POLITEKNIK MALAYSIA

KEMENTERIAN PENGAJIAN TINGGI

KOLEJ KOMUNITI MALAYSIA

PROGRAMME BOOK

NRICON

NATIONAL RESEARCH AND INNOVATION CONFERENCE

Borneo Innovation Festival 2020

BIF 20

PERINGKAT KEBANGSAAN

20th – 22th October 2020

Politeknik Kuching Sarawak

Quality Research Leads to Exploration in Knowledge: Success Path in IR4

TABLE OF CONTENT

WELCOME MESSAGE

Assalamualaikum Warahmatullahi Wabarakatuh dan Salam Sejahtera.

It is indeed an honour for me to officiate the National Research and Innovation Conference 2020 (NRICon2020) and Borneo Innovation Festival 2020 (BIF2020) that is being held at Politeknik Kuching Sarawak.

NRICon2020 and BIF2020 provides the platform for participants to showcase their abilities in research and innovations. This conference is part and parcel of the sixth strategic thrust of Politeknik Malaysia which is to cultivate research, innovation and commercialization among the community college and polytechnic community. It is sincerely hope that participants of NRICon2020 and BIF2020 will be able to strengthen their knowledge and technical skills through such endeavour.

My sincere thanks to the management, lecturers, staff and students of Politeknik Kuching Sarawak for making NRICon2020 and BIF2020 a big success.

Thank you.

DR ISHAK BIN MOHAMAD
DIRECTOR
CENTRE FOR RESEARCH AND INNOVATION
DEPARTMENT OF POLYTECHNIC AND
COMMUNITY COLLEGE EDUCATION

WELCOME MESSAGE

On behalf of Politeknik Kuching Sarawak, I am pleased to welcome all presenters and participants to National Research and Innovation Conference 2020 (NRICON2020) and Borneo Innovation Festival 2020 (BIF2020). Thank you very much for the continuous support.

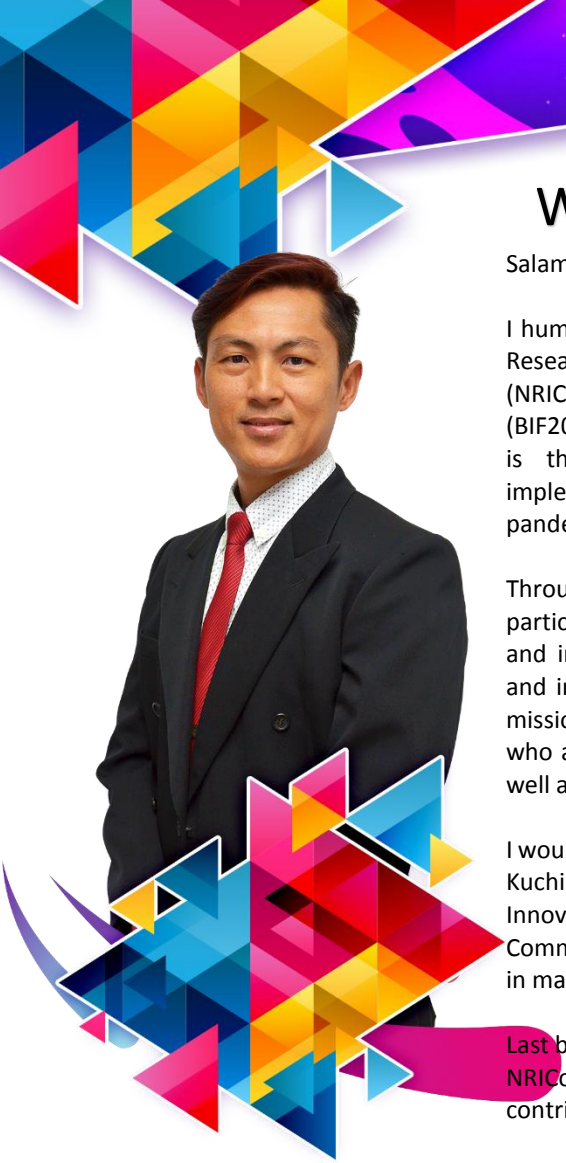
I hope that NRICon and BIF will continue to be a platform for us to share knowledge in the field of research and innovation. As TVET educators, we are not only focusing on teaching and learning process but also need to explore research areas to improve our education system in order to provide effective learning to our students. Let us continue to be active in the field of research and innovation to become productive and proactive educators. We must also inculcate this culture among our students so that they are interested in engaging in research as well.

I am very proud of the cooperation and efforts shown by all committee members of NRICon2020 and BIF2020 in ensuring that this conference runs smoothly.

Congratulations!

Lastly, may this conference be enriching, fruitful and memorable.

JAMALIAH BINTI AHMAD
DIRECTOR
POLITEKNIK KUCHING SARAWAK



WELCOME MESSAGE

Salam Poliku and Salam Sejahtera.

I humbly welcome all participants to the National Research and Innovation Conference 2020 (NRICon2020) and Borneo Innovation Festival 2020 (BIF2020) at Politeknik Kuching Sarawak (PKS). This is the first virtual NRICon and BIF being implemented due to the global Covid-19 pandemic.

Through this NRICon2020 and BIF2020 platform, participants will be able to present their research and innovations. This will harness their research and innovations skills, in line with the vision and mission of Politeknik Malaysia to create graduates who are well rounded in academic, innovation as well as having the entrepreneur spirit.

I would like to thank the management of Politeknik Kuching Sarawak and the Centre for Research and Innovation, Department of Polytechnic and Community College Education for their full support in making NRICon2020 a big success.

Last but not least, a big thanks to all participants of NRICon2020 and BIF2020 for your invaluable contributions.

Thank you.

TS. LIM CHE CHIEN
PROGRAMME DIRECTOR
NATIONAL RESEARCH AND INNOVATION CONFERENCE 2020 (NRICON2020)
BORNEO INNOVATION FESTIVAL 2020 (BIF2020)

ABOUT THE CONFERENCE

BACKGROUND OF NRICon

National Research and Innovation Conference (NRICon) organized by Politeknik Kuching Sarawak (PKS) will be held on 20-21 October 2020 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

BACKGROUND OF BIF

Research, Innovation and Commercialization Unit (UPIK), Politeknik Kuching Sarawak together with UPIK Borneo zone has planned the implementation of the Borneo Innovation Festival 2020 (BIF2020) competition during the implementation period of the Covid19 Movement Control Order (PKP). The implementation of BIF 2020 is in line with the efforts of the Research and Innovation Centre (PPI), Polytechnic and Community College Education Department (JPPKK) to ensure that initiatives in promoting innovation can continue to be implemented even during the Covid19 Movement Control Order (PKP). Borneo Innovation Festival 2020 (BIF2020) is a national level innovation project competition open to all interested institutions, agencies, and individuals. The creation of this BIF comes from the Betong Innovation Festival organized by the Politeknik Metro Betong (PMBS) in 2017 and 2018. Among the founders of this BIF is Deputy Director of Academic PMBS, Mr. Mohd Zamre Abdul Rahman. In 2019, Betong Innovation Festival was rebranded to the Borneo Innovation Festival and was the first national platform created in Borneo for innovators to display their innovative products. The first Borneo Innovation Festival event was held in Politeknik Mukah Sarawak on 9 to 10 March 2019.

LIST OF COMPETITION (CLUSTER):

- CLUSTER 1 - Construction & Material / Built Environment Design & Interior Design
- CLUSTER 2 - Machine, Equipment & Manufacturing Process
- CLUSTER 3 - ICT & Multimedia
- CLUSTER 4 - Electric, Electronics & Telecommunication
- CLUSTER 5 - Green Product / Agriculture / Environment / Renewable Energy
- CLUSTER 6 - Teaching & Learning

PROGRAMME SCHEDULE

National Research and Innovation Conference (NRICon2020)

TUESDAY (20TH OCTOBER 2020)

0800 - 0845	Online Registration by Presenters and Participants (Morning Session)
0850 - 0900	Welcoming Speech by the Director of Politeknik Kuching Sarawak
0900 - 1240	Online Presentations (Morning Session)
1240 - 1325	Online Registration by Presenters and Participants (Evening Session)
1330 - 1645	Online Presentations (Evening Session)

Borneo Innovation Festival (BIF2020)

WEDNESDAY (21 OCTOBER 2020)

0900	Parallel session 1: Pitching Online (Online Video Presentation), Top 5 of each class (1-3)
	Parallel session 2: Pitching Online (Online Video Presentation), Top 5 of each class (4-6)
1700	Session Ends

THURSDAY (22 OCTOBER 2020)

1400	NRICon2020 best paper announcement BIF2020 Top 5 result announcement https://www.facebook.com/politeknik.kuching.sarawak/

PARALLEL SESSIONS NRICon

National Research and Innovation Conference (NRICon2020)
20 October 2020

Session 1 (Mechanical Engineering)
Chair: Mr. Alfred Valentine Bakrin

Time	0900-0915	0920-0935	0940-0955
Presentation Topic	Industrial Case Study: Design and Development of a Superbike Paddock Stand	Cooling of Photovoltaic Module: A Review	Development of Decision Support System Via Ergonomics Approach for Driving Fatigue Detection
Author(s)	Zikri bin Zakaria, Mohd Nor Hakim bin Ab Wahab & Mohd Fakhrur Razi Misran	Muhammad Zahid bin Mainur, Mohd Fakhrur Razi Misran & Mohd Noor bin Jusoh	Mohammad Firdaus Bin Ani, Seri Rahayu Kamat & Minoru Fukumi
Time	**1000-1015**	**1020-1035**	**1040-1055**
Presentation Topic	Simulation of various resonators as Viscometer for engine oils	Integration of Automation Technology in Food Industry: A Case Study	Analysis On Aerodynamic Design Of Vehicle For Body Modification Of Perodua Myvi
Author(s)	Tze Ching Ong, Andy Buja, Dino Sabastian Ak Mawang, Chee Kiong Sia, Yee See Khee & Pauline Ong	Muhamad Zuraidi bin Rohani, Mohd Nor Hakim bin Ab Wahab & Muhammad Zahid bin Mainur	Mohd Fakrul Razi Bin Jamaluddin, Mohd Saiful bin Saleh & Anorrasyidi Bin Anwar
Time	**1100-1115**	**1120-1135**	**1140-1155**
Presentation Topic	Investigations of Complimentary Split Ring Resonator (CSSR) as Viscometer for engine oils	Applying Value Stream Mapping For Process Improvement: An SME Case Study	Human Footstep As Emerged Harvesting Energy through Piezoelectric Sensors
Author(s)	Andy Anak Buja, Tze Ching Ong, Jane Daniela Anak Mugan, Chee Kiong Sia, Yee See Khee & Pauline Ong	Jason William Vitales & Joan Wang Yee Juen	Tan Poh Chuar

Session 2 (Mechanical Engineering)
Chair: Mdm. Ann Anak Report

Time	0900-0915	0920-0935	0940-0955
Presentation Topic	Effect Of Cutting Parameters On Surface Roughness In Lathe Machining Process	The Simulation Of Aerodynamic Analysis On Different Ground Clearance Of Passenger Car	Development of Suction Head Pressure for Spent Garnet
Author(s)	Mohd Sufriansyah Bin Mansoor	Mohd Saiful Bin Saleh, Mohd Fakrul Razi Bin Jamaluddin & Anorrasyidi Bin Anwar	Yueh Seng Chew, Tze Ching Ong & Andy Buja
Time	**1000-1015**	**1020-1035**	**1040-1055**
Presentation Topic	Optimization of Process Parameters of Abrasive Water Jet Machine on Surface Roughness using Modelling Approach	Smart Sweeper Machine	Kesan Gas Pelindung Dalam Kimpalan Arka Logam Terhadap Mikrostruktur Keluli Tahan Karat
Author(s)	Saipul Azmi bin Mohd Hashim, Nurul Syarafina binti Sholahuddin & Jusoh bin Anuar	Muhamad Syafiq bin Zainun, Nur Raihana binti Sukri & Intan Liyana binti Ramli	Saifuldin Abdul Jalil, Liyana Norizan & Mariyam Jameelah Ghazali
Time	**1100-1115**	**1120-1135**	**1140-1155**
Presentation Topic	Effect of Vertical Reorientation of The Gating System on The Quality of An Investment Cast Aluminium Alloy	Design and Development of the Aquaponics Monitoring System	Kajian Semula Kesan Perubahan Arus Bagi Proses Pemesinan Edm Die-Sinking Terhadap Kadar Penyingkiran Bahan (MRR)
Author(s)	Zikri bin Zakaria, Norazira Binti Selamat & Mohd Fakhrur Razi Misran	Limi Chong & Ida Rosmanizan Abdullah	Mohamad Najib Bin Mohamad Zain, Wan Siti Fatimah Bt AB Rahman & Ahmad Nasir Bin Mohamed Noor
Time	**1200-1215**		
Presentation Topic	Modern tools for hill paddy cultivation process		
Author(s)	Chicha Bagu & Hatimi Mudin		

Session 3 (Mechanical and Civil Engineering)
Chair: Mdm. Nur Syafiqa Aqiera binti Abdullah

Time	0900-0915	0920-0935	0940-0955
Presentation Topic	Vibrational Energy Absorption Characteristic across Hydrostatic Bearing on Rotor	Kajian Klinkers Sawit Sebagai Bahan Gantian Pasir Dalam Penghasilan Bata	Concrete Beam Studies Using Etlingera Coccinea Fibre
Author(s)	T.Seperamaniam, Ahmady Bin Solong & Mohamad Khirudin Bin Amdan	Chung Yin Kiong, Cyril Bin Buin & Schmeicell Sabinus	Jim J. Jinsin, Crystal Estherlie Robert & Sharon Stephen
Time	**1000-1015**	**1020-1035**	**1040-1055**
Presentation Topic	Kajian Penstabilan Tanah Lembut Dengan Campuran Abu Rumbia	Polyconcrete By Using Recycled Styrofoam As Aggregate Replacement	Thermal Comfort For Student Residential In Conventional Building
Author(s)	Azrina Binti Madihi, Mohammad Pauzi Bin Mokhtar & Siti Rozana Binti Romali	Mohd Hazry Bin Ismail & Ledia Anak Angul	Norain Ali, Ayub Abdullah & Redzuan Safri Abdul Rahman
Time	**1100-1115**	**1120-1135**	**1140-1155**
Presentation Topic	Kajian Punca Kelewatan Projek Cadangan Pengoperasian Fast Track Institut Aminuddin Baki (IAB) Cawangan Sabah Mengunakan Kabin Di Atas Kampus IAB Menggatal, Kota Kinabalu, Sabah	Infrared Thermography For Building Inspection At Bangunan Sultan Iskandar	Konsep Ruang Serambi Rumah Tradisional Melayu Negeri Sembilan Dalam Mendidik Adab Penghuni Ruang.
Author(s)	Renny Joseph & Rukinah Samuing	Victor Teng Kok Leong & Ho Yoong Chow	Siti Fatimah Tuzzahrah Bt Hj Abd Latif, Roslina Bt. Muda & Dr. Kamarul Afizi bin Kosman

Session 4 (Civil Engineering)
Chair: Mr. Wong Tee Wei

Time	0900-0915	0920-0935	0940-0955
Presentation Topic	Effect of Number of Screws on Connection Strength and Mode of Failure in Cold-Formed Steel Hybrid Connection	Kajian Keberkesanan Biji Asam Jawa dan Kulit Pisang sebagai Agen Koagulan	Potensi Penggunaan Karbon Teraktif Dalam Melestarikan Sungai Melaka
Author(s)	Rackford Bong & Falinah Misol	Farihah Mansor & Ernie binti Zulkifli	Shahrun Nazida Salleh, Erita Mazwin Mazlan & Mohamad Azwan Ikhwat
Time	**1000-1015**	**1020-1035**	**1040-1055**
Presentation Topic	Portable Rainfall Simulation Model	Improvement of the Shear Strength of Clay Soil Using Rice Husk Ash (RHA)	Comparison of Air Flow Characteristic in Welding Workshop Using Different Layout Design
Author(s)	Zainap Binti Haji Lamat & Yuhani Binti Jimian	Mohammad Pauzi Bin Mokhtar, Azrina Bt Madihi & Siti Rozana Binti Romali	Sezee Gorotop & Chen Kok Min
Time	**1100-1115**	**1120-1135**	**1140-1155**
Presentation Topic	Factors Influencing Construction Waste Generation in Selected Building Sites in Kuching, Sarawak	Setting Out For Building Foundation By Using Coordinate Method	Establish Ground Control Points Using Topcon Hyper Vr By Real-Time Kinematic Method
Author(s)	Flora Anak Albert Daud & Sezee binti Gorotop	Lee Kong Fah, Tiong Hua Sang & Pang Siow Juen	Lee Kong Fah, Stuart Otto Anak Wilson Munan & Muhammad Firdaus Bin Aminuddin
Time	**1200-1215**	**1220-1235**	
Presentation Topic	The Potential of Barley as Adhesive in Particleboard	A Study on Shear Strength of Marine Soil by Using Waste Paper Sludge as an Additive Material	
Author(s)	Emilia Enggoh, Edi Shahril Bin Kamal & Adrian Ang Angkal	Farihah Mansor & Daliela Ishamuddin	

