site investigation is an essential process to acquire all the geographical information needed to assess the very earlier site or project topographic conditions. This investigation examined the actual project location, terrain, existing attached infrastructure and utilities along with varying environmental conditions. Satellite imagery in Google Earth able to provide complementary information and satisfying users with this purpose. In spite of that, the coordinate of the topographic survey drawing must be transformed into the Word Geodetic System 1984 (WGS84) to superimpose on the correct position. Using study areas in Sarawak Malaysia, the default coordinate system of the drawing presented in Borneo Rectified Skew Orthomorphic (BRSO) map projection. Due to the data involved with the 2D to 3D coordinates, a coordinate transformation process was performed. Global Mapper software used as a medium to convert the surveyed topography data to Keyhole Markup Language (KMZ) file that file location viewable in Google Earth application. A pipeline site overlay satellite imagery was analysed to identify major land cover, such as road, infrastructures and utilities, flooding near pipeline corridors and the earth's surface. The principal benefits of this study include increased relevant spatial information for a consulting firm to improve the pipeline site investigation or any similar project need the same approach and reduced the false alarms.

***Keywords:*** *Pipeline, Satellite Imagery, Global Mapper, Borneo Rectified Skew Orthomorphic (BRSO), Word Geodetic System 1984 (WGS84) and Google Earth*

# A Comparison of As-built Position Computation

Lee Kong Fah, Tiong Hua Sang, Pang Siow Juen

**Abstract.** The as-built position is a monitoring work carried out once after the construction work of piling was completed. Is it to ensure that the position and dimensions of piles are exactly as specified in a plan? A comprehensive plan will be prepared to demonstrate all the amendments that have been made during construction. As-built drawings are the final set of drawings produced for the completion of a construction project. The information included all the changes that have been made to the original construction drawings such as notes, modifications, and other relevant information. The reason why the as-built position of the pile needs to be surveyed after the piling work is to ensure the construction work is finished and compare the alignment of the actual position with the as-built position. The amendment drawing is carried out by a consultant based on the information of the as-built position. An informative plan provided by the consultant later will be useful while facing any possibilities during construction or future modification. Autolisp software is used to calculate and produce alignment of the as-built position. Autolisp is AutoCAD's inbuilt programming language which is also used to create programs that will automatically generate drawings.

***Keywords****: as-built, construction, alignment, Autolisp*

# Kajian Penambahbaikan Kaedah Pengendalian Bahan Menggunakan Konsep Karukuri di Stesen Kerja Pemasangan *Pull Cup*

Shaipul Anuar Mohamed Zainudin, Muhammad Hafizani Mohammad Hanapiah

**Abstract.** This study was conducted to improve the material handling method at the pull cup assembly workstation using the Karakuri concept. Wasteful movement and limited storage space have been identified as causes of waste at pull cup assembly workstations. The objective of this study is to design a Karakuri rack that is driven by gravity to improve the material handling process and reduce the cycle time at the pull cup assembly workstation. The Karakuri rack in this study was designed using CATIA software. The findings of the study show that the use of Karakuri racks successfully reduced the work process from four work processes to three work processes and one work process was successfully eliminated. Next, the cycle time analysis on this workstation showed a decrease of 51.9 percent. So overall this study succeeded in improving the material handling process at the pull cup assembly workstation. The Karakuri rack design has also reduced motion waste and further increased productivity at the pull cup assembly station.

***Keywords***: *Karakuri, material handling, waste.*

# Suitability of Garnet to Grading and Fineness Modulus as Bedding Sand Layer in Concrete Block Pavement

Mohd Zawawiv Aziz, Azman Mohamed, Suriati Ibrahim

**Abstract.** Currently, highway and road construction use river sand as part of pavement construction. Due to rapid development, the demand for common sand increased and was heavily used in construction. Building constructions also require sand as the material to produce concrete. This is the major factor in increasing the demand for river sand and can increase the price of river sand. There are alternative suggestions by many researchers that use waste materials to replace ordinary sand completely or partially in construction. Therefore, using waste materials such as garnet to replace river sand either partially or fully will conserve our environment and more sustainable solutions. Concrete block pavement (CBP) uses river sand as its bedding sand layer. Therefore, there is the chance of garnet either in part or in full to replace river sand in the pavement constructions. The objective of the study was to determine the effect on the grading curve and the fineness modulus when the various contents of the sand-garnet ratio were used as the pavement-bedding layer. Sieve analysis was conducted to meet the grading requirements according to BS 882 while ASTM C33 was used as the reference in terms of modulus of fineness. The research found that only samples of type 9S1G and 8S2G meet the requirements as a material for the application of pavement base layer to replace part of the sand. In addition, the 9S1G and 8S2G type samples meet ASTM C33, which recommends that the fineness modulus value must be from 2.30 to 3.10 i.e., the fineness modulus value for 9S1G and 8S2G type sample is 2.77 and 2.81 respectively. Therefore, this research suggests that the percentage of garnet replacement for pavement bedding sand layer application is up to 20%.

***Keywords**: Garnet, concrete block pavement, bedding sand layer*

# Ground Search and Rescue (SAR) Mapping Application: Case Study Locate Missing Person

Tiong Hua Sang, Pang Siow Juen, Lee Kong Fah

**Abstract.** This paper is concerned to propose an application Geographic Information System (GIS) for ground search and rescue (SAR) mapping application at Fire and Rescue Department of Malaysia, Sarawak State. GIS is very practical in reinforcing SAR operations, especially to locate missing persons and providing emergency services. By virtue of GIS capability of capturing, storing, checking, integrating, manipulating, analysing and displaying data which are spatially referenced to the Earth. GIS offering the ability for the integration and analysis of geospatial data, has proven as a useful tool able to assist the SAR team to communicate effectively and directive SAR operations on the ground. In current SAR operations, there are three major parts to carry out the SAR operations which includes control unit (Command Post), communicate unit (GIRN) and people (SAR Team). The rescue action plan absolutely depending on the sketch and printed topographic map. Furthermore, SAR team hasn't guided by positioning or navigation device lead to the lack of ineffectiveness communication in the incident area. In this study, we proposed a mapping console solution to improve the SAR operations. By centralizing all the SAR operations chronology and location records in geospatial database, users can see the ongoing progressive on the computer screen and strategize the rescue plan based on situational at an incident. The advantages of mapping console to manage spatial and attribute data provides more complementary information to help users in decision making. In addition, the capability of mapping console to display data in maps, tables, photos, graphs, charts and others are permitted users to generate explicit SAR report.

***Keywords:*** *Geographical Information System (GIS), Search and Rescue (SAR), Mapping Console, Missing Person*

## Fabrication Of Valve Spring Compressor

Mohd Fitri Bin Safe'i, Sujanuriah Binti Sahidi

**Abstract.** A valve spring compressor is a device used to compress a valve spring to remove or install a cotter on the valve stem. According to an observation made at Automotive Workshop Politeknik Kuching Sarawak, students are still utilizing an outdated valve spring compressor that is time-consuming and more likely to cause operator injury. The purpose of this research project is to design and fabricate a valve spring compressor that can expedite valve spring removal and installation while also improving operator safety. Conceptual design of this product was developed using Autodesk Fusion 360 and the prototype has been fabricated. Several tests were carried out on the final product, the results were successful in reducing the time required to open and install the valve. Hence, enhancing the operator's safety.

***Keywords:*** *Valve Spring, Compressor, Removal*

## Column Adsorption Studies for Oil Removal in POME by Using Esterified Sago Bark

Hidayah Julaihi, Maslina Buang

**Abstract.** The mixture of residual oil in POME was released into the environment and polluted the environment, affecting the quality of water in rivers and seas. Sago bark (SB) from Metroxylon sagu harvested in Sarawak, Malaysia as a cheap natural adsorbent was investigated for removing POME through the adsorption process. The hydrophobicity of this sorbent in an aqueous state was improved via the esterification process. The esterification of sago bark was conducted at a ratio of sago bark (SB) to stearic acid (SA) by 4 to 1. Parameters of bed height and particle sizes of esterified sago bark (ESB) and flow rate of POME were analysed using full central composite (CCD) of response surface methodology (RSM). Hydrophobicity test, FTIR and SEM were carried out to characterize the ESB. Results showed that the esterification process has successfully increased the hydrophobicity of sago bark by 51.7% and increased the oil removal efficiency of ESB in POME by 53.33%. A developed 2-factor interaction (2FI) model showed that the conditions of ESB in 0.5 mm sizes with 15 cm bed height and at 5 ml/min of flow rate obtained 97.8% efficiency of oil removal in POME. SB esterification has successfully increased the oil adsorption and the removal of emulsion oil in POME.

***Keywords****: esterified sago bark; palm oil mill effluent; esterification; adsorption; oil removal*

# The Effect Of Consumer Load Balancing On The Maintenance Cost Of Power Distribution At Sarawak Federal Complex Buildings

Victor Teng Kok Leong, Ho Yoong Chow, Ledia Anak Angul

**Abstract.** The fast-rising construction industry in Malaysia has caused the increase of high-rise buildings for national development. These developments also drive the rampant demand for electrical energy in the country. Ministry of Energy and Natural Resources (Malaysia) shows that 94% of electricity in the country uses fossil fuels for its power generation plants. This numbers will increase in the coming years. Previous findings indicate that buildings consume 40% or more of the amount of electricity we used daily, the largest problems with distribution systems are directly connected to the unbalance load we use daily in our modern society. In this paper, we are going to concentrate on a way to reduce energy bill by balancing loads across a three-phase distribution system at 23 federal complexes in Sarawak by applying shifting certain loads to balance out the energy consumption. This can be achieved by recording readings of voltage and current and ironed out the root causes. These corrective measures will help to decrease the unbalance issue by reducing each phase load imbalance of no more than 5% difference. This is often implemented through even distribution of every phase by selecting the phase where imbalance load should be disconnected and balanced out through the three phases. After applying these corrective measures, we will monitor the following months consumptions of electricity bills. Then we will compare the electricity bills for the third and fourth quarter to monitor the difference. The outcome shows that load balancing results in positive energy saving.

***Keywords:*** *Power Consumption, Load Balancing, Energy Saving*

# Penilaian Tahap Keselesaan Terma Bangunan Akademik Politeknik Kuching Sarawak

Norain binti Ali, Suriati binti Ibrahim, Nazmiah binti Nawi

**Abstrak.** Keselesaan terma merupakan faktor utama yang diambil kira dalam menentukan kualiti kehidupan penghuni di dalam sesebuah bangunan. Kajian ini dibuat untuk menentukan tahap keselesaan terma di bangunan akademik, Politeknik Kuching Sarawak. Konsep Penyesuaian Keselesaan Termal "Adaptive Thermal Comfort" digunakan dalam menentukan tahap keselesaan terma pelajar dengan mengambil kira suhu udara, halaju udara dan kelembapan relatif. Kaedah kajian menggunakan cerapan suhu. Objektif utama kajian adalah untuk mengenalpasti suhu selesa didalam kelas dan menganalisis tahap keselesaan terma mengikut standard ASHRAE dan CIBSE. Analisis merujuk standard CIBSE dengan menggunakan jadual indeks ketidakselesaan termal George Winterling menunjukkan bahawa bangunan akademik Politeknik Kuching Sarawak berada didalam zon kuning pada kadar indek 42 dan diklasifikasikan sebagai keadaan terma yang tidak selesa dan perlu penambahbaikkan bagi membolehkan pelajar berada didalam keadaan yang kondusif ketika berada didalam kelas. Secara keseluruhannya, suhu dalaman adalah mengikut kehendak reka bentuk dalaman yang dicadangkan dalam piawaian ASHRAE iaitu berada didalam 90% limit diterima bagi bangunan yang menggunakan sistem peredaran semulajadi.

***Keywords:*** *Thermal Comfort Level, Natural Ventilation System, Academic Building, ASHRAE, CIBSE*

# Development Of Industrialised Building System And Workspace Issue - A Review

Syahira Binti Mohd Zayadi, Muhd Nazmi Bin Ismail, Mohd Nadzrie Bin Ahmad

**Abstract.** Industrialised Building System (IBS) is a transformation the methods and system in construction. Some researchers classify IBS as a process of total integration of subsystems, components and elements into one overall system which utilizes industrialized production, transportation, assembly and erection on site. This system changes the conventional methods to a better one through the use of innovative technology and philosophy more towards creating an environment in the construction process to be more efficient, secure, quality, and within the limits of reasonable cost. Implementation of IBS-based construction methods in Malaysia started in the 1960s. The project has been reported to be successful, but the system is still not able to meet IBS standard and at a low level. The efforts of the Government to transform the construction industry in Malaysia is gaining the attention of all parties involved in the construction industry. Various incentives are provided to encourage the use of IBS and the participation of various players such as construction contractors, manufacturers, designers, firms and the private sector in full. The implementation of IBS usage generate some positive impact to the impacted the landscape construction management on construction sites, especially relevant aspects of space planning.