Session 5 (Electrical & Electronic Engineering)
Chair: Mr. Maxwell March Joseph

Time	0900-0915	0920-0935	0940-0955
Presentation Topic	Electric Wheelchair Controlled By Joystick And Android/Ios Smartphone	Swiftlet Housing – Towards Enabling Internet of Thing (IoT) Based Monitoring System	Development of temperature display Using Arduino Uno Microcontroller
Author(s)	Haidie bin Inun, Caroline Dame Siagian, Shalizan bin Kadir, Benny Azmi bin Mohd Zamlan & Syahlan Abd Halim	Dyg Khayrunsalihaty Bariyyah bt Abang Othman & Abdul Yazid bin Ibrahim	Nor Asiah Mat Yunus, Juliana Nawawi & Muliadi Wahid
Time	**1000-1015**	**1020-1035**	**1040-1055**
Presentation Topic	Wideband Pentagonal Shaped Patch Antenna for 3.5 GHz WiMAX and 5.2 GHz WLAN Application	Auto-PT Machine for Bean Sprouts Production	Maximal Ratio Combiner in Time-Varying Channel Amplify-and-Forward Cooperative Communication Network
Author(s)	Nornikman Hassan, Amier Hafizun Ab Rashid & Zahriladha Zakaria	Muhammad Arid bin Abdulahim, Abdul Halim bin Ruseh & Mohd Zaki bin Mohd Ismail	Sylvia Ong Ai Ling
Time	**1100-1115**	**1120-1135**	**1140-1155**
Presentation Topic	The Implementation and Calibration a Low Cost Propeller Type Current Meter in the Laboratory	In-situ experimental testing of a magnetic pickup for measurement of rotational speed in a hydrokinetic turbine application	Production Of Multipurpose Vacuum Cleaner Extension Tank (MVCET)
Author(s)	Diana Ringgau & Martin Anyi	Diana Ringgau	Petrus Julini Anak Goel, Ledia Anak Angul & Victor Teng Kok Leong
Time	**1200-1215**	**1220-1235**	
Presentation Topic	Multipurpose Vacuum Cleaner Extension Tank (MVCET) Suction Test	Design Of Millimeter-Wave Microwave Microstrip Bandpass Filter	
Author(s)	Petrus Julini Anak Goel & Ledia Anak Angul	M.Aly Rajaie Halim, Zahidi Zamzuri & Kamaruddin Kamit	

Session 6 (Electrical & Electronic Engineering and Information Technology)
Chair: Ms. Nurul Hanani binti Hasan

Time	1330-1345	1350-1405	1410-1425
Presentation Topic	Sistem Pengesan Dan Penyedut Asap Berasaskan IoT	IOT-based Mobile Solar Power Monitoring Station	NDVI Plant Health Monitoring For Pepper Vines
Author(s)	Lian Ai Fang, Nurul Aziyana Binti Kamaruddin & Hasliza Binti A. Rahim @ Abd. Rahman	Phillips Dharmaraj, Zinvi Fu, Farah Abdul Manap & Julie Shaleena Jany	Kedung Fletcher, Wahidah Binti Anuar & Razeli Bin Sani
Time	**1430-1445**	**1450-1505**	**1510-1525**
Presentation Topic	Data Dissemination Performance Of Publish/Subscribe Approach In Opportunistic Network	Development of Walker Using Visual Cue with Monitoring Application Based On Internet of Things (IoT) For Parkinsonian Gait	Users' Intention in Developing Internet of Things in Education Context using Technology Acceptance Model: A Case Study
Author(s)	Sanjay Charles Albert	Nur Aliah Binti Rozman & Zunuwanas Bin Mohamad	Rafidah Binti Ab Rahman and Rafizah Binti Ab Rahman & Azra Binti Mohammad Amirruddin
Time	**1530-1545**	**1550-1605**	**1610-1625**
Presentation Topic	Evaluation of the Use of Information Security App for Information Security course (DFS30023) Among Semester 4 Students of JTMK Mersing Polytechnic	Problem Solving In Information System Development Environment Using Triz Inventive Principles	Literasi Aplikasi Perisian Komputer Dalam Kalangan Pelajar. Kajian Empirikal Di Politeknik Kota Kinabalu
Author(s)	Zulkifli Bin Sarji, Mohd Azuwan Efendy Bin Mail & Munirah Binti Ab Rahman	Esstree Bin Ishak, Norhaziah Md Salleh & Sulaiman Sarkawi	Heather Valarie Benilus, Noorain Imbug & Rusli bin Amir

Session 7 (Information Technology and Social Sciences)
Chair: Mr. Marcus Kho Gee Whai

Time	1330-1345	1350-1405	1410-1425
Presentation Topic	Effect of Gingerization process in untreated used cooking oil and additional of Naphthalene as a stabilizer in produced biodiesel on pH value and viscosity	Challenges Encountered in Implementing English Language Reforms in Miri Secondary Schools	Error Analysis Of The Written English Essays Of Diploma Students In Kuching, Sarawak
Author(s)	Zainal Abiddin Ahmad, Muhamad Nazri Abu Shah & Hatta Azuwar Dahlan	Su Hui Tze & Ying Leh Ling	Vetty Ng, Ying Leh Ling & Marcus Kho Gee Whai
Time	**1430-1445**	**1450-1505**	**1510-1525**
Presentation Topic	Metacognitive Reading Strategies Of Low Proficiency Esl Students In Malaysia	Students' Perceptions on the Implementation of Task-Based Language Learning in Communicative English Classes at Politeknik Kuching Sarawak	Communication Apprehension among MUET Candidates in Politeknik Mersing
Author(s)	Mornita Deri	Wong Tee Wei	Athirah binti Ahmad & Baizura binti Hasni
Time	**1530-1545**	**1550-1605**	**1610-1625**
Presentation Topic	Strands of Tongue: Code Switching in the Multilingual ESL Classroom	Keberkesanan Alat Bantu Mengajar Easy Bend Dalam Amali Pendawaian Elektrik Fasa Tunggal Di Kolej Komuniti Beaufort	Kondisi Tempat Kerja Di Ladang Kelapa Sawit FELDA UMAS, Tawau, Sabah Dari Perspektif Pekerja
Author(s)	Johan Severinus Tati, Suthagar Narasuman, PhD & Jane Kon Ling Wong, PhD	Felani Stefanzie Choe, Nuratika Asyurah Binti Abdullah & Christoper Bin Asok	Anbukkarasu Paramasivam, Rusli Bin Amir & Dalinah Banting
Time	**1630-1645**		
Presentation Topic	Success Factors in Mathematics Achievement in Polytechnic by Gender		
Author(s)	Mohd. Rizal Bin Abdul Raman & Ying-Leh Ling		

Session 8 (Electrical & Electronic Engineering)
Chair: Puan Zainab binti Mohamad Ahmad

Time	1330-1345	1350-1405	1410-1425
Presentation Topic	Persepsi Pelajar Kejuruteraan Mekanikal Terhadap Kaedah Pembelajaran Online Berasaskan OBL Di Politeknik Kuching Sarawak	Tahap Prestasi dan Pencapaian Graduan Sijil Pemasangan Elektrik Kolej Komuniti Beaufort, Sabah	Penggunaan Peta Minda Meningkatkan Daya Mengingat Dan Minat Mengulang Kaji Bagi Kursus Prinsip Pengurusan
Author(s)	Hasanul Hadi Bin M. Saleh & Rosniza Binti Ramli	Liaw Yin Huat, Siti Norazian binti Miskam & Kamarul Bahrin bin Abdul Mutalib	Faridah binti Che In & Suhana Binti Matlin
Time	**1430-1445**	**1450-1505**	**1510-1525**
Presentation Topic	Persepsi Pelajar Terhadap Penggunaan Hijrah Rasulullah Education Board Game (Hireg) Sebagai Bahan Pembelajaran Kursus Komunikasi Dan Penyiaran Islam	Keberkesanan Gamifikasi MY ARC Game (MAG) Terhadap Pelajar Program Sijil Teknologi Elektrik Di Kolej Komuniti Beaufort	Kepentingan Kemudahan Teknologi dan Motivasi Membentuk Kesedaran Pelajar dalam Pembelajaran Digital
Author(s)	Mohamad Faizal bin Ahmat, Wida Yanti binti Mohammad Zen Umar & Mohd Faizal bin Mat Pesa	Felani Stefanzie Choe, Nuratika Asyurah Binti Abdullah & Christoper Bin Asok	Nur Syarafina Binti Abdul Rahman, Zainal Fitri bin Mohd Zolkifli & Ling Ying Leh
Time	**1530-1545**	**1550-1605**	**1610-1625**
Presentation Topic	Pengaruh Sikap Pemandu Terhadap Keterlibatan Dalam Kemalangan Di Bulatan Teluk Sepanggar	Iklim Organisasi dan Motivasi Kerja: Satu Kajian Korelasi dalam Institusi Pendidikan TVET	Tahap Kesediaan Pembelajaran Atas Talian Pelajar Kolej Komuniti Beaufort (KKBS)
Author(s)	Suzan Binti Impak	Bibie Anak Neo & Ling Ying Leh	Siti Norazian binti Miskam, Liaw Yin Huat & Zulfadhli bin Osman
Time	**1630-1645**		
Presentation Topic	Peranan Bahan Bantu Mengajar Dan Persekitaran Maklum Balas Dalam Meningkatkan Kualiti Pembelajaran Pelajar		
Author(s)	Charles Muling Libau & Ling Ying Leh		

Session 9 (Social Sciences)
Chair: Mr. Andy Anak Dan

Time	1330-1345	1350-1405	1410-1425
Presentation Topic	Analisis Graduan Dan Bidang Pekerjaan: Politeknik Kuching Sarawak (Pks) 2017-2019	The Effectiveness of "HABA" Technique in Accrual Accounting Adjustment: Case of Polytechnics Mukah	E-Learning During Covid-19 Pandemic: The Case Of College Community Sibu Students
Author(s)	Noorhasmah Binti Yahya, Suraini Mat Abu & Sabrina Binti Milan	Shazrin Eqwal Bin Sulaiman & Adi Jaya Bin Adam	Dylinda Ak Andrew Anem
Time	**1430-1445**	**1450-1505**	**1510-1525**
Presentation Topic	Pelaksanaan Penilaian Dan Pemarkahan Aktiviti Amali Kursus Rangkaian Menggunakan Aplikasi Activity Grader	CIDOS usage among students of Diploma in Geomatics: Empowering Web-Based Learning in Politeknik Kuching Sarawak	Student Behaviour Motivation of Physical Environment during Practical Work
Author(s)	Mohd Adil Bin Mat Ti @ Mokti & Nor Hanani Binti Mohd Yusoff	Mohamed Yusup bin Mohamad Yackub & Joshua anak Ribi	Nurazura Rali, Redzuan Safri Abdul Rahman & Mardiana Mohammad
Time	**1530-1545**	**1550-1605**	
Presentation Topic	The Effect Of Psychological Inertia On Students Ability In Problem Solving	Potensi Pembangunan Ekopelancongan Rumah Rakit Di Kampung Paroh, Kuching	
Author(s)	Esstree Bin Ishak, Norhaziah Md Salleh & Sulaiman Sarkawi	Zainah binti Seman, Zainal Abiddin bin Ahmad & Sharifah Mahani binti Syid Assimie	

Session 10 (Social Sciences)
Chair: Encik Shahidan bin Shafie

Time	1330-1345	1350-1405	1410-1425
Presentation Topic	Pencapaian Domain Pembelajaran Kitchen Operation Dalam Program Pembelajaran Berasaskan Kerja (PBK)	Gaya Pengajaran Pensyarah Dan Hubungannya Dengan Pencapaian Pelajar Dalam Kursus Matematik Kejuruteraan	Tahap Kepuasan Majikan Terhadap Prestasi Latihan Industri Pelajar Kolej Komuniti Beaufort, Sabah
Author(s)	Muzaffar Bin Mohamed Sidin, Noor Intan Binti Tahir & Mohd Farid Bin Alias	Siti Huzaima Binti Jamri & Hetiyanah Binti Jatjo	Liaw Yin Huat, Siti Norazian binti Miskam & Azlenah binti Mohd Sen
Time	**1430-1445**	**1450-1505**	**1510-1525**
Presentation Topic	Faktor Pendorong Kemasukan Pelajar Baharu ke Jabatan Kejuruteraan Awam, Politeknik Kota Kinabalu	Kesan Bekerja Sambil Belajar Di Kalangan Pelajar Kursus Secara Sambilan Di Politeknik Sultan Haji Ahmad Shah	Perbezaan Sikap Dan Minat Guru Dalam Penggunaan Bahan Media Elektronik Mengikut Faktor Demografi
Author(s)	Norshilla binti Abdu Rasim	Azimah binti Jusoh @ Alias, Anis Salwani bt Abu Bakar & Nor Hamiza binti Ghazali	Sylvester Gindan & Precilla Gindan
Time	**1530-1545**	**1550-1605**	**1610-1625**
Presentation Topic	Kajian Terhadap Penerimaan Bidang Keusahawanan Dalam Kalangan Pelajar Semester 2 hingga 5 di Politeknik METrO Betong Sarawak	Kesan Penggunaan Aplikasi WARIS Terhadap Sikap, Motivasi dan Kecekapan Kendiri Pelajar Dalam Mempelajari Warisan Sejarah	Pembangunan dan Pelaksanaan Sistem Rakaman Pengajaran di Politeknik Ungku Omar
Author(s)	Siti Hajar binti Arani	Ab Aziz Ikhwan Ab Wahab, Siti Farahiah Mohamed & Mohd Fadli Ahdon	Mohd Assidiq Bin Che Ahmad, Mohd Amirul Helmi Bin Ismail & Mohd Adil Bin Mat Ti @ Mokti
Time	**1630-1645**		
Author(s)	Tahap Keberkesanan Penggunaan Smart InfoBoard: PC Components (SIPC) sebagai Alat Bantu Mengajar		
Author(s)	Nor Aznira Binti Yusoff & Melati Binti Sabtu		

BIF2020 PARTICIPATIONS

1. Construction & Material/ Built Environment Design & interior Design

BIL.	ID BIF	NAMA PRODUK DAN PESERTA	INSTITUSI
1.	BIF20201081	**TILING TROWEL TOOLS** Mohd Firhan Bin Anuar Mohd Hafiz Bin Hussin Mohamad Haizal Bin Ismail Zainal Bin Ab. Rahman	Politeknik Port Dickson
2.	BIF20201093	**AUGMENTED REALITY: A STEP FORWARD IN ARCHITECTURE PROJECT PRESENTATION** Sarvinder Singh A/L Hacharam Singh Muhammad Syahmi Bin Mohd Shah Ahmad Faiz Bin Saidin	Politeknik Sultan Haji Ahmad Shah
3.	BIF20201099	**AR LIFTER** Shahrizal Bin Shabuddin Nazmiah Binti Nawi Normala Binti Sulliaman Amirulrashid Bin Mus	Politeknik Kuching Sarawak
4.	BIF20201101	**TRAFFIC CONTROLLER OR FLAGMAN** Tang Hing Kwong Lim Che Chien Chai Teck Jung Ainnul Ashraf Bin Saadon	Politeknik Kuching Sarawak
5.	BIF20201124	**FOPRO TABLE** Norhayati binti Abd. Wahab @ Dul Ahad Fitri Liyana bt Abdul Salam Amirah Dayana binti Ramlee Mohd Yazid bin Mohd Amin	Politeknik Mukah, Sarawak
6.	BIF20201152	**PLASTIC BOTTLES IN BITUMEN MIXTURE** Munirah Binti Dawi Saifuddin Azrina BInti Madihi Siti Rozana Binti Romali Mohammad Pauzi Bin Mokhtar	Politeknik Kuching Sarawak

7.	BIF20201184	**PREDICTION OF URBAN GREEN SPACE LANDSCAPE STRUCTURE FOR SUSTAINABLE PLANNING** Dr. Amal Najihah Binti Muhamad Nor Prof. Madya Ts. Dr. Mohamad Faiz Mohd Amin Hasifah Binti Abdul Aziz Dr. Muhamad Azahar Abas	Universiti Malaysia Kelantan

2. Machine, Equipment & Manufacturing Process

BIL.	ID BIF	NAMA PRODUK DAN PESERTA	INSTITUSI
1.	BIF20201034	**A NEW MOTORIZED CHAIR CARRIER** Dr. Chen Wong Keong Semon Anak Chendang Alex Timson Anak Albert	Politeknik Mukah
2.	BIF20201049	**DENTURE BOX** Mohd Farid Rahat Dr Shafina Binti Mohd Nor Dr Huda Adilah Binti Ali	Kolej Komuniti Rompin
3.	BIF20201057	**DEVELOPMENT OF ABRASIVE RECYCLING SYSTEM FOR WATERJET CUTTING INDUSTRY** Ho Rui Jin Andy anak Buja Ong Tze Ching Chew Yueh Seng	Politeknik Kuching Sarawak
4.	BIF20201073	**INOVASI PENGUNCI BINDU DI BENGKEL MESIN JABATAN KEJURUTERAAN MEKANIKAL PKS** Mohamad Najib Bin Mohamad Zain Ahmad Nasir Bin Mohamed Noor Muhamad Zuraidi Bin Rohani Saifuldin B. Abdul Jalil	Politeknik Kuching Sarawak
5.	BIF20201089	**MULTIPLE SLICER AND FRYER MACHINE** Nor Hamidah Bt Yatim Nor Anis Amira Binti Mohd Razali Muhamad Harith Bin Abdul Hamid Safwanah Binti Shaffie	Politeknik Ungku Omar