***Keywords:*** *Industrialise Building System, Construction Industry, Quality Construction, Construction Management, Work Space*

# A Review On Work Space Issues And Conflicts At The Construction Site

Syahira Binti Mohd Zayadi, Muhd Nazmi Bin Ismail, Mohd Nadzrie Bin Ahmad

**Abstract.** Space is a resource that should be planned carefully in creating a safe work environment and speed up handling and processing work activities. This can increase productivity, improve quality, buildability, speed up the construction period without interference or arising conflict due to lack of space in the planning work space. Construction projects involve many activities to produce the end product, whether building and infrastructure. All these activities require evaluation, planning and logical structuring. Work activities should be coordinated with proper planning the use of resources such as building materials, labour, equipment and tools, and most important is the main workspace. However, the space aspect is often given less due attention by the project manager or construction planner. Failure to organize and plan the use of space in accordance with individual work activities and other resources efficiently will create same conflicts of workspace. Planning for work space is a unique challenge. This problem becomes more difficult if it involves complex construction projects in terms of design construction, shape and location of the site, the construction site in the bustling area makes it difficult for preparation of planning proper in the use of the workspace. To summarize, the impact of conflict space significantly create problem in terms of the reduction of productivity of work and delay the completion of construction. Therefore, the next discussion in view of the previous studies will focus on issues of productivity and delay in construction that are indirectly attributed to the lack of space planning work on construction sites.

***Keywords:*** *Construction industry, project manager, workspace, conflicts place, proper planning and construction management.*

# Rekabentuk Smart Pole Bersensor

Nurhuda binti Ismail, Muhammad Halifi bin Abd Rahim, Aminur Zai'm bin Mohd Aminorfazla

**Abstrak.** Masalah jalan raya yang gelap adalah satu situasi yang mungkin terdapat di mana-mana kawasan jalan raya yang tidak mempunyai kemudahan lampu jalan. Situasi ini bertambah sukar apabila jalan raya tersebut juga agak sempit. Jalan yang gelap dan sempit ini menyukarkan pemandu untuk melihat jalan dengan jelas dan menyukarkan mereka memandu dengan selamat dan berisiko tinggi untuk berlaku kemalangan maut. Kemalangan juga boleh berlaku apabila pemandu di belakang tidak dapat melihat dengan jelas kenderaan rosak di hadapan. Kajian ini tertumpu kepada pengguna jalan raya kerana kebanyakan pemandu jalan raya tidak dapat melihat jalan dengan jelas disebabkan cuaca buruk, atau jalan yang gelap yang menyebabkan pemandangan mereka terbatas. Kajian ini mengutamakan pemandu kenderaan penumpang kerana golongan ini sering terlibat dalam kemalangan yang melibatkan rempuhan belakang akibat cuaca buruk dan seterusnya boleh meragut nyawa pemandu dan penumpang. Projek ini dibuat bagi mengurangkan risiko kemalangan yang berlaku di jalan raya dengan cara membantu pemandu kereta dapat mengenal pasti situasi di hadapan jalan dengan jarak yang selamat apabila menggunakan SMART POLE. Jika pemandu dapat mengetahui situasi buruk yang berlaku di hadapannya, maka pemandu dapat memperlahankan kelajuan dan bersedia untuk mengelak ataupun berhenti dengan selamat. Hasil projek ini menunjukkan keputusan yang positif di mana SMART POLE yang direkabentuk dapat berfungsi dengan baik dalam membantu penglihatan pemandu untuk bertindak memberhentikan kenderaan dalam jarak yang selamat.

***Keywords:*** *Jalan Raya, Kemalangan, Kenderaan Penumpang, Cuaca Buruk*

# Uncovering Social Media Addiction Towards Students' Learning Motivation And Academic Performance In Online Learning

Juliana Nawawi, Azarina Azman, Nor Haizan Jamali

**Abstract.** Online class implementation due to the coronavirus disease 2019 (Covid-19) can be great concern as it may have an impact on students' behaviours and achievement. This preliminary study aims to analyse the association of social media (SocMed) addiction with students' learning motivation and academic performance throughout the implementation of Online Teaching and Learning (OTL). Data collection was administered online with a Google Form, which gathered 166 responses from students of the Electrical Engineering Department, Polytechnic Kuching Sarawak. Two validated instruments were utilized in the study and have been translated from English into Bahasa Melayu. Social Media Disorder Scale (SMD) was applied to identify students with SocMed addiction while the Short Academic Motivation Scale (SAMS) measures students' academic motivation. Based on the analysis, 59.0% of respondents agreed that the amount of time spent on SocMed have been substantially increased during OTL despite 15.1% of respondents experiencing severe while 49.4% occasionally facing internet connectivity problem. However, only 6.6% of respondents were identified as being addicted to SocMed. All respondents associated with SocMed addiction have good academic performance with a CGPA of at least 3.00. Only 21.7% of respondents (4.2% SocMed addicted and 17.5% SocMed non-addicted respondents) acknowledged that SocMed had distracted students in learning. However, it was found that students' perception of attentional distraction during OTL was significantly associated with SocMed addiction based on the Chi-Square analysis. The correlation test revealed no association between SocMed addiction, students' academic motivation, and self-determination.

***Keywords:*** *social media addiction, academic motivation, attentional distraction, academic performance*

# Fingerprint Recognition With GSM-Based Security System

Reminjus Anak Anding, Joshua Anak Ribi

**Abstract.** The innovation of the security system locker by using a biometric system with a GSM (Global System for Mobile communication) based security system is essential nowadays. In today's world, be it at offices, laboratories, schools, or homes, the first thing which concerns us in everyday life is the security of our belongings which sometimes are prone to theft. To enhance the safety of data, money, personal belonging, and even premises, to be secured from an unauthorized person, an innovation based on fingerprint recognition with a GSM-based security system for a locker to operate the locker's mechanism and early warning intrusion by short message service was developed. In this security system, the electronic components that had been used were ARDUINO Microcontroller, GSM module, fingerprint sensor, LCD, 2-channel relay module, and buzzer. The ARDUINO microcontroller is configured to control the whole driver unit. It is also used for communication connection with the GSM module. The GSM system serves as a communication platform for sending an alert message to the user's mobile phone if an unauthorized person tries to intrude on the locker. A fingerprint sensor is used for scanning the fingerprint for authentication. If the fingerprint does not match, the error message will be displayed on the LCD screen. Simultaneously, the GSM module will send short messages and the registered user gets the notification furthermore, the buzzer will set an alert alarm. The product has enhanced safety and security and is suitable to be used in lockers compared to the product that uses traditional locks.

***Keywords:*** *Biometric system, Global System for Mobile Communication Module, Arduino GSM*

# Water Quality Assessment of Point and Non-Point Source of Sungai Kangka, Politeknik Kuching Sarawak

Muhamad Nazri Bin Abu Shah, Muhammad Azri Izani Bin Mohamad Halim, Nuraiman Bin Abd Rahman

**Abstract.** A water quality assessment of Sungai Kangka has been conducted to gazette the Sungai Kangka as one of the recreational areas and safe for the Politeknik Kuching Sarawak (PKS) community. For this reason, the main goal of this work to provide a compressive technical finding of water quality in Sungai Kangka which evaluated and monitored the level of pollutants in Sungai Kangka for identified point and non-point source pollution and to categorize the water quality of Sungai Kangka according to National Water Quality Standards Malaysia. The physical and chemical parameters are evaluated such as dissolved oxygen (DO), biochemical oxygen demand (BOD), turbidity, phosphate, total solids, pH, and temperature. Within 3-month monitoring period, the average data of water quality of Sungai Kangka, where the DO data in range 5- 6mg/L, BOD data above 2mg/L, turbidity is above 3NTU, the phosphate around 0.12ppm, total solid is below than 500mg/L, pH is 7 and temperature data around 30$^{o}$C. It is safe to say that the identified point and non-point source pollution in Politeknik Kuching Sarawak that being discharged into Sungai Kangka PKS is not significantly affected the water quality of this river. Besides, this river had own self-purification by the oxygen mobility into the river by surface aeration along the river and average flow velocity of water. In nutshell, Sungai Kangka can be categorized under Class II of the National Water Quality Standard for Malaysia and this river is suitable for recreational activity with bodily contact.

***Keywords:*** *Water Quality Assessment, Sungai Kangka, Politeknik Kuching Sarawak, Point Source and Non-Point Source*

# A Cross Sectional Study On Food Safety Knowledge Among Students At Politeknik Kuching Sarawak

Mohd Nor Fadli Abu Kassim, Nurul Azyla Azmi

**Abstract.** The main purpose of this study was to determine the level of students' knowledge of food safety from the aspects of food poisoning, cross contamination and temperature control. In this study, a structured of food safety questionnaire was employed for cross sectional study. A total of 526 students were involved and the questionnaires were distributed online using the Google Forms application via WhatsApp. The students generally have good knowledge of food safety level and varies according to gender, race, department and training related to food safety. The results showed a significant difference in scores between genders in temperature control knowledge. There also a statistically significant difference in scores between trained and untrained students for knowledge of food poisoning and temperature control. In addition, female and trained students have higher scores in food poisoning, cross contamination and temperature control. Meanwhile, Iban students have more knowledge about temperature control than others. Result suggest a need for continuous training to improve the food safety knowledge that can be translated into practice.

***Keywords:*** *Consumer, Food Safety Knowledge, Sarawak, Students*

# Study The Effectiveness Of Sodium Nitrate As Admixture In OPC

Hamidah Binti Mohamad Yunus, Azrina Binti Madihi, Munirah Binti Dawi Saifuddin

**Abstract.** Concrete is one of the biggest basic material that been utilized in construction and the most commonly used concrete is Ordinary Portland Cement (OPC) as a cementing material. The common problems in construction industries are the time taken by the concrete mixing to harden is too long, the cost of rapid hardening cement is too expensive and the strength of the normal concrete is weak. The objectives are to propose the percentage of cement accelerator in the cement mixture (1.5%, 2.5% and 3.5%) and to determine the strength of the concrete when added alternative admixture. The tests that have been conducted are compression strength test, cement consistency test and setting time test. For compression strength test, the highest compressive strength is at 2.5% of Sodium Nitrate of all samples which are 8.15MPa, 29.8Mpa and 30.8Mpa. Meanwhile for the cement consistency test we can conclude that the standard consistency of OPC for 400gram cement is 30% and the penetration reading is 5mm. Last but not least, the setting time test data shows the highest reading is on 2.5% of Sodium Nitrate which is at initial setting time 3mm at 30 minutes and increase to 8mm at 110 minutes. On the final setting time, it increases from 9mm at 180 minutes to 12mm at 300 minutes. All the results show that the best percentage of sodium nitrate to be added as admixture in concrete is 2.5%. As a conclusion, the sodium nitrate can be used as an additive in concrete mixture as good as using the rapid hardening portland cement which cost much higher but at the same time, still can achieve the strength and properties as good as them.

***Keywords:*** *Ordinary Portland Cement (OPC), Sodium Nitrate, compression strength test, cement consistency test, setting time test.*

# Electric Consumption In Rural Area By Using Dual Axis Solar Tracker With LDR Module

Aida Nurazalilla Binti Ali Hassan, Delinia Anak Duyun, Arfemina Santya Ungan Ayup

**Abstract.** Dual Axis Solar Tracker designed to improve efficiency of a dual axis solar power plant system in absorbing sun energy continuously time by time with stable performance in various weather conditions. This project using LDR module as brain of the device with additional such as motor driver and auto cutoff charger that makes this project more functional. The LDR module used to detect sun energy and absorb to solar panel. The additional motor driver makes this project more completely which functional to move the solar panel according to the sunlight detected by Light Dependent Resistor (LDR). Then, auto cutoff charger function to avoid the battery overcharging. In conclusion, the LDR will detect the sun energy and the solar panel absorb the sun. The motor will move in dual axis, left and right, top and bottom according to the movement of the sun. Next, the energy will stored in battery while auto cutoff charger will protect it from overcharging.