6.	BIF20201139	**AN IMPROVEMENT PROCESS OF HALWA MANIS TERUNG DAYAK : LEAD TIME REDUCTION AND ADDING PRODUCT COMMERCIAL VALUE** Noorhafizah Bt Azali Nooraflin Afiq Bin Rosli Steward Laue Anak Ronis Nur Adlina Athirah Bt Yusop Han	Politeknik Kuching Sarawak
7.	BIF20201147	**2 PIECE MOULD** Ts. Ida Rosmanizan binti Abdullah Limi Chong Farah binti Abdul Manap	Politeknik Kota Kinabalu
8.	BIF20201148	**KERETA SORONG KANVAS** Johari Bin Kusai Azreen Bin Abdul Malek Nur Azreen Bin Rosdin @ Azman Nur Didi Aqilah Binti Rudi	Politeknik Mukah
9.	BIF20201179	**MiCROBOT WITH MULTIPLE SENSORS FOR TRACING LINE ROBOT** Julkifli Awang Besar Ts. Dr. Jason William Vitales Magdalen Benjamin	Politeknik Kota Kinabalu
10.	BIF20201181	**A NOVEL METHOD FOR HYGIENIC PROCESSING OF ETAK SALAI (HYPES)** Dr. AWENG a/l EH RAK Dr. Suganthi Appalasamy Bibi Zafirah Zaki Sharifah Aisyah binti Syed Omar	Universiti Malaysia Kelantan
11.	BIF20201185	**INNOVATIVE DESIGN OF SUBLIMATION PRINTING MACHINE** Dr. Prof. Madya Dr. Mohamad Najmi Masri Ts. Dr. Sarizam Mamat Ts. Dr. Mazlan Mohamed Prof. Madya Dr. Mahani Yusoff	Universiti Malaysia Kelantan
12.	BIF20201193	**UMK VISS** Dr. Sarizam Bin Mamat Dr. Abdul Hafidz Bin Yusoff	Universiti Malaysia Kelantan

3. ICT & Multimedia

BIL.	ID BIF	NAMA PRODUK DAN PESERTA	INSTITUSI
1.	BIF20201015	**LOCKTIFY** Ts. Marlina Binti Abdul Manaf Bryner Lee Young Helary Bin Laurine Ting Lik Siong	Politeknik Kuching Sarawak
2.	BIF20201017	**SMART SOLAH DIGITAL SIGNAGE (SSDS)** Mohd Farid Bin Rahat Halim Bin Paimun Ayubkhan Bin Abdul Kadir	Kolej Komuniti Rompin
3.	BIF20201036	**A NEW GROUP TO DO LIST AND MONETARY MANAGEMENT SYSTEM (IDO$$)** Dr. Chen Wong Keong Bong Siaw Wee Diana Anak Ringgau	Politeknik Mukah
4.	BIF20201059	**e-UPKKS** Ezlina Binti Mohamad Esa Nazihan Binti Aziziuddin Anita A/P Supramaniam	Kolej Komuniti Segamat
5.	BIF20201070	**IOT MANAGEMENT SYSTEMS** Mohammad Fardillah Bin Wahi Noraziah Binti Abu Bakar Khawarizmi Rafie Bin Tahir	Politeknik Mukah Sarawak
6.	BIF20201077	**SISTEM eZAKAT PUO** Ammar Badruddin Bin Romli Amir Fariz Bin Che Man Afifah Nailah Binti Muhamad Zanidah Binti Ithnin	Politeknik Ungku Omar
7.	BIF20201122	**MYPAPERWORK SOFTWARE** Ts. Zulfadhli Bin Osman Siti Wahidah Binti Arris Masnawi Bin Hamdani	Kolej Komuniti Beaufort
8.	BIF20201123	**EZREPORT MOBILE APP** Bridget Anak Patrick Puso Hilary Kajan Henry Norliza Binti Abdullah	Politeknik Mukah

9.	BIF20201130	**AUTOSTOR** Hartyni binti Mastor Siti Nurhafidzah Ayub Dayang Nur Aziemah binti Abang Hasbullah Norliaha binti Mohd Hairol Nizam Abdullah	Politeknik Kuching Sarawak
10.	BIF20201155	**e-CARD Appointment System** Ts. Zainolrin Bin Saari Nur Iqmal Hakimi Bin Hasni Wan Muhammad Nazrin Bin Mohd Salany Azlan Sharifah Nurfarhani Binti Syed Badri Sham	Politeknik Mersing
11.	BIF20201158	**SIMPLEDOC - SISTEM SIMPLE DOCUMENT ORGANIZER** Liew Foong Ching Nur Syazwanie Binti Abdul Rahman	Kolej Komuniti Kuching
12.	BIF20201159	**EZREGISTE**R Liew Foong Ching Shah Nazim Bin Shahar	Kolej Komuniti Kuching
13.	BIF20201161	**PAYFEE** Liew Foong Ching Emaria Binti Ahmad	Kolej Komuniti Kuching
14.	BIF20201168	**NOW EVERYONE CAN ACCESS CIDOS** Hairulhana binti Zawawi Jassy Jacquelyn Angel Marubin Poscy anak Tagi Antring anak James Sebeli	Politeknik Kuching Sarawak
15.	BIF20201170	**WARIS: APLIKASI WARISAN SEJARAH PERLIS** Mohd Fadli Bin Ahdon Ab Aziz Ikhwan Ab Wahab Siti Farahiah Mohamed	Kolej Komuniti Arau Perlis
16.	BIF20201171	**INTEGRATED PROJECT LOG BOOK** Rohaliza binti Karim Irna Nur Malissa binti Adris Nurul Asyikin binti Mohd. Fanna	Politeknik Mukah

17.	BIF20201174	**DIGITIZING HUMAN, HUMANIZING SOFTWARE MELALUI APLIKASI SIAD** Grisha Henry William Nur Fadhilah Binti Ahmed @ Ahmad	Kolej Komuniti Penampang
18.	BIF20201180	**TRANSFORMASI BUKU KEPADA BUKU DIGITAL** Fara Ellina Binti Khaidzir	Kolej Komuniti Segamat
19.	BIF20201187	**CONCEPTUAL FRAMEWORK OF SOCIAL ENGINEERING** Attack and Prevention Technique Dr. Nik Zulkarnaen Khidzir	Universiti Malaysia Kelantan
20.	BIF20201192	**WEB APPS RMI** Abdul Razak Bin Mohd Daim Liana Fairuz Binti Zakaria	Politeknik Kota Kinabalu

4. Electric, Electronic & Telecommunication

BIL.	ID BIF	NAMA PRODUK DAN PESERTA	INSTITUSI
1.	BIF20201088	**3C'S BIN** Doreen Tiong Sze Ling Lenis Sia Qi Xuan Christina Tiong Kai Eng Annie Ling	SMK Deshon
2.	BIF20201095	**VIBRATING PILLOW WITH GSM BASED FIRE ALARM SYSTEM FOR DEAF PEOPLE** Joshua Ak Ribi Redzuan Safri B. Abdul Rahman Nurazura Binti Rali Norain Binti Ali	Politeknik Kuching Sarawak
3.	BIF20201098	**MODEL OF GLOBAL SYSTEM AS A GAS DETECTOR FOR RESIDENTIAL BY USING MOBILE PHONE COMMUNICATION** Puteri Wardeena Binti Salma Mazlin Wellington Muhamad Afiq Bin Yakuf Nur Fatin Liyana	Politeknik Kuching Sarawak
4.	BIF20201111	**MINI MOBILE SOLAR MONITORING STATION**	Politeknik Kota Kinabalu

		Philips Dharmaraj Zinvi Fu@Hu-Jingwei Farah Binti Abdul Manap	
5.	BIF20201112	**IOT THERMOMETER** Mohd Huzaifah Bin Abdullah Abang Eimannudin Bin Abang Zahirin Shah Mohamad Hasmyrul Bin Hamzah Mohamad Hasmyrul Bin Hamzah Mohammad Fikri Bin Supian	Kolej Komuniti Santubong
6.	BIF20201118	**IOT EXTENSION** Azreen Bin Jafaar Mohammad Hafizzam Bin Abu Talip Qazi Ihsanullah Bin Suhaim	Kolej Komuniti Santubong
7.	BIF20201129	**PUERTA INTELIGENTE** Muhammad Khairul Ikhwan Shatini Bt Md Said	Politeknik Sultan Azlan Shah
8.	BIF20201131	**IOT SMART IRRIGATION SYSTEM** Siti Azlina Binti Abon Mohd Huzaifah Bin Abdullah Jonathan Lee Kian Yung Diana Easterina Bia Junaidy	Kolej Komuniti Santubong
9.	BIF20201133	**HAND SANITIZER SENSOR SPRAY** Siew Mee Ling Osborn Sii He Fan Ling Bin Tak Lee Qi Liong	SMK Deshon
10.	BIF20201137	**ANTI THEFT MOTORCYCLE SECURITY SYSTEM** Simah Anak Adai Jeffery Joe Anak Juntan Connielia Merejai Anak Peter Allyssia Llia Anak Ramat	Kolej Vokasional Bintulu
11.	BIF20201140	**IOT FINGERPRINT ATTENDANCE** Abdul Fata Bin Abdul Talip Muhammad Rifqi Hafiz Bin Saufee Aisah Balkis Binti Abu Bakar Clayrol Ather Dusup	Politeknik Mukah, Sarawak

12.	BIF20201142	**MATA** Ts. Dyg Khayrunsalihaty Bariyyah bt Abang Othman Abdul Yazid bin Ibrahim	Politeknik Kuching Sarawak
13.	BIF20201146	**EASY ARDUINO TRAINER (E.A.T)** Ts. Muliadi Bin Wahid Abang Syafiqnurain Bin Abang Shokeran Mike Joe Anak Juing	Politeknik Kuching Sarawak
14.	BIF20201163	**SMART SNAKE CATCHER POLE (SSCP2020)** Zalina Binti Sungip Norita Binti Alwi Mohd Hafizi Bin Sahabudin	Politeknik Mersing
15.	BIF20201165	**KERUSI RODA MENGGUNAKAN KAWALAN TANPA WAYAR** Noranhairul Ariffin Bin Abdullah Melvin Anak China Muhammad Azim Arfan Bin Razali Alvin Raphael Roger Supi	Politeknik Mukah Sarawak

5. Green Product / Agriculture / Environment / Renewable Energy

BIL.	ID BIF	NAMA PRODUK DAN PESERTA	INSTITUSI
1.	BIF20201009	**GREEN PEG** Nor Safizah Binti Ponachi Haslienda Binti Mohd Iham (Sham) Masksedah Binti Kamaludin Noor Faizah Binti Zohardin	Politeknik Port Dickson
2.	BIF20201012	**TANAMAN KETUM AYAM SEBAGAI MAKANAN** Mohd Syukri Bin Samsuri Norashikin binti Anjur	Politeknik Sandakan Sabah
3.	BIF20201014	**BIOPRODUCT FROM CHICKEN WASTE BY USING ULTRASONIC EXTRACTION METHOD** Calvin Ruben Charles Paveethiraasree Balu Iswariya A/P Balu Aniz Syahira Binti Abdullah	Politeknik Tun Syed Tun Nasir

4.	BIF20201022	**ECO-SANI MAT** Sezee Binti Gorotop Flora Anak Albert Daud Chen Kok Min Al Stanley Anak Nohe	Politeknik Kuching Sarawak
5.	BIF20201031	**EKSTRAK CUKA KAYU DAN SISA BUANGAN LAUT** Mahaletchumy Krishnamoorthy Eldylen Jalius Siti Nur Kamaliah Binti Terbit Siti Munirah Binti Kamsin	Politeknik Sandakan Sabah
6.	BIF20201032	**POLYTECH GLUE** Muhammad Amir Faisal Bin Nor Azhar Julia Junai Anak Bangkong Yahuda Sapinus Ibau Whilemina Mary Anak Benjamin	Politeknik Mukah Sarawak
7.	BIF20201033	**TONG SAMPAH PENGASINGAN SISA PEPEJAL** Khairul Nizam Bin Mat Amin	Politeknik Sultan Haji Ahmad Shah
8.	BIF20201038	**CERAMIC INDUSTRIAL WASTE FINE AGGREGATE (CIWfa)** Ts. Mohamad Luthfi Bin Ahmad Jeni Prof. Madya Ts. Dr. Suraya Hani Adnan Sr. Ts. Dr. Mohamad Ashraf Abd Rahman Ir. Ts. Mohamad Hairi Osman	Universiti Tun Hussein Onn Malaysia
9.	BIF20201041	**OIL AND GREASE DRAIN FILTER** Ledia Anak Angul Ullia Ulanda Anak Rumpang Kana Anak Gera Cassidy Juing Anak Crennell	Politeknik Kuching Sarawak
10.	BIF20201043	**SMART BMRM** Nazihan Binti Aziziuddin Ezlina Binti Mohamad Esa Muhida Binti Mahmood	Kolej Komuniti Segamat
11.	BIF20201048	**SIMULATION PORTABLE RAINFALL MODEL**	Politeknik Kuching Sarawak

		Zainap bt Hj Lamat Yuhani Jimian(Jami'an)	
12.	BIF20201053	**"ECO-P"** Ting Fung Fung Thomas Tang Sii Teck Elsie Ree Ngu Sien Mei Grace Sia Enn Chie	SMK Deshon
13.	BIF20201054	**SMART SWEEPER MACHINE** Muhamad Syafiq Bin Zainun Nur Raihana Binti Sukri Intan Liyana Binti Ramli Noor Azrina Binti Ahmad	Politeknik Banting Selangor
14.	BIF20201055	**PENGERING BIJIRIN DENGAN APLIKASI IOT** Alester G Jakuil Charles Sumion Norinah Binti Garangon Minir Bin Simon	Politeknik Kota Kinabalu Sabah
15.	BIF20201058	**PEEL & PAMPER** Loi Kiaw Siang Christy Ting Ee Ti Tracy Tie Jing Weng Irene Lu Yie Ling	SMK Deshon Sibu
16.	BIF20201060	**R3DEA** Dr. Tshin Lip Vui Ermineyanti Bachteran Darmah Binti Abdullah	Politeknik Kota Kinabalu
17.	BIF20201068	**INOVASI BPOLYBAG BERASASKAN KULIT PISANG** Naisah binti Ujin Mohammad Hanizeam Abdul Moin Ag Izzuddin Hamdi bin Awang Rasim	Politeknik Kota Kinabalu
18.	BIF20201071	**PALM LEAF LAMINA STRIPPER** Muhamad Zuraidi Bin Rohani Muhammad Zahid Bin Mainur Zikri Bin Zakaria Mohd Fakhrur Razi Bin Misran	Politeknik Kuching Sarawak

19.	BIF20201074	**SOLAR POWERED SMART BIRD NEST HOME (SCALE MODEL)** Victor Teng Kok Leong Brian Wong Shi Hong Chung Hui Jan	Politeknik Kuching Sarawak
20.	BIF20201076	**ANTI-ODOR DISC** Bibiana Toh Siew Siew Grace Loh Jie En Lau Yi Jun Wong Yu Rong	SMK Deshon
21.	BIF20201080	**MYDURIO PARTICLEBOARD** Yap Tek Hong Noorilyana Binti Abu Bakar Mohamad Zaidi Bin Ahmad Yusoff Ung Ean Na	Politeknik Tuanku Syed Sirajuddin
22.	BIF20201085	**ANTI-BUG BALM** Tang Bet Ti Ting Xue Wen Shelyn Hii Kelly Ling Yu Shi	SMK Deshon
23.	BIF20201086	**NATURAL THERMOS** Catherine Law Fong Fong Belinda Cheu Jin Huang Esther Ting Enn Chi Lydia Ting Enn Xin	SMK Deshon
24.	BIF20201087	**S9 AGRO HYDROPONIC USING IOT** Abdul Fata Bin Abdul Talip Maximus Balai Anak Mawat Tonny Ensedin Thomas Zarina Binti Hadaman	Politeknik Mukah, Sarawak
25.	BIF20201090	**SEAWEED BASED PLANT SEED BOOSTER** Ganeshwaran A/L Ramesh Kshabaletchumy A/P Seevanathan	Polytechnic Sandakan Sabah
26.	BIF20201091	**SEED PLANTERIZER FOR HILL PADDY PLANTATION** Chen Kok Min Polycarp Jeffery Jok	Politeknik Kuching Sarawak

27.	BIF20201116	**HYBRID HAND SANITIZER** Dr. Muhamad Nazri Bin Abu Shah Nuraiman Bin Mokhtar Nuzul Ardzan Bin Mokhtar Zainal Abidin Bin Ahmad	Politeknik Kuching Sarawak
28.	BIF20201119	**SKYTECH VERTICAL FARMING** Sures A/L Narayasamy Muhammad Mursyid Bin Mohd Tanos Logavendra Loganathan Nurul Syazwani Najwa Binti Hamzah	Politeknik Sandakan Sabah
29.	BIF20201120	**EZYSOIL** Karen Lu Ee Tyng Sures A/L Narayasamy Mohd Baharuddin bin Zubir Mohd Irfan Hakim Bin Malik	Politeknik Sandakan Sabah
30.	BIF20201127	**RECYCLING STORAGE : A SMART MONITORING SYSTEM** Ainul Nusrah Binti Mohammad Husni Shatini Binti Md Said	Politeknik Sultan Azlan Shah
31.	BIF20201136	**ENIGMA FLOOR POWER GENERATOR (FPG)** Tan Poh Chuar Ooi Zheng Ming Muhammad Syazany Bin Azmi Yoong Zhen Xuan	Politeknik Ungku Omar
32.	BIF20201145	**MODERN TOOLS FOR HILL PADDY CULTIVATION PROCESS** Chicha Bagu Hatimi Mudin	Politeknik Kota Kinabalu
33.	BIF20201173	**DEVELOPMENT OF BIOPLASTIC BOTTLE** Dr. Rosni Binti Yusoff Syaripah Za'imah Syed Jaapar Divya Darshini A/P Victor Ravintharan	Politeknik Tun Syed Nasir Syed Ismail
34.	BIF20201177	**PSS SMART FISH FEEDER 4.0** Azhar Bin Ambo Mohammad Adzlie Bin Haibil Frederick Chu Li Jung Jarinna Sylvester	Politeknik Sandakan Sabah