***Keywords:*** *Dual Axis Solar Tracker, LDR Module, Solar Panel, Auto Cutoff Charger.*

## Pembangunan *Hand Wash Timer* Menggunakan Litar Arduino

Nurul Nisa Mohd Nasir, Nurzawani Mohamad Zani, Neelam Amelia Mohamad Rejeni

**Abstract.** The Handwash Timer device is developed to educate the staffs and students in the Department of Information and Communication Technology (ICT) to practice washing hands with soap for 20 seconds before rinsing with water. This device is developed because there are still JTMK residents who still wash their hands in a less effective way to kill bacteria and at the same time can be the cause of the spread of Covid-19. This device is built using an Arduino circuit and an ultrasonic sensor to detect hand movement and an Arduino program to convey signal if the user has finished washing their hands. This device is successfully produced by detecting hand washing gestures and giving a green LED signal when the hand washing time for 20 seconds is over. With the ease of using this device, it helps Kuching Polytechnic residents to avoid contracting the infectious disease and curb the spread of the Covid-19 outbreak.

***Keywords:*** *Basuh Tangan, Timer, Pemasa, Sensor, 20 saat*

## Convective Heat Transfer in Air Conditioning Ducting (Internal Flow)

Mohd Nazrin Nahar, Mahani Mohd Zamberi, Sharifah Zainhuda Syed Tajul Ariffin

**Abstract.** The prominent selections of ducting systems are based on design and size to determine the heat transfer and the impact of both ducting designs based on temperature differences. By using cooling load calculations such as the Rule of Thumb method and Ductsizer software, the analyses calculated the respective rooms involved in this study. The analysis's final finding revealed that the round (circular) duct has a smaller pressure drop than the rectangular duct. Additionally, it is discovered that a rectangular duct's temperature drop is significantly higher than a volumetrically equivalent round one because of friction between the fluid's moving particles and the duct's interior surfaces, the wall's difficult curvature and shape due to the rectangular duct's sharp corners, and the more challenging flow pattern. Apart from that, the noise level is also higher for the rectangular duct compared to the round duct.

***Keywords****: Airflow, heat transfer heat loss, temperature, ductulator*

# Selection of EDM Die Sinking Optimal Condition of Machine AISI L3 Tool Steel Material Using Ant Colony Optimization

Saipul Azmi Mohd Hashim, Ahmad Azlan Mohamad, Nur Marini Mohd Zain

**Abstract.** The leading use of tool steel material as cutting tool material because of its good qualities and economical in the production line. Besides, the common use of EDM Die Sinking of machine tool steel material makes machining preferred by the industry. Therefore, a study that correlates input-output parameters of EDM Die Sinking is urged to estimate the good quality machined tool steel workpiece such as an optimization study. This study estimates the good qualities as the outputs, with the benefit of knowing the machining parameters. Therefore, this paper aims to optimize EDM Die Sinking input parameters by using the Ant Colony Optimization algorithm, an approach based on soft computing. This paper's step begins with experimental data and mathematical model application, then running the algorithm to gain the minimum outputs and optimized inputs, and ends with evaluation and validation. The selected input parameters are Current, Pulse on time, and Pulse off time; and the outputs are Material Removal Rate, Electrode Wear Rate, and Surface Roughness. The comparative study is made based on other references, and the result finds that the proposed approach outperforms the result by 3D Response Surface, Tabu Search, Genetic Algorithm, and Particle Swarm Optimizations approaches applied in previous studies. Moreover, the predicted optimized input parameters suggest more economical production expenses, by running at a lower rate of current supply for having better outputs.

***Keywords***: *EDM Die Sinking, Multi-Objective Optimization, Ant Colony Optimization, Tool Steel.*

# Penggunaan Aplikasi *Canva* Sebagai Media Pembelajaran Kursus MPU12012 Keusahawanan

Nur Angriani Nurja, Nur Fatin Kassiran, Tiffany Thu Pei Ying

**Abstract.** Canva is an online application that provides attractive designs supporting the creativity of its users. This study focuses on identifying the impact of Canva as a learning medium to enhance and develop students' creativity in the preparation of assignments and learning of the MPU12012 Entrepreneurship course. The methodology of this study is in the form of mixed mode, which is a qualitative and quantitative (descriptive) approach. The research instruments, namely pre-test and post-test questionnaires were used to identify the level of knowledge of the respondents after the implementation as well as observation of the use of Canva application. The respondents of the study consisted of 17 Sijil Teknologi Elektrik students who attended the MPU12012 Entrepreneurship course for session II 2021/2022 at Kolej Komuniti Beaufort. The overall mean score analysis for the post-test data findings was high with a mean value of 4.19 and a standard deviation of .397. While the results of observations and structured interviews impact the use of Canva as a medium of teaching and learning has a very good level of implementation. The average observation data of the entire research was 90.2 percent. Thus, Canva application has a very good impact as a teaching medium as it facilitates understanding and enhances the ability to master learning in teaching and learning sessions.

***Keywords:*** *Canva, Entrepreneurship, Learning Medium, Community College*

# The Influence of Student Self-Efficacy towards Online Learning Engagement: A Study in Private International Upper Secondary Schools in Malaysia

Jessica Ching Shu-Yi, Ying-Leh Ling, Lau Bek Tien

**Abstract**. This research paper aimed to inspect the influence of students' self-efficacy and online learning engagement in upper secondary private international schools in Malaysia. The 3 dimensions of students' self-efficacy were time management, technology use and an online learning environment; with the 4 dimensions of online learning engagement: behavioral, emotional, cognitive, and social. The instrument adapted from Zimmerman and Kulikowich's Online Learning Self-Efficacy Scale (OLSES) and Deng et al.'s MOOC Engagement Scale (MES) were used to collect data. The data was collected through a questionnaire in Google Forms with a six-point Likert Scale sent to upper secondary students in examining the relationship between the dependent and independent variables. Analysis of the data was done through simple linear regressions to test the significant influence of students' self-efficacy on online learning engagement. This study investigates the influence of students' self-efficacy on online learning engagement verifying a proposed conceptual model at the beginning of the research. The comprehensive model offers stakeholders a better understanding of how students' self-efficacies influence learning engagement during online learning. Subsequently, our research fills in the gap of sub-population focusing on higher secondary school students, providing acumen on the theory of self-efficacy and online learning engagement within this population.