35.	BIF20201182	**VSOL- INNOVATIVE METHOD TO DETERMINE ULTRA TRACE LEVELS OF PESTICIDES IN FRUITS AND VEGETABLES.** Dr. Krishna Veni Veloo	Universiti Malaysia Kelantan
36.	BIF20201183	**DEVELOPING THE BEST PRACTICABLE MODEL OF GREEN ENVIRONMENT TOWARDS CLEANNESS CITY IN MALAYSIA** Ts. Dr. Muhamad Saufi Che Rusuli Pm. Dr. Noraani Binti Mustapha Mohd Baharudin Bin Ridzuan Syaza Shahirah Binti Sakidi	Universiti Malaysia Kelantan
37.	BIF20201186	**i-KENAF** Ts. Dr. Maryana Bt Mohamad Nor Ts. Dr. Suganthi A/P Appalasamy Puan Tengku Halimatun Saadiah Bt T. Abu Bakar Noor Hafizoh Bt Saidan	Universiti Malaysia Kelantan
38.	BIF20201189	**TERMICIDE: GREEN REPELLENT FOR PEST TERMITES** Dr. Suganthi Appalasamy Nivaarani Arumugam Alia Diyana Mohamed Hassim Boon Jia Geng	Universiti Malaysia Kelantan

6. Teaching & Learning

BIL.	ID BIF	NAMA PRODUK DAN PESERTA	INSTITUSI
1.	BIF20201006	**FOOD COST CONTROL CALCULATION SYSTEM** Fredoline Bin Galambun Rene Binti Muhamad Nor Asyikeen Mohammad Amrin	Politeknik Kota Kinabalu
2.	BIF20201008	**CUMAPP AS HEUTAGOGY GIZMO TO EMBOLDEN CULTIVATION OF DOUBLE LOOP LEARNING** Dr. Norhafizah Ismail Nazid Bin Sarji	Politeknik Mersing Johor

3.	BIF20201011	**BAHAN BANTUAN PEMBELAJARAN REKA BENTUK LITAR BAGI KURSUS DJJ5123 (PNEUMATIK & HYDRAULIK) MENGGUNAKAN TEMPLAT SENARAI SEMAK** Norshahidah Binti Manaf Sarah Nadiah Binti Mohd Ghazali Izyan Dayana Binti Jonid Nur Syamimi Binti Rusli	Politeknik Muadzam Shah
4.	BIF20201018	**ELASTICITY SMART REVIEW WHEEL** Dalin Anbukkarasu A/L Paramasivam Ah Banting	Politeknik Kota Kinabalu
5.	BIF20201020	**STOKKAN SOALANMU** Rosilah Man Shahirah Binti Muhammad Zin Mohamad Zulhilmy Bin Mohamad Yusop	Politeknik Tawau
6.	BIF20201021	**TESTING PLATFORM FOR BRIDGE MODEL** Mohd Hazry Bin Ismail Azlan Bin Mohd Ali Canarisa Nipi Anak Ah Lian Siti Zubaidah Binti Janudin	Politeknik Kuching Sarawak
7.	BIF20201023	**APP RELAY** Ts. Nor Asiah Bt Mat Yunus Norsaadah Bt Sapon	Politeknik Kuching Sarawak
8.	BIF20201024	**COLD MOUNTING CHAMBER** Muhamad Soffi Bin Manda Nor Shaufina Binti Md Jaafar	Politeknik Sultan Haji Ahmad Shah
9.	BIF20201025	**e-PBM PI-Poli** Ahmad Fkrudin Mohamed Yusoff Azmil Hashim Norhisham Mohamad Wan Norina Wan Hamat	Universiti Pendidikan Sultan Idris & Politeknik Ungku Omar
10.	BIF20201027	**FLEXI CROQUIS** Laila Najwa Binti Yahaya Nuraini Binti Mahmud Mohd Suhairi Bin Md Suhaimin	Kolej Komuniti Kuching

11.	BIF20201030	**BLUETOOTH CONTROLLED ROBOT USING ARDUINO FOR INSTRUCTIONAL LEARNING** Noor Azlyn Binti Ab Ghafar Ninie Farahana Binti Kamarulzaman Raizizan Bin Rahim	Politeknik Kota Kinabalu
12.	BIF20201037	**GANU SMART TRAVEL KIT** Wan Norliana Bt Wan Sulong Nazli Hulwany Bt Abdullah Wan Nor Azida Bt Wan Ali	Politeknik Hulu Terengganu
13.	BIF20201039	**INNOVATION KIT BOOK : CIVIL ENGINEERING FINAL YEAR PROJECT: MIX PROPORTION AND CALCULATION FOR CONSTRUCTION OF BUILDING MATERIAL** Dr. Ainul Haezah Binti Noruzman Muhapis Bin A Hakim Zarinah Binti Zaini Ilya Binti Ismail	Politeknik Sultan Salahuddin Abdul Aziz
14.	BIF20201042	**EZI-PIPE** Norliza Binti Borhan Muhammad Hafiz Bin Yahya Lianti Anak Jihen@Agu	Kolej Komuniti Sarikei
15.	BIF20201044	**B-VAR** Noor Fadzillah Binti Abdullah Nurizan Binti Tahir Turina Binti Tumeran	Politeknik Mersing
16.	BIF20201045	**myFYPv2** Siti Noor Aishah Binti Mohammad Rohaya Binti Mohamad Norbaizura Binti Mokhtar Sharafi Bin Mohamed Yusoff	Politeknik Kuching Sarawak
17.	BIF20201046	**APLIKASI iTARGET** Ts. Shamsiah Binti Salamat Ts. Sabir Bin Mohd Rani	Politeknik Kota Kinabalu
18.	BIF20201047	**PORTABLE PLASMA CUTTER TABLE** Rahmat Nor Bin Mohd Sharif Marlina Binti Mohamad Che Susilawati Binti Che Berahim	Politeknik Mukah, Sarawak

		Redza Izwan Bin Abdul Rahman	
19.	BIF20201050	**e-EQUATION EASY SYSTEMS (3E SYSTEMS)** Dzulkipli Bin Marasan Didi Reena Binti Matzen Suraini Binti Mat Abu Normala Binti Jaya	Politeknik Kuching Sarawak
20.	BIF20201051	**e-BOOKING FOR COMMERCIAL RESTAURANT OPERATION** Evelyn Hiuboy Adwina Vali @ Galus Nina Shenna Kosumin	Politeknik Kota Kinabalu
21.	BIF20201052	**MODEL INOVASI DEE50102** Hafifah Bt. Darus Nui Din Keraf Nurolhuda Mohd Noor Huzairi Bin Mohamed	Politeknik Sultan Abdul Halim Mu'adzam Shah
22.	BIF20201056	**READING ONLINE COMPETITION USING QUIZIZZ** Mornita Anak Deri Bibie Anak Neo	Politeknik Kuching Sarawak
23.	BIF20201062	**FLIP USER GUIDE FOR CREATING RESUME** Wong Tee Wei Marcus Kho Gee Whai	Politeknik Kuching Sarawak
24.	BIF20201063	**SMTAS - SCAN MY TAG ATTENDANCE SYSTEM** Nur Syarafina binti Abdul Rahman Zainal Fitri bin Mohd Zolkifli Isfa Kamal bin Ishak	Politeknik Kuching Sarawak
25.	BIF20201064	**DEMONSTRATION FOR ONLINE EXPERIMENT IN STRENGTH OF MATERIALS** Hasanul Hadi Bin M. Saleh Armazlin binti Ahamad Arshad Blangkat Ahmad Basimin Rosniza binti Ramli	Politeknik Kuching Sarawak

26.	BIF20201065	**JOB INTERVIEW TRAINING VIDEO FOR FAIR ASSESSMENT AND BENCHMARKING** Duke anak Michael Dangat Richard bin Simon Jennifer binti Sukor @ John	Politeknik Mukah
27.	BIF20201066	**INNOVATION WATER PUMP HEAD LOSS PERFORMANCE TEST BENCH IN MECHANICAL DEPARTMENT POLITEKNIK KUCHING SARAWAK** Thandayuthapani Al Seperamaniam Ahmady Bin Solong Mawardi Bin Mohamad Mohd Subri Bin Saud	Politeknik Kuching Sarawak
28.	BIF20201067	**INOVASI PENYAMPAIAN DEMONSTRASI BENGKEL PEMESINAN.** Muhamad Zuraidi Bin Rohani Siti Amelia Binti Shaik Pawan Chee Ahmad Nasir Bin Mohamed Noor Mohamad Najib Bin Mohamad Zain	Politeknik Kuching Sarawak
29.	BIF20201069	**SISTEM CABUTAN BERTUAH DIGITAL DENGAN PEMPROSESAN XAMPP BAGI PEMBELAJARAN KEBARANGKALIAN** Mohd Noor Hafizee Bin Zulkaflee Robert Anak Nyalan James Tiri Maran Mohd Khairul Afnan Bin Mustapha	Kolej Matrikulasi Sarawak
30.	BIF20201072	**MEMORIZING CARD** Dominic Tan Kuan Yew Kong Chee Hui Tiong Shao Zuan Fong Xian Ing	SMK Deshon
31.	BIF20201075	**3D-DNA** Bibiana Toh Siew Siew Joyce Loh Jieyu Joanne Tan Jia En Venus Tan Loi Ee	SMK Deshon

32.	BIF20201079	**KAEDAH QAWAFI : DOA QUNUT** Azizah Binti Mahadi Nornazlina Binti Mohd Nor	Kolej Komuniti Hulu Langat
33.	BIF20201082	**ViOT METHOD – TOOL BIT CUTTING TECHNIQUE FOR BEGINNERS** Muhammad Arieef Bin Hussain Sazali Bin Md Hasan Dr. Mohd Nor Azam Bin Mohd Dali Azmi Bin Naroh	Politeknik Ungku Omar
34.	BIF20201084	**SMART MUTAWWIF 1.0** Rizuan Bin Zainal Muhammad Afiq Bin Basiron	Kolej Komuniti Sandakan
35.	BIF20201092	**e-PHYLAB** Mohd Fauzi Bin Abdul Dzubir Syafiq Bin Rasulan Rizaudin Bin Abd Rashid Noreha Bt Midin	Kolej Matrikulasi Sarawak / Kolej Matrikulasi Kelantan
36.	BIF20201094	**CAKE DECO – BUTTERCREAM MASTERPIECE** Nor Azman Bin Jamaludin Mohd Husni bin Mohd Halim Ahmad Mustaffa Kamal bin Razaly	Kolej Komuniti Bayan Baru, Pulau Pinang.
37.	BIF20201096	**INTERACTIVE E-NOTE WITH QR CODE** Noor Hafizah binti Azali Hafizan bin Abdul Mulatip Khairil Mizuar bin Abdul Wahab Elvinson Anak Iling	Politeknik Kuching Sarawak
38.	BIF20201100	**WATER SPRINKLER SYSTEM MODEL FOR LEARNING PURPOSES AT PIPE WORKSHOP PKS** Mardiana Bt Mohamad Syed Mohd Hasyim B Wan Othman Suzana Bt Isenen Ayub B Abdullah	Politeknik Kuching Sarawak
39.	BIF20201102	**WELDING ARM STAND** Gary Anak John Dino Sabastian Anak Mawang	Politeknik Kuching Sarawak

40.	BIF20201103	**LEARNING AND TEACHING EXPERIENCE USING DOODLY, A DRAG AND DROP DOODLE VIDEO CREATOR SOFTWARE IN POLITEKNIK KUCHING SARAWAK ENGLISH CLASS** Alfred Valentine Bakrin Ann Anak Report	Politeknik Kuching Sarawak
41.	BIF20201104	**HYBIRD DIGITAL TRAINER** Lee Moi Fong Tok Chon Bee Dr. Rosnani Binti Affandi M.Chandran A/L Maruthan	Politeknik Melaka
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46.	BIF20201110	**PEMBANGUNAN DAN PENGGUNAAN "EZ-CAL" DALAM PEMBELAJARAN MATEMATIK** Siti Rohana binti Kamil Amizan bin Abdullah Khawarizmi Rafie Tahir	Politeknik Mukah

47.	BIF20201113	**SINGLE PHASE ELECTRICAL WIRING TRAINER** Rohaizan Bin Saher Dr Azrul Bin Mahfurdz Zarina Binti Haji Ibrahim	Politeknik Sultan Haji Ahmad Shah
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49.	BIF20201117	**VIDEO SIMULATION IPO** Nor Anisah Binti Mohd Saad Mageswary A/P Muniandi Astri Idayu Binti Athesa	Politeknik Ungku Omar
50.	BIF20201121	**CUSTOMIZED MECHANICAL LEGO KIT FOR TEACHING AND LEARNING AID** Georginia Alicia Ejus Neilson Peter Sorimpuk Anna Alicia Juanis Richard Tiam	Politeknik Kota Kinabalu
51.	BIF20201125	**INTERACTIVE LAB DBS10012** Mohd. Rizal Bin Abdul Raman Halimah Binti Robert Matieu Bin Ah Kim	Politeknik Kuching Sarawak
52.	BIF20201126	**INTERACTIVE QUIZ GAME-BASED LEARNING FOR VEHICLE DYNAMICS COURSE** Mohd Saiful Bin Saleh Mohd Fakrul Razi Bin Jamaluddin Mohd Sarhan Bin Othman	Politeknik Kuching Sarawak

53.	BIF20201132	**USABILITY OF IBOLT (INNOVATION OF BOTTOM LOCK & TUCK) 3D MOCK-UP AS TEACHING AIDS IN PACKAGING DESIGN COURSE.** Nurulkusuma Binti Adnan	Politeknik Ibrahim Sultan
54.	BIF20201134	**E-LECTURE OPM** Noorhafizah Binti Akup	Politeknik Mukah Sarawak
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57.	BIF20201144	**KESAN PENGGUNAAN LINPRO BAGI MENINGKATKAN MOTIVASI PELAJAR DALAM KALANGAN PELAJAR DI POLITEKNIK** Najwa Shahida binti Mohamad	Politeknik Kota Kinabalu
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60.	BIF20201153	**SPEECH PRO** Mohamad Sobri Bin Suhaili Katherine Livan Kehing Binti Abdullah Yong Hua Ying Melor Md Yunus	Politeknik Mukah
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63.	BIF20201157	**MANUAL DESIGN THINKING TOOLKIT - HELLO 2 FOLLOW -** Farhana Binti Sabidin Muzaffar Mohd Sidin	Politeknik Kota Kinabalu
64.	BIF20201162	**MOBILE E-LEARNING APPLICATION FOR ADVANCED ROUTING COURSE** Nor Hanani Binti Mohd Yusoff Mohd Adil Bin Mat Ti @ Mokti	Politeknik Ungku Omar
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66.	BIF20201166	**DEVELOPMENT OF MOBILE APPS FOR LEARNING VEHICLE DYNAMICS** Ts. Mohd Sarhan Bin Othman Mohd Saiful Bin Saleh	Politeknik Kuching Sarawak

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68.	BIF20201169	**VISUAL PLANNING TOOL FOR POSTGRADUATE STUDENTS TOWARDS GRADUATE ON TIME (GOT)** Dr. Sreetheran Maruthaveeran	Universiti Putra Malaysia (UPM)
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ABSTRACTS NRICon2020

INDUSTRIAL CASE STUDY: DESIGN AND DEVELOPMENT OF A SUPERBIKE PADDOCK STAND

Zikri bin Zakaria, Mohd Nor Hakim bin Ab Wahab and Mohd Fakhrur Razi Misran

Application of paddock stand is regularly used with the operation of superbike servicing process. Various type of paddock stand model and features are available in market nowadays. However, selection of significant product is differed from individual priority factors such as price, safety and also workplace constrain. Improper selection of paddock stand will cause inconvenient for users, especially in handling the movement of superbikes while they are being repaired and repositioned. Therefore, based on a problem defined from a single case study, this paper proposed a paddock stand design which includes four main design features; "one- operation person", "safety", "manoeuvrability" and "ease to storage". Through the use of computer-aided design (CAD) software, it is able to provide flexible movement and promising safety features.

COOLING OF PHOTOVOLTAIC MODULE: A REVIEW

Muhammad Zahid bin Mainur, Mohd Fakhrur Razi Misran and Mohd Noor bin Jusoh

A photovoltaic (PV) module is involved in the conversion of solar energy directly into electricity. However, the temperature is a significant factor in the working efficiency of a PV module. Various researches have been done to study the ability of PV modules to operate under various surrounding temperatures with different cooling methods. Therefore, this paper reviewed the performance of a PV module. The first part of this paper discusses the operation of the PV system, followed by various proposed cooling methods from previous studies. Later, based on the extensive review, a suggestion is made for an extension of the methodology using the selected PV cooling method.

E-LEARNING DURING COVID-19 PANDEMIC: THE CASE OF COLLEGE COMMUNITY SIBU STUDENTS

Dylinda Ak Andrew Anem

The purpose of this study is to investigate the students' acceptance of e-learning during the midst of the COVID-19 pandemic. Technology Acceptance Model (TAM) is mainly used as the form of the basic model to evaluate the 2 main variables found in the model namely Perceived Usefulness (PU) and Perceived Ease of Use (PEOU). This is a case study paper and the instrument used is semi-structured interviews using WhatsApp and Telegram application. The researcher applied relevant construct interview questions which developed primarily based on the previous study with some minor modifications to suit the research context. The results indicate that students' perceived ease of use positively since they can get more information to finish their assignments and creates a positive impact on their financial problem. However, the study also indicates that students' were found to have less influence on perceived use because they have to deploy more effort during the e-learning class. Through this study, we hope action should be taken to upgrade the students' understanding and the lecturers' knowledge of teaching e-learning skills.