***Keywords***: *Student Self-Efficacy, Online Learning Engagement*

# Kecacatan Rumah Dalam Industri Perumahan Di Malaysia – Suatu Ulasan

Syahira Binti Mohd Zayadi, Muhd Nazmi Bin Ismail, Hisyarita Binti Abd Wahid

**Abstract**. Kecacatan adalah istilah am yang terdiri dari kecacatan fizikal dan kecacatan proses. Kecacatan fizikal adalah apabila dokumentasi projek, bahan bangunan, struktur atau sebahagian strutkur kurang kemampuan atau gagal berfungsi sepertimana dikehendaki dalam kontrak pembinaan, keperluan kegunaan awam atau dalam praktis bangunan baik manakala kecacatan proses adalah apabila berlaku ketidakpatuhan pada sumber atau masa berbanding proses yang optimum yang membawa kepada kecacatan fizikal. Konsep yang dipraktikkan di Malaysia berdasarkan konsep bina dan jual (build and sell) menjadi kelemahan kepada peningkatan penipuan dalam pembinaan rumah. Di peringkat pemeriksaan kecacatan rumah, pemeriksaan dilakukan oleh pembeli rumah itu sendiri yang kebanyakannya tiada latar belakang teknikal bagi mengendalikan pemeriksaan kecacatan. Ini menyebabkan maklumat kecacatan yang dikumpul tidak tepat dan subjektif mengikut toleransi individu masing-masing dan bukan penilaian yang profesional. Akibat maklumat yang tidak tepat ini akan menghalang kontraktor dari belajar dari kesilapan lepas dan proses penambahbaikan sukar untuk dilaksanakan. Kajian ini bertujuan bagi mengenalpasti jenis-jenis kecacatan dan faktor-faktor yang menyumbang kepada berlakunya kecacatan rumah. Dalam penulisan ini, penyelidik menyimpulkan 6 (enam) jenis kecacatan dan 4 (empat) faktor utama berkaitrapat dalam isu tersebut. Isu kecacatan dalam pembinaan perumahan rumah merupakan masalah yang berulang dan perlu kawalan bijak dari pada pihak kerajaan bagi menyelesaikan permasalahan ini.

***Keywords:*** *Kecacatan Fizikal, Kecacatan Proses, Kontrak Pembinaan, Kontraktor Dan QLASSIC*

## Measuring Safety Practices in A Mechanical Workshop

Ahmad Sapuan Bin Hasan, Ahmad Syarifuddin Bin Che Abd Aziz, Wan Hasbullah Bin Wan Mohamed

**Abstract.** The nature work at an engineering workshop emphasises hands-on practises, engineering students and staff spend much of their study time in laboratories and workshops, putting them prone to accidents. As the owner of the laboratories and engineering workshop, the administrator of the facility must ensure that hazards and harm do not fall on their personnel and students. The research is being carried out at PKS through the use of a survey questionnaire form in chosen engineering workshops. According to the survey, general safety standards for both welding and machine workshops are highly practised.

***Keywords:*** *Safety Practices, Safety And Health, Mechanical Workshop*

## Development Of License Plate Recognition System For Politeknik Kuching Sarawak

Ahmad Sapuan Bin Hasan, Mohd Fitri Bin Safe'i, Mohd Sarhan Bin Othman

**Abstract.** Licence plate recognition is a system used to identify vehicles licence plate using image processing technology. Based on the observation conducted at Politeknik Kuching Sarawak guard house, the security guard still using conventional method such as pen and log book to record the vehicle licence plate. Thus, the purpose for this research is to develop the licence plate recognition system to be implemented at Politeknik Kuching Sarawak. This system developed using Roboflow software for data training from various angles of licence plate image dataset. The development process focusing on detection accuracy while capture the image of licence plate during live feed input video recorded and identify the limitation of the model trained by Roboflow. The system showed positive result after undergoing several tests involving live detection, distance limit, angle limit and night-time.

***Keywords:*** *Licence Plate, Recognition, Data Training*

# Dormitory Friendly Low Energy Dryer

Reminjus Anak Anding, Joshua Anak Ribi

**Abstract.** The problem of drying clothes is a problem that is often experienced by the students in the dormitory located at Politeknik Kuching, Sarawak (PKS). The main factor is due to the rainy season that strikes every year from November to December. In addition, this problem was also prolonged due to no clothes dryer provided in the dormitory. The dormitory management does not provide clothes dryers due to safety factors. The electricity consumption that has been set in the dormitory is low and unable to accommodate the high load of electricity. Electrical appliances that have high electricity consumption often cause short circuits in the dormitory. To solve all these problems, a new clothes dryer has been developed. The "Dormitory Friendly Low Energy Dryer" has the same function as a conventional dryer but differs in design, materials, electric consumption, and operating procedure, which is based upon the air-circulated light-radiated heat conductivity method. Based on the observation and the results of the test conducted, this product has met the requirement of dormitory regulation which is only 254 watts maximum that can be used in the dormitory. In summary, this product has the potential to be commercialized and recommended to be used in the dormitory.

***Keywords:*** *Dryer, Electricity Consumption, Energy Saving, Thermal Conductivity, Thermal Drying*

# 3D Campus for Polytechnic Kuching Sarawak

Mohd Nizar Bin Hashim, Che Ku Ahmad Fuad Bin Che Ku Abdullah, Noor Khairul Idham Bin Nordin

**Abstract.** In the modern digital era, the demand of 3D Campus is increasing. A study campus usually consists of many buildings within a large area managed by a single organization. The development of a Three Dimension (3D) model of the campus can be used to provide a better basis for future planning, navigation, and building management processes. The idea of building a 3D model of the campus building originated from the basis of the As-Built plan. From the available As-Built plans, the building was modeled using SketchUp software. The result of the 3D model of the building is expressed in a Level of Detail (LoD) format that consists of some clarity and the shape or appearance of the built model. The model produced reaches the LoD3 level. The building model produced will be placed on Google Maps by applying the actual coordinate value to enable the Geolocation function to be activated and show the position of the model on the surface of the earth in 3D. This 3D campus model can be exported in various other formats for various specific applications and can be published on the Institution's website. For the initial project, several buildings were selected as models to be developed at Polytechnic Kuching Sarawak.