CHALLENGES ENCOUNTERED IN IMPLEMENTING ENGLISH LANGUAGE REFORMS IN MIRI SECONDARY SCHOOLS

Hui-Tze Su and Ying-Leh Ling

English is the world's lingua franca, the language of trade and commerce, the language of communication, and teaching in education. Due to its deterioration in Malaysia, several English language reforms have been implemented. This study seeks to identify the challenges faced by English teachers in implementing English Language Reforms in curriculum planning, teaching methods, problems faced by students in English language learning and assessment, and how effective feedback environments can improve teaching performance teachers. 28 English teachers from four secondary schools in the Tanjong Lobang area of Miri conducted an online survey. The analysis and findings of the study indicate that there is a significant relationship between the feedback environment and the challenges faced by English teachers. A comprehensive and effective feedback environment will enable the Course Coordinator to better meet the needs of English teachers to seek advice and information on their teaching performance following English Reform standards. It provides a better and more direct channel of daily communication for improving in teaching performance. It can also be used as a

guide and reference for other teachers either teaching the same subject or different subjects to engage in an effective feedback environment to improve their teaching performance. Additionally, the Ministry of Education officials or principals may recognize the role of the Course Coordinator in the feedback environment and provide professional development and training programs where necessary.

PENGGUNAAN ABU DASAR ARANG BATU (*ADAB*) SEBAGAI BAHAN GANTIAN DALAM PENGHASILAN BATA

Chung Yin Kiong and Freddy Bin Pansoi

Brick is one of the primary building material for the walls of a building. Use of the brick has increased every year as a result of the rapid of development of a country, such as our country Malaysia. At the present time there are two types of brick used to be known as a clay brick (Clay Brick) and cement sand bricks (Cement Sand Brick). In this study, original of cement sand bricks has been modified, where sand content in the brick was replaced with coal bottom ash in percentage of replacement set. Bottom ash is one of the waste produced by coal-fired power plant, for which the quantity has increased from year to year due to the increased energy needs in Malaysia. With physical properties that seem to like sand, it has become a key factor of selection as a replacement for sand in cement sand bricks, as well as the government's call to promote the use of recycled materials. A total of 18 brick samples were prepared for 6 types of brick mixtures, which is one control mix (0% replacement), and another 5 mixtures with a replacement percentage of 20%, 40%, 60%, 80% and 100%. The size of the sample produced brick is 100 mm x 50 mm x 30 mm and is compressed in a mold with a pressure of 3000 psi was applied. Laboratory test such as SEM, XRD and XRF have been conducted to the brick units of 28-days aged. At the end of the study, was successful to identify the percentage of element contents and chemical compounds that are present in each design mix, CBA and sand through XRF and XRD analysis. And also to know the effects of CBA on the microstructure characteristics of the cement sand brick mixture, ie increasing the content of CBA in the brick, the more loose and weakens of bond between the particles.

INTEGRATION OF AUTOMATION TECHNOLOGY IN FOOD INDUSTRY: A CASE STUDY

Muhamad Zuraidi bin Rohani, Mohd Nor Hakim bin Ab Wahab and Muhammad Zahid bin Mainur

Hygiene is the most important aspect of food and beverage service and handling. Food and beverage contamination factors are something that the service provider always avoids. However, the variables in this case are difficult to predict because they involve the human element. One finding from a case study emphasized the use of food trays. The wrong handling of food during an event exposes it to potential hazards. Therefore, this research project emphasizes the use of smart buffet food trays with a sensing element. The purpose of this project is to reduce direct contact between humans with tray lid, as well as exposure to food to the environment.

KAJIAN KLINKERS SAWIT SEBAGAI BAHAN GANTIAN PASIR DALAM PENGHASILAN BATA

Chung Yin Kiong , Cyril Bin Buin and Schmeicell Sabinus

Brick is one of the main material in construction. There are two types of bricks that are commonly used, namely clay brick and cement sand brick. Palm oil clinker is a waste produces from the palm oil mill. In this study, the original of cement sand brick mixed has been modified, where sand content in the brick was replaced with palm oil clinker in percentage of replacement set. The aim of this study is to studying the potential of palm oil clinker as a sand substitute in brick production. A total of 15 cube samples with size of 50 mm x 50 mm x 50 mm were prepared for 5 brick mixtures of one control mix (0% replacement), and another 4 mixtures with a clinker replacement percentage of 20%, 30%, 40%, and 50%. And 5 brick samples of 200 mm x 90 mm x 60 mm (actual size of bricks) also prepared for 5 brick mixtures. Laboratory tests such as the Water Absorption, Initial Rate of Suction and Compressive Strength test have been conducted to the brick units of 28-days aged. In addition, sieve analysis for Palm Oil Clinker (POC) and sand (Quarry Dust) were also carried out. At the end of the study, it was found that the increased of clinker content in the brick has increasing the compressive strength, water absorption of the brick if compared to a control unit brick without clinkers. And the optimum percentage content of clinkers in the cement sand brick is 20% replacement of clinkers on sand content.

CONCRETE BEAM STUDIES USING ETLINGERA COCCINEA FIBRE

Jim J. Jinsin , Crystal Estherlie Robert and Sharon Stephen

Concrete has been extensively used as construction material, which has various advantages. But, despite the advantages, the concrete-related problem still occurs. Micro cracking and reduction in tensile strength proved to be a problem in concrete. Recently, material such as fibres was applied to assist the cracking problem and further strengthen a concrete. In this research, Etlingera Coccinea fibres will be introduced. Therefore, three objectives will need to be achieved in this research including; Casting of concrete beams fibre or CBF, Comparison of physical properties between CBF and Comparison of mechanical properties between CBF. Analysis of fibres addition of Etlingera Coccinea in beam concrete with the following fibres ropes group, including; two (2) fibres ropes; three (3) rope fibres, and four (4) shows significant enhancement. A comparison of flexural strength for three (3) concrete beams, containing different fibres rope content was applied and compared with the flexural strength of a plain concrete beam. The flexural strength of the plain concrete beam achieved is 3.678 N/mm^2. Meanwhile, the flexural strength of concrete beams containing two (2), three (3) and four (4) Etlingera Coccinea fibres ropes obtained is 4.221 N/mm^2, 5.154 N/mm^2, and 4.461 N/mm^2, respectively. This shows significant improvement in terms of beam flexural strength. A conclusion can be made that Etlingera Coccinea fibres can contribute to the improvement of the flexural strength of plain concrete.

ANALYSIS ON AERODYNAMIC DESIGN OF VEHICLE FOR BODY MODIFICATION OF PERODUA MYVI

Mohd Fakrul Razi Bin Jamaluddin, Mohd Saiful bin Saleh and Anorrasyidi Bin Anwar

The stability on handling of vehicle is important aspect in vehicle design. Research on aerodynamic design of vehicle is crucial to see the possibility in creating bigger down force thus providing more stability. The objective of paper is to find the value of down force after modification of Perodua Myvi. This analysis used ANSYS CFX fluid flow to run the simulation analysis and Inventor for design two model of Myvi, before modification and after modification. Turbulent analysis shows that, the value of down force is increase after modification. Redesign the rear roof has affected in aerodynamics charecteristics such as pressure and velocity. Dynamic analysis is preferred for future research.

PERSEPSI PELAJAR TERHADAP PENGGUNAAN HIJRAH RASULULLAH EDUCATION BOARD GAME (HiREG) SEBAGAI BAHAN PEMBELAJARAN KURSUS KOMUNIKASI DAN PENYIARAN ISLAM

Mohamad Faizal bin Ahmat , Wida Yanti binti Mohammad Zen Umar and Mohd Faizal bin Mat Pesa

The use of innovation as teaching aids is very important to implement 21st Century Learning (PAK21) which focuses on the student-centered learning process. HiREG innovation is produced to create teaching aids that support student-centered learning and teaching with student involvement or collaboration in learning sessions. This study aims to identify the use of Hijrah Rasulullah Education Board Game (HiREG) innovation in Islamic Communication and Broadcasting Course (DUA6022) among students of Politeknik Kuching Sarawak. A set of questionnaires was used to collect data from students. One hundred students of the Islamic Communication and Broadcasting Course (DUA6022) were randomly selected to be the respondents. Data were analyzed using SPSS Version 20 software, to study students' perceptions regarding the use of Hijrah Rasulullah Education Board Game (HiREG) innovations in Islamic Communication and Broadcasting Course (DUA6022). Data were taken from respondents using a Likert scale questionnaire and analyzed using descriptive statistics, percentages, and mean. The questionnaire was used to achieve the objectives of the study. The results show that the effect of using the Hijrah Rasulullah Education Board Game (HiREG) innovation in the teaching and learning process has a positive effect with a mean value of 4.50 and above. This study proves that the Hijrah Rasulullah Education Board Game (HiREG) has had a positive impact on increasing effectiveness in achieving the targeted teaching and learning objectives.

WIDEBAND PENTAGONAL SHAPED PATCH ANTENNA FOR 3.5 GHZ WIMAX AND 5.2 GHZ WLAN APPLICATION

Nornikman Hassan, Amier Hafizun Ab Rashid and Zahriladha Zakaria

With the high demand for effective, low profile and low in cost of the production in the wireless frequency applications on a device, a compact dual-band planar antenna is the best decision. This works proposed a wideband pentagonal shaped patch antenna. It also using the FR-4 substrate with dielectric constant, $\epsilon r = 4.4$ and the electrical conductivity tangent loss, $\tan \Delta = 0.019$. In this work, a pentagonal shaped patch antenna has been designed based on the reference design of the basic square patch antenna. This design of the proposed pentagonal patch antenna has achieved 2.722 dB, 5.272 dB and 4.924 dB of gain for the resonant frequency at 4.06 GHz, 6.28 GHz and 7.72 GHz, with a return loss of – 22.731 dB, - 27.005 and – 17.521 dB, respectively. At 3.5 GHz WiMAX and 5.2 GHz WLAN application, it shows that the performance of the return loss is – 13.04 GHz and – 14.585 GHz while the gains are 1.802 dB and 3.791 dB, respectively. Both co-planar waveguide and pentagonal shaped integration potentially to effect the wideband and multiband resonant frequency to the antenna.

PERSEPSI PELAJAR KEJURUTERAAN MEKANIKAL TERHADAP KAEDAH PEMBELAJARAN ONLINE BERASASKAN OUTCOME-BASED LEARNING (*OBL*) DI POLITEKNIK KUCHING SARAWAK

Hasanul Hadi Bin M. Saleh and Rosniza Binti Ramli

Online teaching and learning can be a lifelong learning method through the application of outcome-based learning (OBL). It is a student-centered method of learning that is not widely practiced by educators. This study will identify the perceptions of mechanical engineering students in Polytechnic Kuching towards the implementation of online learning based on OBL by using questionnaire instruments. The developed questionnaire has good validity based on Cronbach's alpha interpretation, $\alpha = 0.976$. A total of 220 respondents from mechanical engineering students were randomly selected. The study found that the level of convenience for students to access the internet is minimum based on the subscription size of individual data. While perceptions of online learning-based learning methods for mechanical engineering students have found that students are less accepting of these methods and prefer to study face-to-face. In addition, based on Cumulative Grade Point Average (CGPA) information for the December 2019 semester, it was found that the relationship between achievement and their perceptions in online learning based on OBL was negative. It showed that students with high CGPA are more likely prefer to not study online.

KAJIAN PENSTABILAN TANAH LEMBUT DENGAN CAMPURAN ABU RUMBIA

Azrina Binti Madihi, Mohammad Pauzi Bin Mokhtar and Siti Rozana Binti Romali

Soft ground is the real land category as it has a low bearing capacity, which is not suitable for infrastructure construction. However, with the improvement of soil properties such as renovation of soil structure, it helps to improve the soil bearing capacity. Cement is usually used as an extra ingredient in strengthening and stabilize the soil structure. In this study, Abu Rumbia was used to study the value of soil strength to replace cement. The different percentage of Abu Rumbia will be used in soft soil blends with Abu Rumbia. The disturb sample method is will be used to produce samples to test its strength. The tests to be performed on the sample are the unconfined compression strength test to obtain the value of shear strength, c. The purpose of this study is to study the potential of Abu Rumbia as a soil stabilizer to increase the strength of bearing capacity. Further studies can be carried out to find the suitable percentages for Abu Rumbia.

PILOT STUDY FOR VALIDITY AND RELIABILITY INSTRUMENTATION OF CREATIVITY TRAINING MODEL COMPONENTS IN GAME DESIGN

Raudyah Md Tap, Nor Azan Mat Zin and Hafiz Mohd Sarim

A pilot study was carried out to verify and check on the reliability instrument for the application of a Creativity Training Model for Game Design (LK2RBP Model). A pilot study is one of the essential stages of a research project. This paper aims to describe the importance of and steps involved in executing a pilot study by using a descriptive study. The instrument consisted of 90 items and was distributed to 15 students comprising 10 students from Metro Polytechnic Kuala Lumpur and five students from Selayang Community College majoring in game design and development. The questionnaire was divided into two sections; part A (demographics) for student information and part B which consisted of 90 questions based on the Creativity Training Model for Game Design (LK2RBP Model). This instrument was developed to measure five constructs; namely, i) designer, ii) knowledge, iii) skills process, iv) method, and v) technology. Through this pilot study, the researcher conducted a test of item functionality from the reliability aspects of the questionnaire items and content validation with five experts. Item reliability has been measured using Cronbach's Alpha value. This approach allows the expulsion of items that do not follow the requirements based on the diagnosis. In the final result of the analysis, out of 90 items, 7 items needed to be expelled, and the rest of the items, which are 83 items, were suitable to measure five constructs in the implementation of the LK2RBP Model.

POLYCONCRETE BY USING RECYCLED STYROFOAM AS AGGREGATE REPLACEMENT

Mohd Hazry Bin Ismail and Ledia Anak Angul

This Research Focuses On Using Non-Biodegradable Solid Waste As Well Develop An Alternative Construction Material That Will Lessen The Social And Environment Issues. The Reuse Of Wastes Is Important Form Different Points Of Views. It May Help To Produce Concrete Economically And At The Same Time Will Help To Reduce Its Disposal Problem. The Rising Cost Of Construction Material Is Matter Of Concern. The Objective Of This Study Is To Determine The Physical Characteristics Of Concrete Mixture. In This Study, Concrete Was Produced By Cement Mixture, Fine Aggregate (Sand) And Recycled Styrofoam In Conjunction With Coarse Aggregate. There Are Three Batch Of Mixture Of Concrete Using Doe (Deparment Of Environment) In Which The Method Contained 0%, 5%, 10% And 15% Of Recycled Styrofoam Along With A Normal Batch. The Test Conducted Are Slump Test And Compressive Strength For 7, 21 And 28 Days.

THERMAL COMFORT FOR STUDENT RESIDENTIAL IN CONVENTIONAL BUILDING

Norain Ali , Ayub Abdullah and Redzuan Safri Abdul Rahman

Various efforts have been made to improve the level of the thermal comfort to each individual, especially thermal comforts in residential buildings. Thermal comfort level in residential buildings have a great impact on emotional and physical occupants.Specifically referring to Malaysian average climate of warm and humid, thermal comfort is another factor that should be considered in ensuring a good quality of life. Perfect thermal comfort will result as a good quality of interior atmosphere. This is because a person's quality of life will be influenced by the level of thermal comfort felt. Comfortable temperatures in the home give a big impact on the level of one's self-esteem while the hot temperatures in the home can invite various problems such as sweating, tiredness, skin allergies and some other problems. The study of thermal comforts in the building of the conventional concept is aimed at identifying the comfort level of residential building using a natural ventilation system. The main objective of the study is to find out the level of thermal comfort without the help of any cooling instrument. This study is mainly focusing on the comfortable temperature at night in the student residential buildings of Polytechnic at Perlis, Malaysia. Based on literature review, hourly weather data simulation in the existing residential building design was conducted to analyze indoor air temperature. Individual variables such as age, gendera and health status are also taken into account. Methods used in this study

are direct measurement of component influencing thermal comfort and distribution of questionnaires to the dwellers. The internal temperature is simulated much higher than the internal design conditions proposed in ASHRAE (2013) for the determination of thermal comfort. This finding discusses about the surrounding that may potentially cause heat discomfort in different residential buildings in the city, in Malaysia. Adaptive Model of thermal comfort will be used in this study to determine the level of comfort of residential dwellers with reference to ASHRAE 55: 2013 standards. This study may help researchers and academicians to be able to understand clearly and in detail on how the degree of thermal comfort in conventional residential buildings is identified.

KAJIAN PUNCA KELEWATAN PROJEK CADANGAN PENGOPERASIAN FAST TRACK INSTITUT AMINUDDIN BAKI (IAB) CAWANGAN SABAH MENGUNAKAN KABIN DI ATAS KAMPUS IAB MENGGATAL, KOTA KINABALU, SABAH

Renny Joseph and Rukinah Samuing

Delays are usually defined to the project completion period that exceeds the time period specified in the contract or any agreed date. The risk of delay in construction can be reduced by identifying the causes of delays for a project. This study was conducted to identify the causes of construction delays and proposed solutions based on the study cases from a "fast track" project at Aminuddin Baki Institution, Menggatal, Kota Kinabalu Sabah. Construction of Aminuddin Baki Institution (IAB) Sabah branch is the first project in Sabah that uses "fast track" project management techniques where the construction period is five months but only completed after ten months. The "fast track" technique refers to short construction management techniques, the introduction of new construction techniques and the use of new building materials. The "fast track" project refers to the construction completion period is less than 70% of the traditional construction period. This study was conducted based on a questionnaire distributed to the three sectors directly involved in the project, namely the Public Works Department, Aminuddin Baki Institution Sabah branch and EQKA Sdn. Bhd contractor. There are three main causes of delays namely, procurement of building materials from abroad, incomplete construction drawings and weaknesses in contractual and construction management. Among the proposed solutions identified are stricter contractor selection criteria, preparation of more detailed design drawings and the use of equivalent and quality local materials.