***Keywords:*** *Polytechnic Kuching Sarawak (PKS), 3D Model, 3D Campus*

# Tinjauan Penggunaan Perkhidmatan Perpustakaan Politeknik Kuching Sarawak dalam Kalangan Pelajar

Nurul Nisa Binti Mohd Nasir[1, a]*, Herman Nordiadi Bin Abd Wahab[1, b]

**Abstract.** This study was conducted to survey students' assessment of PKS library facilities and to survey the use of the library among PKS students. Initial data collection was obtained by distributing questionnaires online. A total of 270 respondents were involved in this study which covers all departments found in PKSs. The results of the study show that students do not use the library optimally due to the revolution in the development of technology that has changed the style of searching for information among students. Accordingly, efforts to empower the library need to be intensified so that the role of the library as a center of knowledge remains relevant in the future.

***Keywords****: Library, Students, Use of Library Services*

# Kesesuaian Kurikulum Program Diploma Teknologi Senibina dengan Kehendak Industri daripada Perspektif Majikan

Muhamad Hanif bin Ibrahim

**Abstrak.** Diploma Teknologi Senibina merupakan satu program yang ditawarkan di Kolej Komuniti Sabak Bernam. Program ini berfokuskan kepada *Building Information Modeling* (BIM). Pengambilan pertama pelajar telah bermula pada Sesi November 2015. Sehingga kini, terdapat empat kohort graduan yang telah berjaya menamatkan pengajian bagi program ini iaitu pada Oktober 2017, Oktober 2018, Oktober 2019 dan Februari 2022. Objektif kajian ini adalah untuk mendapatkan perspektif majikan terhadap Kurikulum Program Diploma Teknologi Senibina (DTS). Kajian tinjauan deskriptif ini melibatkan pengumpulan data menggunakan soal selidik. 21 orang responden telah terlibat dalam kajian ini. Mereka terdiri daripada majikan dan penyelia pelajar semasa menjalani *Work Based Learning* (WBL) di organisasi mereka. Hasil dapatan kajian ini menunjukkan kurikulum Program Diploma Teknologi Senibina adalah menepati kehendak industri kerana tahap kebolehpasaran graduan adalah 100%. Rata-rata responden bersetuju ilmu dan kemahiran yang diajar di kolej adalah selari dengan yang diperlukan di tempat kerja.

***Keywords****: Architecture Technology, Building Information Modeling (BIM)*

# Perception Towards Electronic Exam Question Bank Record Keeping System

Nuredzan Zaludin, Dzulkipli Marasan, Azhar Abdul Hamid

**Abstract:** Electronic Exam Questions Bank Record Keeping System (E-Exam Questions Bank Record Keeping System) is a web-based system with security features such as authentication. This system could be used by lecturers or teachers in any institution or school to produce or write standard questions with answer schemes and then save them into a question bank or database for future references, like writing final exam questions, quizzes, tutorials, and others. This system allows registered users to view existing questions by course, create new questions with answer schemes, update existing questions and answers, remove unused questions and answers, search questions by specific keyword, print selected questions into printed format (pdf files) and give feedback or comments to this system for improvement. The main objective of this research is to get perceptions from the users regarding the usage of the E-Exam Questions Bank Record Keeping System. A quantitative method, that is, the questionnaire used as a research method to know user perceptions when using this system. Google form questionnaires link shared to 15 respondents to collect data from the respondents regarding their perceptions when using the system. The respondents are consists of polytechnic lecturers and teachers from Kuching and Mukah in Sarawak, Sabah, and Peninsular Malaysia which are from Johor, Negeri Sembilan, and Melaka. The findings show positive feedback from the respondents where the targeted users such as educators can easily access exam questions bank record keeping through an online web-based system when creating exam questions and assessments. The result shows that the E-Exam Record Keeping System can ease the burden faced by educators when creating exam questions.

***Keywords:*** *Assessment System, Automatic Evaluation, A Question Bank, Course Outcome*

# Persepsi Pelajar Terhadap Kelas Bersemuka Semasa Fasa Peralihan Pandemik Ke Endemik Covid 19

Herman Nordiadi Bin Abd Wahab, Nurul Nisa Binti Mohd Nasir

**Abstract.** This study was conducted to see the extent of students' readiness for face-to-face classes during the phase of transition from pandemic to endemic Covid 19 at Politeknik Kuching Sarawak (PKS). A total of 293 respondents were randomly selected to be used as an evaluation sample. For initial data collection, questionnaires were randomly distributed online to SME students. This study will focus on surveying the level of students' readiness in face-to-face classes and also surveying students' perceptions to continue face-to-face study sessions. The results of the study show that students' acceptance of the implementation of face-to-face teaching and learning sessions is at a moderate level. Factors of concern about being infected with Covid 19 and also the comfort of students relaxing with the online teaching and learning process contribute to this finding. Accordingly, SME management and lecturers must accept the challenge of conducting face-to-face classes in this endemic phase and at the same time strive to ensure effective teaching and learning processes to produce graduates who are holistic and competitive at the global job level.

***Keywords:*** *Perception, Teaching And Learning, Face To Face, Physical Class*

# Tinjauan Terhadap Pengurusan Emosi Dalam Kalangan Pelajar

Herman Nordiadi Bin Abd Wahab, Nurul Nisa Binti Mohd Nasir

**Abstract.** This study was conducted with the aim of surveying students' perceptions of the importance of emotional management in living life as a student at Polytechnic Kuching Sarawak (PKS). A total of 221 respondents were randomly selected from all the departments at Polytechnic Kuching Sarawak (PKS). The process of distributing the questionnaire to all the respondents involved was carried out online for the purpose of initial data collection. This study will examine students' perceptions of the importance of emotional management, students' understanding of managing emotions as well as students' awareness of maintaining mental health in their lives. The results of the study show that students' understanding of the importance of emotional management is high. The findings of the study also clearly show that students are able to manage their emotional and mental health in ensuring that they are always motivated to continue learning without fail.

***Kata Kunci:*** *Persepsi, Emosi, Pelajar, Belajar*

# The Development of Class Location Finder Application: Case Study of Politeknik Kuching Sarawak

Muhammad Firdaus Aminuddin, Helmi Abd Kadir, Muhd Nazmi Ismail

**Abstract.** The number of various types of navigation system applications has been increasing nowadays with the demand from users. The use of navigation system applications depends on the purpose of the product. There are quite several products available in the market such as location navigation, hiking routes, marine navigation, etc but for specific places' navigation is not available. All the above navigation system application uses the Global Navigation Satellite System (GNSS) to determine the location position while using the Geographic Information System (GIS) for the spatial and attribute data. This study focuses on developing a navigation application for navigating users to locate classes in Politeknik Kuching Sarawak. The targeted users for this study are students and lecturers as the main customers. The main components of this application are the integration of class location databases and open-source map features for route navigation. This study involved collecting the class accommodation details as attribute data in combining GIS with GNSS components. This study introduced a wide variety and diversity of navigation applications but only focused on locating classes at Politeknik Kuching Sarawak. To realize this type of navigation application, a well-planned methodology has been carried out. First, carried out the data acquisition and data preparation for the class coordinates and accommodations. Then, the application was developed using JotForm software. After that, the app installation link was shared with several respondents to test the app. The respondents will give their feedback through a distributed google form so that the developer can analyse the effectiveness of the application and will be able to improve the application update in the next version.

***Keywords****: Global Navigation Satellite System (GNSS), Geographic Information System (GIS), navigation application.*

# Development of Easy Tiling Trowel Box

Muhd Nazmi Ismail, Syahira Mohd Zayadi, Hisyarita Abd Wahid

**Abstract.** An easy tiling trowel box was developed to facilitate the installation of the tile. This tool is also used for finishing work in the building. Besides that, an educator can use this innovative product to teach finishing work because it is easy to show the real practice to the student. Typically, using this product, tile installation is done quickly without taking into precision using spirit level in every view. The safety aspect can be harmful to the occupants of every building that is built. Additionally, the use of mortar between insufficient tile pieces makes the distance between these tile pieces to be too close. This is because tile craftsmen usually take easy steps for fast work and want to save costs. This project presents a time frame of comparison between the conventional and the modern method. Usually, the floor tile installation process is a finishing work done manually and described in detail including floor tile flow installation, mortar thickness, pattern tile installation, equipment, installation defects, cost, and the labour rate. Floor tile installation cost analysis is based on data obtained in a construction project. As a result, the performance of the Easy Tiling Trowel box in applying the adhesives on the floor effectively and evenly this product was successfully examined to facilitate tile installation work in a shorter time than conventional methods.

***Keywords:*** *Easy tiling trowel box, conventional, innovation, installation, and modern method*

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# *APPRECIATION*

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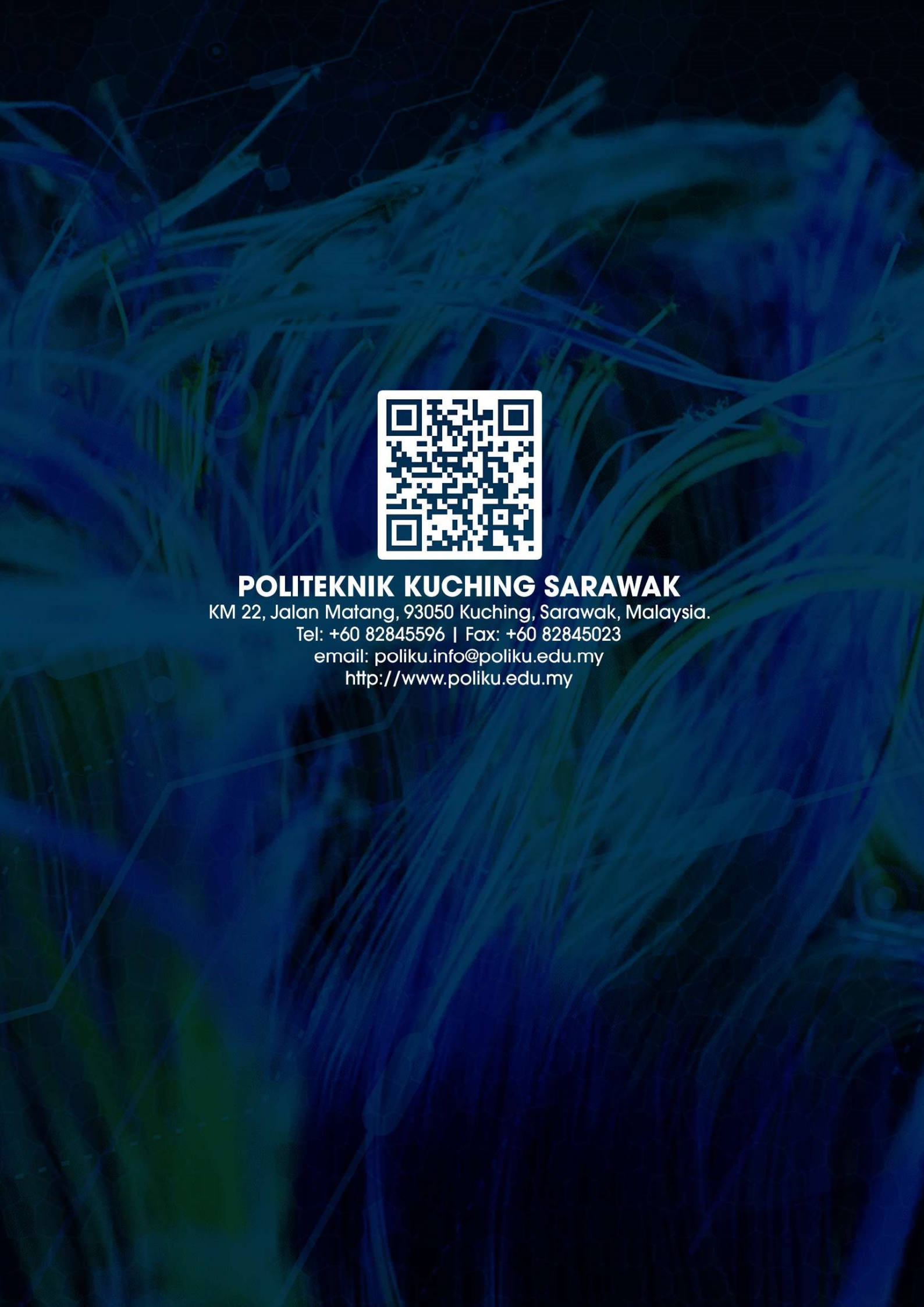

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