SWIFTLET HOUSING – TOWARDS ENABLING INTERNET OF THING (*IOT*) BASED MONITORING SYSTEM

Dyg Khayrunsalihaty Bariyyah bt Abang Othman and Abdul Yazid bin Ibrahim

Most of the swiftlet housing depends on the ventilation design of the building or use humidifier with a timer to maintain the optimum temperature and humidity. But due to unpredictable weather, these methods still require entrepreneurs to be present at the swiftlet housing which may be located in a remote area with no network coverage. The absence of a fully remote monitoring system and remote controller for the cooling equipment may cause unnecessary loss of a potential number of swiftlets coming to roost and nest. Consequently, this paper proposes a combination of Global System for Mobile Communications (GSM) and General Packet Radio Service (GPRS) based temperature and humidity monitoring system to replace the manual monitoring. GPRS is a mobile service on the 2G and 3G cellular communication and it is one of the components in the Internet of Thing (IoT). The proposed method uses Arduino Uno to establish a connection between SIM900 GSM GPRS shield and the DHT22 temperature and humidity sensors. The outcomes of this established remote sensing provide a base for small scale swiftlet farmers to shift their traditional farming methods towards IoT based monitoring system.

KEBERKESANAN ALAT BANTU MENGAJAR EASY BEND DALAM AMALI PENDAWAIAN ELEKTRIK FASA TUNGGAL DI KOLEJ KOMUNITI BEAUFORT

Felani Stefanzie Choe , Nuratika Asyurah Binti Abdullah and Christoper Bin Asok

The function of Easy Bend teaching aid is to assist students in a process to shape PVC conduit during practical session for the subject of single-phase electric wiring. Easy Bend Teaching Aid is made from hardwood that has been cut and carved to provide a mold for creating 90 degrees conduit bend and 135 degrees offset. The teaching aid is capable to solve problems that students encounter such as conduit shape is not uniform, folded effect at the curve and can be as one of the alternatives in contrast to conventional method which uses human knee cap to bend. Thus, research has been undergone to identify the effect of Easy Bend teaching aid to fulfil all the objectives. Research has been conducted by using feedback from which consists of section A-Demographic, B-Knowledge, C-Design dan D- Motivation. The feedback form was distributed to 35 respondent comprises of students from Electrical Technology Programme (SKE) 1st semester Jun 2019 and Disember 2019 Kolej Komuniti Beaufort intake. Data collected was analysed by using IBM SPSS V26 software. Therefore, the outcome of this research shows that

most of the students have better understanding that they required to fulfil towards their practical session of conduit bending. The result number of total min score acquired is at high level of 4.3 which shows the design can help students in teaching and learning process and thus increase the motivation among them during practical session. This research findings show there is significant relation between the design and student's motivation via analysis of Pearson correlation (r) which indicates higher reading of 0.953. Therefore, Easy Bend teaching aid is an effective tool to assist students and capable to be as solution provider especially during practical session.

TAHAP KEBERKESANAN PENGGUNAAN SMART INFOBOARD: PC COMPONENTS (*SIPC*) SEBAGAI ALAT BANTU MENGAJAR

Nor Aznira Binti Yusoff and Melati Binti Sabtu

The purpose of this study is to identify the effectiveness of using Innovation: Smart InfoBoard PC Component (SIPC) as a teaching tool from a student perspective by looking at the aspects of Student Skills and Student Perspectives on the Effectiveness of SIPC as a Teaching Tool as a teaching tool in teaching and learning in the Hardware Lab Computers for the course DFC10033: Introduction to Computer System. The respondents of this study consisted of 36 Diploma students in Information Technology (Digital Technology), semester one of December 2019 session, Department of Information & Communication Technology, Polytechnic Sultan Mizan Zainal Abidin. The study design used descriptive survey methods using descriptive statistics comparing mean, percentage and frequency. A set of questionnaires was distributed to respondents to collect the required data. The collected data were analyzed using Statistical Package for the Social Science (SPSS) software. Overall, the results of the study showed that the level of effectiveness of the SIPC as a teaching aid among students was high. This can be seen from the results shown that most students understand computer hardware concepts better than traditional methods.

ERROR ANALYSIS OF THE WRITTEN ENGLISH ESSAYS OF DIPLOMA STUDENTS IN KUCHING, SARAWAK

Vetty Ng, Ying-Leh Ling and Marcus Kho Gee Whai

This study analyzed the most common grammatical errors in the written English essays of 42 diploma students in a higher learning institution in Kuching, Sarawak. Using the Error Analysis method and Markin 4 software, the errors were extracted and grouped into numerous categories. The analysis shows that the six most common errors were in word choice/vocabulary, singular/plural, verb tense, articles, capitalization, and preposition. Three English specialists were involved in the identification of possible causes of errors and recommendations for intervention. Both interlingual interference and intralingual interference were identified as major sources of error. It was suggested for the teachers to raise awareness of the difference in the structure of the students' mother tongue and target language so that the students can use the unique features of the language to write precisely. The teacher must also emphasize the rules of grammar of the language and enhance learning with drills and practices. Implications concerning various stakeholders were discussed along with recommendations for future studies.

DEVELOPMENT OF TEMPERATURE DISPLAY USING ARDUINO UNO MICROCONTROLLER

Nor Asiah Mat Yunus, Juliana Nawawi and Muliadi Wahid

Some of the school activities are required to be conducted outdoor. Hence, students are susceptible to sun exposure and prone to heat stress, which can aggravate other medical problems. This paper presents the development of the temperature display board by using a microcontroller. It is functional to notify users of ambient temperature in avoiding potential heat stress. The overall system constitutes the element of temperature acquisition and real-time display. The device comprises an Arduino Uno (R3) as a microcontroller that interconnects with a temperature sensor, an LED matrix P10 display, and a shift register 74HC595 module. The temperature sensor can stably measure the current temperature, and the LED matrix P10 display would show the measured value in real-time. In the experimental setting, the device has been installed at the school canteen of Sekolah Kebangsaan Petra Jaya Padawan Kuching Sarawak since 2018. It has been proven beneficial in informing teachers and students of the ambient temperature such that school activities can be conducted without being disrupted by extreme hot weather conditions.

KEBERKESANAN GAMIFIKASI MY ARC GAME (*MAG*) TERHADAP PELAJAR PROGRAM SIJIL TEKNOLOGI ELEKTRIK DI KOLEJ KOMUNITI BEAUFORT

Felani Stefanzie Choe , Nuratika Asyurah Binti Abdullah and Christoper Bin Asok

My ARC Game (MAG) is an educational approach via gamification that is implemented in the teaching and learning session of Single-Phase Electrical Wiring subject at Kolej Komuniti Beaufort. This approach is a solution to several problems encountered by students such as lack of motivation, less focus, and too many names of accessories students required to memorize. Research is conducted to identify the effectiveness of the gamification approach by using My Arc Game (MAG) to 1st-semester students. The research is using a quantitative method to 35 respondents by using feedback form which consists of section A-Demographic, B-Design, C-Motivation, and D-Comprehension. Research findings show the highest total min value is 4.26 and the standard deviation is 0.708. This indicates that students have a positive tendency to state that the design of My Arc Game (MAG) is suitable and capable to influence student's motivation to develop better comprehension skills in the theoretical study. Other than that, this research has implemented a pre and post-test to analyzed student's understanding. The result shows that majority of students obtained marks within the range of 45-75 (%) for the pre-test while for the post-test the students obtained marks within the range of 80-100 (%). This shows that the student's understanding is increased after playing My Arc Game (MAG). There is also a strong positive relation between independent variables of the game's design and dependent variables of student's motivation and comprehension. Pearson coefficient (r) value obtained is 0.919 for a relation between the game's design and student's motivation variable. Besides that, the Pearson coefficient (r) value obtained is 0.979 for relation between the game's design and student's comprehension variable. Hence, a gamification approach via My Arc Game (MAG) affect student's motivation and comprehension in learning Single-Phase Electrical Wiring subject.

KEPENTINGAN KEMUDAHAN TEKNOLOGI DAN MOTIVASI MEMBENTUK KESEDARAN PELAJAR DALAM PEMBELAJARAN DIGITAL

Nur Syarafina Binti Abdul Rahman , Zainal Fitri Bin Mohd Zolkifli and Ying-Leh Ling

A couple of years back, the internet revolution and communication technology have immensely growing and have since caused many interactive multimedia networks to popped up and one of them is digital learning. The awareness of the importance of digital learning is very much needed to be emphasized because, without it, students will be left behind in terms of education. This research is conducted to study technology facilities factors and motivation to shape student awareness towards digital learning. The research has been conducted to overall 99 respondents from a population of 119 students. The data analysis methods used are independent sample t-test and Pearson correlation test. Three conclusions have been made to the analysis of this research. The first conclusion is, researchers found that there is no significant relationship between technology facilities and student residence. Next, from the analysis, there is a significant relationship between students' motivation and their gender. Finally, findings show that there is also a significant relationship between technology facilities, students' motivation, and students' awareness of digital learning. Thus, it is important to note that the task and goal to help students to accept technology facilities and to motivate them towards awareness of digital learning lies on the shoulder of the educators and the institution.

PENGARUH SIKAP PEMANDU TERHADAP KETERLIBATAN DALAM KEMALANGAN DI BULATAN TELUK SEPANGGAR

Suzan Binti Impak

The accident statistics from 2017 to 2019 report that there have been 66 accident cases in the Sepanggar Bay Roundabout. The main factor in the crash was caused by an out-of-control vehicle being suspected of speeding. Generally, vehicles should be driven slowly when approaching the roundabout but the crash analysis records the highest accidents recorded due to speeding drivers. Therefore, this study was conducted to identify the driver's attitude in terms of speed limits when entering the roundabout and the driver's level of awareness of the warning signs approaching the Roundabout. The observation area is on a straight (606) road to the Sepanggar Bay Roundabout from Kota Kinabalu. The scope of this study is to identify the driver's attitude in terms of speed limits when entering the roundabout and the driver's level of awareness towards the warning sign approaching 30 meter before approaching the roundabout. The study respondents consisted of

individuals who used the Sepanggar Road and passed the Sepanggar Bay Roundabout. The population are 500 people and the sample size are 217 respondents. The questionnaire was distributed to road users through online links. The findings show that 23.7% of respondents drive without driving license. In addition, the majority of the respondents were 42.9% aged between 20 and 30 years. For behavioral reasons, the analysis found that 34.8% of drivers traveling at speeds exceeding 70 km/h at a distance of 250 meters approached the roundabout and 53.9% of road users were unaware of the presence of a warning sign, 30 meters prior approaching the roundabout. According to the findings, it is reasonable to report accident statistics from 2017 to 2019 which recorded 66 cases of accidents in the Sepanggar Bay Roundabout is due to out-of-control vehicles for suspected speeding. Hopefully the results of this study will be useful in reducing accidents around the Sepanggar Bay Roundabout.

INFRARED THERMOGRAPHY FOR BUILDING INSPECTION AT BANGUNAN SULTAN ISKANDAR

Victor Teng Kok Leong and Ho Yoong Chow

It is a common situation in most developing countries, especially in Malaysia where the utilization ratio of the sources of energy is low, the reliability service of equipment is not up to par, the cost of installation and planned preventive maintenance is high, and the loss due to less than stellar upkeep is heavy, and so on. Therefore, it is recommended the urgency in need of using infrared thermal imaging technique to improve energy saving, equipment diagnosis as well as fire searching. IR thermography is now displayed as an extremely useful tool in the study and advancing energy efficiency in buildings. Thermal imaging systems are used by the as a tool to detect, recognize and identify structures, lifts and all other equipment used inside the buildings. They can be used to evaluate the health of any electrical or mechanical component. This paper presents infrared inspection surface of insulation (TIM) and the temperature on the electrical installation inside Sultan Iskandar building located in Kuching. Based on the Thermal Imaging results obtained, can be concluded that the problem classification of all the Building Electrical System ranges from Minor to Critical problem. Most of the problems are due to high load and loose termination. The results of the findings will be further explored and discussed in details.

EFFECT OF CUTTING PARAMETERS ON SURFACE ROUGHNESS IN LATHE MACHINING PROCESS

Mohd Sufriansyah Bin Mansoor

One of the important considerations in manufacturing operation is surface integrity because it influences the fatigue strength and corrosion resistance for the finish product. Usually the value of parameters set for lathe machining process are based on experience or manual book. Hence, the value of surface roughness could be varied depending on the operator experience. This project investigates the effect of machining parameters of lathe machine towards the surface roughness. The machining parameters selected on the experimental project are cutting speed (75 m/min – 125 m/min), feed rate (0.2 mm/rev – 0.4 mm/rev) and depth of cut (0.1 mm-1.5 mm). From the result analysis obtained feed rate was the most influential parameters towards the surface roughness with 53.88% of the R-Sq% value with the second most influential parameters is cutting speed with 27.37% of R-Sq% value. In addition, the least influential parameters is depth of cut with only 1.05% of R-Sq% value. The surface roughness is increasing significantly with the increasing feed rate. Thus, feed rate is the most influential machine parameters of lathe machine that effect the surface roughness. This result could assist the operator to make change on feed rate value and make feed rate as priority parameter to be change to get the desired surface roughness.

TAHAP KESEDIAAN PEMBELAJARAN ATAS TALIAN PELAJAR KOLEJ KOMUNITI BEAUFORT (*KKBS*)

Siti Norazian binti Miskam, Liaw Yin Huat and Zulfadhli bin Osman

The 21st century has seen Online Learning (OL) taking over most of the traditional type of learning functions around the world. Students nowadays prefer the OL method because it uses technological tools as their learning medium. The 'chalk and talk' method and teacher-centered lessons are no longer able to attract students to learn. Digital technology has become a tool that needs to be used effectively to enrich and transform existing learning methods. This study was conducted to identify the level of students' readiness for online learning, types of activities using technology devices by students, and problems or constraints of online learning faced by students of Beaufort Community College, Sabah (KKBS). A total of 148 students were involved in this study. A set of questionnaires was used as a research instrument containing 25 items using the Likert Scale. Data were analysed using the software Statistical Package for the Social Science (SPSS) version 21.0. Overall, the findings of the study found that the level of readiness of

online learning of KKBS students is at a high level. Meanwhile, the main activities that students always do using the internet are learning, social media, search engines and entertainment.

THE SIMULATION OF AERODYNAMIC ANALYSIS ON DIFFERENT GROUND CLEARANCE OF PASSENGER CAR

Mohd Saiful Bin Saleh , Mohd Fakrul Razi Bin Jamaluddin and Anorrasyidi Bin Anwar

Increasing demand for reducing fuel consumption and environment friendly vehicles is one of the major issues in automotive industry. Research on Aerodynamic design is desirable to see the possibility of drag reduction. The objective of paper is to determine the impact of changing ground clearance height towards drag coefficient value. From literature review, drag coefficient is an important part in the vehicle aerodynamics. This is because drag coefficient influences aerodynamics drag in turn will influence in engine efficiency and vehicle performance. To achieve the goal, this project used Gambit software to mesh, FLUENT software for simulation and SolidWorks for design all model. The model has been designed in five models according to five different ground clearances of 200 mm, 215 mm 238 mm, 250 mm, and 280 mm. The simulation analysis in this project focuses on laminar flow. The velocity use in this analysis is 10 m/s, 20 m/s, 30 m/s, and 40 m/s. The frontal area for each model is fixed at 1.70 m². According to the result from laminar analysis, when the ground clearance increase, the drag coefficient will increase. Meaningless, the different exposed area of tire and underneath vehicle based on ground clearance influences air flow velocity and pressure. This characteristic will affect towards drag coefficient and drag force value. However, this analysis based on simple shape of vehicle. For future research, actual shape and components of vehicle is necessary to get better value of drag coefficient.

PERANAN BAHAN BANTU MENGAJAR DAN PERSEKITARAN MAKLUM BALAS DALAM MENINGKATKAN KUALITI PEMBELAJARAN PELAJAR

Charles Muling Libau and Ying-Leh Ling

This quantitative descriptive study aimed to determine the effect of teaching aids and feedback environment towards student learning in Sarawak. A total of 116 students from local institution (TVET) of Sarawak participated in this study. The data were collected using a questionnaire that had been adapted from previous researchers. The results of hierarchical regression analysis showed a strong relationship between teaching aids and feedback environment with student learning. Furthermore, the findings have shown that the quality of feedback and the use of teaching aids has an impact on student learning. In terms of the implication, educational institutions should emphasize the quality of feedback delivered to the students and ensure the use of teaching aids is adequate and in good condition to help create effective learning for students.

ANALISIS GRADUAN DAN BIDANG PEKERJAAN: POLITEKNIK KUCHING SARAWAK (*PKS*) 2017-2019

Noorhasmah Binti Yahya, Suraini Mat Abu and Sabrina Binti Milan

The marketability of graduates has become a global issue because it involves the issue of education which is a pillar of life in a society. This issue is also given attention by the Malaysian Polytechnic in general and the Kuching Sarawak Polytechnic in particular to ensure the quality of the education system as well as the field of employment chosen by the graduates. The design of the study is descriptive using a quantitative approach, a web application software developed to obtain profile information of graduates of training institutions and skills called TVET Graduate Tracking Study System conducted online used and data in process using the SPSS program (Statistical Package for School Science). Respondents consisted of graduates who graduated in 2017, 2018, and 2019. A total of 1154 graduates graduated in 2017 from a population of 1419 people, 1278 graduates in 2018 from a population of 1278 people, and 1327 graduates in 2019 from a population of 1536 people. Almost 70 percent of graduates in the main field of study in PKS are Engineering, Manufacturing, and Construction, and almost 60 percent of these graduates also admit that the job obtained is equivalent to the qualifications they have, namely working in the main job group as Technicians and Professionals. While for graduates in the field of Social Science, Business and Legal almost 50 percent choose to work as a Support Employee. All this is in line with the vision of the Polytechnic to become the leading Technical and Vocational Education

and Training (TVET) institution in Malaysia, as well as answering the objectives of the study to find out the group of jobs ventured by graduates in major fields of study at PKS.

TAHAP PRESTASI DAN PENCAPAIAN GRADUAN SIJIL PEMASANGAN ELEKTRIK KOLEJ KOMUNITI BEAUFORT, SABAH

Liaw Yin Huat , Siti Norazian binti Miskam and Kamarul Bahrin bin Abdul Mutalib

The essence of the first leap in Malaysia Education Development Plan (MEDP) (Higher Education / PT) 2015 - 2025 are Holistic, Entrepreneurial and Balanced Graduates, that enable students upon graduation. This is because the progress of the country in the future is highly dependent on the efforts of all parties in producing skilled, competitive and high value-added human capital to ensure stable economic growth. This study was conducted to identify the level of performance and achievement of the graduates from Electrical Installation Certificate (SPE) Beaufort Community College, Sabah (KKBS) by comparing the achievement of graduates based on recruitment sessions, employment status and entrepreneurial status of graduates. The sampling of this study involved all KKBS SPE graduates consisting of 3 main intake sessions that are June 2015, June 2016 and June 2017 session totaling 56 students. A set of questionnaires was used as a research instrument containing 16 items using the Likert Scale. The data were analyzed using Statistical Package for the Social Science (SPSS) 21.0 software. Based on the results of a pilot study involving 10 randomly selected graduates, the Cronbach's Alpha value obtained was 0.881. While the actual Cronbach's Alpha value of the study obtained when the study sample answered was 0.946. Overall, 38 graduates or 79.2% are still pursuing careers in the field of electricity (working in the field and continuing their studies) and the balance of 22 graduates or 45.8% are entrepreneurs. The study shows that the level of performance and achievement of graduates is at a high level of 3.99 (min) and there is no significant difference between min and all intake sessions with the level of performance and achievement of SPE KKBS graduates.

PENGGUNAAN PETA MINDA MENINGKATKAN DAYA MENGINGAT DAN MINAT MENGULANG KAJI BAGI KURSUS PRINSIP PENGURUSAN

Faridah Binti Che In and Suhana Binti Matlin

This action research was conducted to see the effectiveness of the method of use of mind map notes on students who take management courses to solve students 'problems in remembering the content of leadership topics and further increase students' interest in the use of mind map notes to review. A total of 26 students were involved in this action research. The results of the initial survey that has been carried out through theoretical tests in the classroom found that the previous results obtained by the students are at a relatively alarming level. So the focus of this study is to overcome the problem by introducing an alternative method that is the use of mind maps to enable students to remember the topics taught and master the content in the subject more effectively. Therefore, cooperative learning teaching method using mind map was implemented and it was found that the comparison of results between Pre-Action and Post-Action Test on these 26 students has increased relatively. Pre- and post-test results were analyzed using descriptive statistics while student perception questionnaires were analyzed by counting percentages. Descriptive statistics show that the mean percentage increase in scores between pre and post-tests is 28.94%. Students' interest in learning the principles of management, namely leadership and revision using mind map form notes has also increased compared to linear form notes.

DEVELOPMENT OF SUCTION HEAD PRESSURE FOR SPENT GARNET

Yueh Seng Chew , Tze Ching Ong and Andy Buja

Waterjet cutting operates by injecting water at high pressure together with abrasive material known as garnet to corrode the base material in the cutting process. The mixture of water, garnet and residue of corroded material is accumulated in the accumulation tank. The current practice in waterjet cutting industries do not recycle spent garnet and normally disposed in the landfill or mixed with cement in concrete for construction purpose. Hence, this research aims to investigate the optimum suction head for the recycling system of the spent garnet. The development of suction head in the recycling system is crucial to ensure the separation of spent abrasive garnet with material residue in forms of sludge. A closed-loop continuous flow filtering system is developed featuring venturi type sludge suction pump and multi-stage filters/separation. The venturi suction is connected to a primary pump and the secondary pump is attached at the other's end of the extraction flow. Findings show the highest extraction at 1.4833

liters per second of the spent garnet was achieved when the primary pump pressure is constant at 100 bar and secondary pump at 125 bar. Therefore, future works on a more comprehensive study can be conducted by deploying the significant results for field-testing in an industrial waterjet cutting.

OPTIMIZATION OF PROCESS PARAMETERS OF ABRASIVE WATER JET MACHINE ON SURFACE ROUGHNESS USING MODELLING APPROACH

Saipul Azmi Bin Mohd Hashim, Nurul Syarafina Binti Sholahuddin and Jusoh Bin Anuar

Surface Roughness (SR) is an important parameter that weakens a product behaviour such as lowering wear resistance, tensile, and ductility. Due to SR is influenced by machining parameters, thus having access to know the parameters that give minimum SR is required. Alternatively, soft computing usage is an advantage that produces the required parameters in double data type. Thus, this study aims to use three soft computing approaches to determine the minimum SR and to produce optimal machining parameters. It began with a set of data based on the values of Water jet pressure, Standoff distance, and a Regression Model correlates Jet traverse speed of the input and SR for the output. Then, the model is used as the objective function for the three soft computing approaches for optimization, i.e. Genetic Algorithm, Particle Swarm, and Simulated Annealing. The approaches determined the minimum SR, and the optimal machining parameter. Besides, the result shows that the minimum SR for Genetic Algorithm, Particle Swarm, and Simulated Annealing are lower than experiment result. The Genetic Algorithm, Particle Swarm, and Simulated Annealing result are lower at 8.77%, 8.82%, and 6.79% decreased, respectively. This finding helps the machinist and engineer in this line to use the right parameters in producing the lowest minimum SR.

IN-SITU EXPERIMENTAL TESTING OF A MAGNETIC PICKUP FOR MEASUREMENT OF ROTATIONAL SPEED IN A HYDROKINETIC TURBINE APPLICATION

Diana Ringgau

A Hydrokinetic Turbine (HKT) system's rotor is usually tested in a towing tank or recirculating current flume facilities. The aim of this test is to identify the performance curves of the turbine and to obtain the rotational speed of the rotor in relation to flow velocity. However, there are no facilities to perform such tests in local universities or industrial research centers. Extensive measurements of continuous real-time rotational speed and water velocity are necessary in the test. This study serves to present a compatible conditioner circuit for magnetic pickup to measure rotational speed in an HKT system, and an alternative technique to derive the relationship between the rotational speed, river velocity and Tip speed ratio (TSR) through the performance of in-situ experimental testing. A magnetic pickup, MP-62TA produced by Red Lion Controls was used to measure rotational speed in an HKT system. An integrated circuit LM2917 was used in the magnetic pickup's conditioner circuit. Zero Cross Algorithm measurement technique was applied to the conditional circuit. The conditioner circuit was such that it was able to convert 7 Hz to 62.5 Hz into voltages from 0.56 V to 5.0 V with less than 1% of error. For in-situ experimental testing, an HKT system with a rotor radius of 0.3 meters was deployed at Sungai Sarawak Kiri in Sarawak, Malaysia for two (2) days. The experimental data from the in-situ experimental testing projected that the cut-in speed would supposedly happen when the rotational speed (Ng) reached a range of 121.89 rpm to 411.6 rpm. The data also demonstrated that the HKT system's maximum power coefficient was recognized from the river velocity when the TSR value was around the range of 4.8 - 5.1. The relation of rotational speed and river velocity with their TSR values indicates that there were strong agreements in the relations between these attributes.

SMART SWEEPER MACHINE

Muhamad Syafiq bin Zainun, Nur Raihana binti Sukri and Intan Liyana binti Ramli

Majority of cleaning service companies in Malaysia still use conventional broom for road sweeping work. Road sweeping activity by using conventional sweeper requires more energy and cause ergonomic problems for the long term. Another alternative is a mini road sweeper that uses fuel but still costs a lot for maintenance. Apart from that, there are also mini road sweeper that uses batteries in the market but the operating costs for this type of machine is relatively high. Innovation to increase the productivity of road sweeping activities while preserving the environment is extremely important in this era of industrial revolution 4.0. Nowadays, hybrid solar system is an interesting choice in green technology and widely used as an alternative to replace the energy produced by fossil fuels. This machine uses a hybrid solar system for the drive wheel where the 12V battery for the drive wheel is connected directly to the inverter. This system is ideal for road cleaning operation with minimal impact to the environment. The machine has two motor-driven brushes, two vacuums and a trash can. The front brush will collect debris or leaves along the way. In addition, two vacuums are installed to form a high-speed rotating airflow inside the cylinder barrel; or known as a cyclone action. This machine is wirelessly operated by a remote control for a maximum distance of 300 meters. The remote control will control the movement of the machine, vacuum, brush and safety lights. Thus, the ergonomic problems that occur with existing manual road sweepers can be solved.

POTENSI PENGGUNAAN KARBON TERAKTIF DALAM MELESTARIKAN SUNGAI MELAKA

Shahrun Nazida Salleh, Erita Mazwin Mazlan and Mohamad Azwan Ikhwat

Water pollution is one of the main threats to the sustainability of river resources in Malaysia. This situation causes water resources to be limited and various agricultural, livestock, transportation, recreation and tourism activities are also affected. Therefore, the quality of river needs to be protected with various water treatment methods so as not to experience destruction. The aim of this study is to treat Sungai Melaka using activated carbon from coconut shell. Objectives of this study is to determine the class of water pollution in Sungai Melaka based on the Interim National Water Quality Standard for Malaysia (INWQS) and to identify the effectiveness of activated carbon for the reduction of pH, turbidity and ammonia nitrogen. Water samples were collected from 3 different locations in Malacca River, namely Taman Rempah, Bachang and Batu Berendam. The results show that

Malacca River is in Class III which is clean but not suitable for recreational activities while the use of activated carbon is able to neutralize the water and reduce the turbidity and ammonia nitrogen of river. In conclusion, activated carbon is effective in purifying water quality in Sungai Melaka.

KESAN GAS PELINDUNG DALAM KIMPALAN ARKA LOGAM TERHADAP MIKROSTRUKTUR KELULI TAHAN KARAT

Saifuldin Abdul Jalil , Liyana Norizan and Mariyam Jameelah Ghazali

The strength of a joint in the welding depends on the thickness of welded neck and also the change in grain structure of welded zone area (between the heat affected zone and weld metal). This study aims to determine the effect of different shielding gas used in gas metal arc welding on its joints. The microstructure produced in heat affected zones is observed in this study. Superior corrosion resistance for both moderate and high temperature applications will defer according to the type of shielding gas used. Carbon dioxide and gas mixture of 82% carbon dioxide + 18% argon are used as variables. In order to obtain comparable result for different type of gas used, parameters during the gas metal arc welding process is kept constant. These parameters includes speed during welding, the thickness of each iron plate size and angle used during welding. Microstructure formed in the welded area is recorded using optical microscope. Based on the analyses done on the data obtained, there is no significant changes in the microstructure of the welded area and heat affected zone compared to the parent metal. Stainless steel grade 304 has bigger grain size compared to stainless steel grade 316. This microstructure shows that stainless steel 304 has higher hardness and tensile stress compared to stainless steel 316.

METACOGNITIVE READING STRATEGIES OF LOW PROFICIENCY ESL STUDENTS IN MALAYSIA

Mornita Deri

Reading comprehension is a critical skill in the educational success of students. In ESL settings where the medium of instruction in higher education is English such as in Malaysia, it is a challenge to ensure that these students have the right strategies to cope with complex texts. Thus, this case study intends to explore the metacognitive reading strategies of a selected sample of students in a selected higher education institution in Malaysia. The specific aspects examined were the difficulties faced by the students and the 'fix-up' strategies that they had utilised to cope with any reading comprehension difficulty. The main research instrument used was an interview which was supported by a think-aloud task to better understand the users' reading comprehension processes. The findings revealed that the participants were not monitoring their comprehension or regulating it via workable strategies. On the whole, the findings revealed that, the participants lacked critical thinking capacity, and was unable to interpret phrases in context. The findings suggest that the causes of reading comprehension difficulties reported by learners were from poor linguistic competence with unfamiliar words, complex sentences and topic unfamiliarity.

PELAKSANAAN PENILAIAN DAN PEMARKAHAN AKTIVITI AMALI KURSUS RANGKAIAN MENGGUNAKAN APLIKASI ACTIVITY GRADER

Mohd Adil Bin Mat Ti @ Mokti and Nor Hanani Binti Mohd Yusoff

Packet Tracer software is used to develop computer network topologies and make a configuration setting without the involvement of the actual hardware. As for Diploma in Information Technology (Digital Technology) program in networking track, this software is used in several networking courses to perform practical activities. The use of this software can also help and improve students' cognitive skills and make it easier for lecturers to evaluate each activity. However, the process of evaluating and scoring the practical activities is less efficient and takes a longer time to complete. In this study, the existing Packet Tracer software was improved by installing the Activity Grader application to implement the process of evaluating and scoring students' practical activities simultaneously and automatically. Questionnaires were used to obtain respondents' views on their level of understanding, confidence, suitability, effectiveness, and productivity before and after using the Activity Grader application in Packet Tracer software. The results of the study showed that all respondents agreed that the use of Activity

Grader application in Packet Tracer software is very appropriate and facilitates the implementation of the evaluation process and scoring of practical activities of network courses for DDT programs as well as it can help and save respondents time. With the use of this Activity Grader application, hopefully it will be able to become the best alternative in improving the existing process.

EFFECT OF VERTICAL REORIENTATION OF THE GATING SYSTEM ON THE QUALITY OF AN INVESTMENT CAST ALUMINIUM ALLOY

Zikri bin Zakaria, Norazira Binti Selamat and Mohd Fakhrur Razi Misran

The aim of this research is to study the effect of vertical reorientation of the gating system on the quality of an investment cast aluminium alloy. The quality of casting produced from the reorientation of the gating system and the optimum size of the reorientation of the gating system to possibly enhance the casting yield is investigated. Three types of orientation in gating system are applied which is horizontal orientation (current design) and two vertical orientation with different dimension of the shell mould. One of vertical orientation gating system is redesign in order to reduce the waste and to see the changes or the effect that possibly occur to the product. The pouring temperature is set for 660°C by using LM25 (aluminium alloy). The quality characteristics of the casting that will be analysed are the microstructure and physical geometry of the casting produced which are established after pouring. The microstructure and physical geometry will be tested by using Nikon microscope and naked eye. The analysis of the orientation exercise also will be conducted on the mould provided by determined the investment casting foundry. The optimum size of the gating system will be measured by considered it with suitable design base on its orientation and the casting yield will be measured by calculated it base on its design.

CIDOS USAGE AMONG STUDENTS OF DIPLOMA IN GEOMATICS: EMPOWERING WEB-BASED LEARNING IN POLITEKNIK KUCHING SARAWAK

Mohamed Yusup bin Mohamad Yackub and Joshua anak Ribi

This research investigated the factors contributing to the usage of CIDOS among Diploma in Geomatics (DGU) students and identifies the comparison between the usages of free PKS internet with personal internet data among coverage in Politeknik Kuching Sarawak. This research also investigated the relationship between factors contributed to CIDOS usage among DGU students and free PKS internet in Politeknik Kuching Sarawak. In this research, the quantitative method with a random sampling technique was used to collect the data from respondents. The research population was made up of 78 DGU students of third, fourth, and fifth semester in Politeknik Kuching Sarawak. Questionnaires were constructed and adapted from the Technology Acceptance Model to suit the research objectives. According to this research analysis, the highest factor contributed to CIDOS usage was caused by the need for students to obtain lecture notes and teaching materials from CIDOS. Meanwhile, the usage of free PKS internet was low than the use of personal internet data among DGU students. Correlation analysis revealed that there was a significant relationship between factors contributed to CIDOS usage among DGU students and free PKS internet in Politeknik Kuching Sarawak. Factors that contributed to the usage of CIDOS must be taken into consideration by PKS Management in order to foster the adoption of a web-based learning management system such as CIDOS for teaching and learning. Free PKS internet needs to be improved in terms of speed and accessibility especially at locations that need an internet connection to ease access to CIDOS by students and lecturers.

KONSEP RUANG SERAMBI RUMAH TRADISIONAL MELAYU NEGERI SEMBILAN DALAM MENDIDIK ADAB PENGHUNI RUANG

Siti Fatimah Tuzzahrah Bt Hj Abd Latif , Roslina Bt. Muda and Dr. Kamarul Afizi bin Kosman

The traditional Malay house architecture is the best example of residential design that consider all the sustainability factors including environmental, socio-cultural and civilization. The traditional Malay house design is a manifestation of culture by the Malay ancient community. Reinterpretation the uniqueness of Malay houses design concept has to be implemented to improve the public understanding about the importance of having a functional architecture which reflected to the culture and identity of the country. This article will discuss the concept of Negeri Sembilan traditional Malay house serambi space in educating the manners of occupants. The

objective of the study is to identify the role of Negeri Sembilan traditional Malay house serambi space towards the formation of values and ethics of space occupant during execution of custom activities. The methodology used is a combination of qualitative research methods which is previous studies analysis, observation and narrative study. Several respondents were interviewed and all the data obtained were systematically arranged in tabular form for analysis and detailed descriptions. The results showed the serambi space of Negeri Sembilan traditional Malay house has been serves to educate the spiritual and character of the Malays community in Negeri Sembilan. The Physical design and spatial arrangement in serambi space has contributed the creation of a beautiful character of Malay cultural behavior which compliance with the Islamic law and custom needs.

STUDENT BEHAVIOUR MOTIVATION OF PHYSICAL ENVIRONMENT DURING PRACTICAL WORK

Nurazura Rali, Redzuan Safri Abdul Rahman and Mardiana Mohammad

A comfortable workplace depends on physical environmental and is closely related to a person's perception on thermal comfort and parameter measurement. At Politeknik Kuching Sarawak, students spend more than 3 to 4 hours in workshops and laboratories during practical work. Therefore, a study on the student behaviour motivation towards the physical environment should be conducted to survey their perceptions as well as measure the physical parameter to verify the situation. Field study was conducted for 3 workshop buildings at the Engineering Department. The thermal comfort measurement is based on two parameters; air temperature and relative humidity. The parameters are measured by using a Thermo-Hygrometer apparatus. Then, raw data were analysed to obtain mean data and compared with the standard requirement to identify the thermal condition. This research also evaluates students' behaviour motivation towards the physical environment based on their own perceptions by using survey question. Respondents were randomly selected and consisted of 60 engineering students. The survey questions used in data collection are focused on thermal comfort satisfaction and visual comfort. Raw data then were analysed to obtain the percentage. The finding show that the measurement of parameters in the workshop building fluctuates throughout the day. The Building Service Workshop and Carpentry Workshops are outside of the comfort zone. Students' perceptions of behavioral motivation surveys on the physical environment are equivalent to parameter measurements. The conclusion and some suggestions are made in this research and will be channelled to the Department of Civil Engineering and management team on how to maximize thermal comfort while minimizing energy consumption.

DESIGN OF MILLIMETER-WAVE MICROWAVE MICROSTRIP BANDPASS FILTER

M.Aly Rajaie Halim, Zahidi Zamzuri and Kamaruddin Kamit

Radio frequency (RF) filter or microwave filter is a kind of passive device with combined of two-port network because it will passes the desired signal and will blocks with the unwanted signal propagation. Filters are regularly utilized as direct separators in microwave and millimeter-wave handsets. Basically, the filters technology has four types of frequency responses which are lowpass, highpass, bandpass, and bandstop characteristics. The congestion in the widely used microwave bands meant designers had to start considering alternative frequency bands. The available bandwidth in the current frequency bands are starting to obstruct the constantly growing demand on higher data rate from the market. On the other hand, at millimetre-wave (mm-wave) frequencies, such as 30 GHz to 300 GHz, there is a similar large amount of spectrum radio available. The wider bandwidth can support higher multi-Gbps data-rate, which is very challenging to achieve at lower frequency range. Bandpass filter is an essential component, in microwave wireless communication systems, which is typically used in both receivers and transmitters. Bandpass filter with wideband passband has been attracting a lot of interests of researcher to employing different methods and techniques. Passband microstrip coupled line filter are widely used in daily microwave engineering practice. There are various topologies to implement microstrip bandpass filters such as end-coupled, parallel coupled, hairpin, interdigital and combine filters. This paper present the design and simulation of bandpass filter by using microstrip technology. Therefore, this paper presents techniques for the design of microwave bandpass filter at 37.5 GHz which cover with fractional bandwidth of about 25%. The return loss is better than 15 dB and insertion loss is less than 0.5 dB. However, the bandwidth simulation is about 6.63 GHz than specification of design which is 9.4 GHz. System (ADS) software was used to simulate the design from circuit element to physical momentum realization.

STUDENTS' PERCEPTIONS ON THE IMPLEMENTATION OF TASK-BASED LANGUAGE LEARNING IN COMMUNICATIVE ENGLISH CLASSES AT POLITEKNIK KUCHING SARAWAK

Wong Tee Wei

For English language learners, speaking is a very important skill because it is necessary for their learning and daily communication. Nevertheless, English language learners often find it hard to express their ideas and thoughts. Such problems have affected learners' motivation and interests in learning the language

in the classroom. In response to this scenario, this study aimed to investigate students' perception whether the implementation of Task-based Language Learning (TBLL) in Communicative English class would have a positive effect on students' speaking performance and learning motivation. Task-based lessons and activities were designed to help students to achieve the targeted learning outcome of the given topic. Students were required to complete the three stages of pre-task, task cycle and language focus. Once students completed all the lessons and tasks, they were required to deliver an oral presentation on the topic. Questionnaires were then employed as data collection instruments to determine students' perceptions towards the implementation of Task-based language learning in the classroom. The quantitative analysis of the data revealed that a vast majority of students recognised positive perceptions towards the implementation of TBLL in their Communicative English classes and students acknowledged a positive relation towards their speaking performance and language learning motivation.

KESAN BEKERJA SAMBIL BELAJAR DI KALANGAN PELAJAR KURSUS SECARA SAMBILAN DI POLITEKNIK SULTAN HAJI AHMAD SHAH

Azimah binti Jusoh @ Alias , Anis Salwani bt Abu Bakar and Nor Hamiza binti Ghazali

This study was conducted to study the effects of working while studying among students of Part-Time Courses at Sultan Haji Ahmad Shah Polytechnic (POLISAS). A total of 25 respondents were selected from the Diploma in Electronic Engineering (Communication) course and the Diploma in Civil Engineering course at random from all students who took the Part-Time Course. The objective of the study was to identify the effects of the three main aspects, namely self-management, time management and the social life pattern of the respondents. The study source consists of primary and secondary data. Questionnaires were distributed to respondents to obtain research information. This data is processed using Statistical Package for Social Science (SPSS) software. The results of the study showed that the average mean score obtained by the three objectives was at a moderate level of 3.70 for self-management, 3.71 for time management and 3.55 for social life. This means that the effects of working while learning on self-management, time and social life patterns are still at a moderate level. Therefore to achieve excellent in academics every students needs to wisely manage themselves, times and social activities. Implications from this study in order to encourage more employees who are working in the organization to continue the intention to continue their studies without thinking about the negative effects that will be received.

POTENSI PEMBANGUNAN EKOPELANCONGAN RUMAH RAKIT DI KAMPUNG PAROH, KUCHING.

Zainah binti Seman , Zainal Abiddin bin Ahmad and Sharifah Mahani binti Syid Assimie

This research highlights the potential of raft house ecotourism development at Kampung Paroh, Kuching. Raft house ecotourism has been regarded as a unique and attractive form of tourism. It combines eco-tourism together with cultural and community-based tourism to reach the ultimate goal of sustainable development. The main objective of this study is to determine the potential of raft house development at Kampung Paroh, Kuching, and its ecotourism development. A total of 50 questionnaires were distributed to the Kampung Paroh's residents. Descriptive and inferential statistical analyses were used to measure the potential of ecotourism development, economics, environment, infrastructure, and facilities factors. The findings show that the residents of Kampung Paroh have a positive attitude towards the potential of raft house development in the area (m=4.92, SD=1.1025). There were no significant difference between respondent's job sectors towards the potential of ecotourism (F=0.189, p= 0.829), economic (F=0.216, p=0.806), environment (F=1.107, p=0.339) infrastructure and facilities factors (F=2.945, p=0.062). Results also indicate that there was no significant difference between respondent's status towards the potential of ecotourism development (F=1.484, p=0.237), economics (F=1.088, p=0.345), environment (F=2.898, p=0.065), and infrastructure and facilities factors (F=0.673, p=0.515). The development of ecotourism at Kampung Paroh will give the job and entrepreneurial opportunities to the residents in order to gain more income and improve their standard of living.

PORTABLE RAINFALL SIMULATION MODEL

Zainap Binti Haji Lamat and Yuhani Binti Jimian

The simulation portable rainfall model is a method of producing an artificial rainfall that has the same characteristic as natural rainfall. It is needed in the hydrology study learning process to assist and speed the time to accomplish the related experiment. Besides, it is also easily can be used to repetitively produces artificial rainfall. It is because the natural rainfall is depending on the unpredictable weather condition and the intensity of rainfall cannot be reliably reproduced and contribute delays in completing the knowledge process. The objectives of this study are to produce the Simulation Portable Rainfall Model for

Civil Engineering Programme at Politeknik Kuching Sarawak and to identify its workability. The simulation model structure is constructed from Polyvinyl chloride (PVC) pipe with a single 50WSQ sprinkler nozzle at a height of 2.6m. A centrifugal pump 0.5Hp is used to pump water flow continuously with a maximum velocity of 1.18m/s. The simulator cover of 1.6m x 1m plot area with a mean coefficient of uniformity of 88%. From the result, it shows that the simulator can produce rainfall intensities from the first reading to the last reading 79.58mm/hr, 79.59mm/hr, 78.61mm/hr, 77.78mm/hr, and 77.29mm/hr constantly. The mean of rainfall intensity is 78.57mm/hr. Uniformity of rainfall distribution ranged from 86-90%. This portable rainfall simulation model is lightweight and can be easily installed and manage with just two persons on site. The simulation of a portable rainfall model is not limited to obtain rainfall data but also can be used for other studies such as surface runoff, infiltration, and soil erosion.

COMPARISON OF AIR FLOW CHARACTERISTIC IN WELDING WORKSHOP USING DIFFERENT LAYOUT DESIGN

Sezee Gorotop and Chen Kok Min

Air flow in a building is important in order to ensure occupant comfort and health, as well as to control equipment damage from moisture. Air velocity and mechanical air handling equipment influence the airflow accross the building enclosure. The purpose of this study is to predict the flow characteristic at the welding workshop in Politeknik Kuching Sarawak using different layout design. The data collected are air temperature, air velocity, layout size, and building size. The Solidwork modelling of welding workshop base layout was construct and used in ANSYS Fluent simulation in order to evaluate the airflow distribution in welding workshop. Three models was evaluated by running a simulation in order to analyze the flow characteristic influence to the design of layout made. Out of three models, Model 2 layout has improved the airflow circulation and gain 2.95 m/s of air velocity at the outlet of building. Meanwhile the airflow velocity at outlet for Base layout model is only 1.86 m/s. Higher air velocity at outlet, will promote better natural ventilation in a building.

FACTORS INFLUENCING CONSTRUCTION WASTE GENERATION IN SELECTED BUILDING SITES IN KUCHING, SARAWAK

Flora Anak Albert Daud and Sezee binti Gorotop

Construction waste management issues in construction industry is a great challenge to various parties involving clients, suppliers, consultants, contractors and government sector. This is due to the environmental concern which it can affects the efficiency and productivity growth in construction industry. Therefore, this study was conducted to identify the sources and root causes of the construction waste generation especially in Kuching city. The questionnaires were distributed to the selected companies involved in building construction projects in Kuching city. Survey responses were analyzed using Statistical Package for Social Science (SPSS). From the data obtained; block, insulation and packaging are the major sources of construction waste generation at construction site compared to other sources such as steels and timber which remarked the least frequencies among the 14 sources. The study also reveals that the most significant factor influencing construction waste generation is ordering error compared to other factors such as varying in tender method which has the least frequencies among 10 factors. Through this study, it helps to enhance a better understanding regarding the construction waste generation in some selected building sites in Kuching.

KONDISI TEMPAT KERJA DI LADANG KELAPA SAWIT FELDA UMAS, TAWAU, SABAH DARI PERSPEKTIF PEKERJA

Anbukkarasu Paramasivam, Rusli Bin Amir and Dalinah Banting

Perbincangan isu kondisi pekerjaan di sektor perladangan menjadi satu perdebatan sejak tahun 1970an hingga hari ini terutama sekali selepas pengenalan elemen RSPO. Untuk meninjau isu ini, satu kajian telah dijalankan di Felda Umas Tawau, Sabah untuk mengetahui kondisi tempat kerja di ladang kelapa sawit dari aspek keselamatan dan kesihatan, kemudahan asas serta upah dan gaji. Dalam kajian ini terdapat tiga persoalan dan objektif kajian yang mana kesemuanya membincangkan mengenai kondisi pekerjaan di ladang kelapa sawit. Pengkaji telah menggunakan pendekatan kuantitatif dalam mengumpul maklumat untuk kajian ini. Sebanyak 88 set borang soal selidik telah diedarkan kepada responden. Hasil daripada perbincangan kajian menunjukkan pekerja mempunyai persepsi bahawa kondisi tempat kerja di ladang kelapa sawit berada pada tahap yang baik. Hasil kajian ini juga penting dalam memberikan panduan berkaitan kondisi yang sesuai diamalkan di ladang kelapa sawit selain menjadi pengukur kepada kualiti pengurusan ladang kelapa sawit yang efisyen.

PRODUCTION OF MULTIPURPOSE VACUUM CLEANER EXTENSION TANK (*MVCET*)

Petrus Julini Anak Goel , Ledia Anak Angul and Victor Teng Kok Leong

Vacuum cleaner is one of the handiest household cleaning appliances used today. The simple yet effective in cleaning dust and other small particles off from surfaces helps cleaning become more efficient. By using suction capability, the vacuum whisks away dirt and stores it for disposal. The existing vacuum cleaner unit is generally a set of electrical appliance units that contain cleaning units, dust bags or dust storage tanks and air purifying fans. The nature of the existing vacuum cleaner is that it will suck up everything into the collection tank or dust bag. There are many times when precious tiny objects accidentally sucked into dust bags and cause the items to be contaminated. Usually, the retrieval process is carried out upon emptying the tank or dust bag or during dismantled for cleaning. Multipurpose Vacuum Cleaner Extension Tank (MVCET) is an additional tank unit invented as temporary storage. By connecting MVCET with an existing vacuum cleaner, all sucked objects will go through MVCET before its flows to the dust bag. MVCET helps in simplifies the process of retrieving items and precious belonging.

MULTIPURPOSE VACUUM CLEANER EXTENSION TANK (*MVCET*) SUCTION TEST

Petrus Julini Anak Goel and Ledia Anak Angul

Vacuum cleaner suction power may be provided in the manufacturer's specifications in several ways, by various units such as Watts, Amperes, CFM (cubic feet per minute) or AW (Air Watts). [2] There are many different types of vacuum cleaner, but all of them work on the same principle of creating negative pressure using a fan, trapping the sucked-up dirt, cleaning the exhaust air, and then releasing it. [4] Multipurpose Vacuum Cleaner Extension Tank (MVCET) is a temporary storage tank, invented without any electrical, motorized vacuum pump. To works, a suction nozzle from the main vacuum cleaner is connected to the MVCET suction port. The vacuum suction then continues flowing onto the MVCET storage tank via its new flexible hose. MVCET is an additional storage unit created to improve the object storage system. When connected to MVCET, all objects sucked by the existing vacuum cleaner will go in MVCET. The unit simplifies the process of retrieving items. Since MVCET operations similar to a vacuum cleaner, the CFM test is selected to identify its capability. The test will look at factors that probably drop the CFM reading when different types of hoses are connected on two different suction ports. Two units main vacuum cleaners with different power was used for the test. CFM test results on MVCET indicate that the unit able to works just like other ordinary vacuum cleaners. Further improvement can be done

on the unit to improve CFM while maintaining its multipurpose ability during cleaning works. For those who love multipurpose appliances, MVCET is another alternatives cleaning device that will improve vacuum cleaning works.

SETTING OUT FOR BUILDING FOUNDATION BY USING COORDINATE METHOD

Lee Kong Fah , Tiong Hua Sang and Pang Siow Juen

Setting out is one of the important process in the construction surveying for the construction projects such as tunnels, mines, shafts, bridges, dams, roads, buildings or other structures construction. The most basic task is to stake out points and markers that serve for guiding the construction of new structures according to the design. Methods used for setting out are generally simple but difficulties are often inaccurate there are no hard and fast rules but there are a few general factors that must be observed. This article aimed to discuss and delivery the technique of setting out position for the building foundation by using coordinate method. There are two main task such as calculation the setting out data by autocad software and setting out by using the known bearing and distance data. The final output of this study are coordinate, bearing and distance of the position for the building foundation. In conclusion, coordinate method is a suitable technique for the setting out position for the building foundation by using a autocad software.

ESTABLISH GROUND CONTROL POINTS USING TOPCON HYPER VR BY REAL-TIME KINEMATIC METHOD

Lee Kong Fah , Stuart Otto Anak Wilson Munan and Muhammad Firdaus Bin Aminuddin

Traverse is a method in the field of surveying to establish ground control points. Ground control points are points on the ground with known coordinates. Ground Control Point is a physically marked location with a fixed position. The accuracy ground control point is very important to ensure a high degree of global accuracy, which is important for most surveying and construction projects. This study is to determine the suitable method to establish ground control points using Topcon Hyper VR by Real-Time Kinematic method. The research location is on the Politeknik Kuching Sarawak campus by selected the ground control points around the campus. The final outputs of this study are bearing, distance, and coordinate of the ground control points by using the Real-Time Kinematic method. These data will be used to compare with the data which is collected by using the traverse method. The Real-Time Kinematic method completed well with the traditional survey methods in terms of accuracy except it. In conclusion, the Real-Time

Kinematic is an alternative method to establish the ground control points by using Topcon Hyper VR and the errors found to meet the set accuracy limits.

PENCAPAIAN DOMAIN PEMBELAJARAN KITCHEN OPERATION DALAM PROGRAM PEMBELAJARAN BERASASKAN KERJA (*PBK*)

Muzaffar Bin Mohamed Sidin, Noor Intan Binti Tahir and Mohd Farid Bin Alias

The work-based learning (WBL) program is a new learning system designed with the aim of strengthening students' skills through hands-on practical work in the industry thus increasing the marketability value of Malaysian polytechnic graduates. However, the low level of student achievement and students' work skills that are not satisfactory to the employer leads to the failure to achieve the objectives of the learning domain of the WBL program. Qualitative research with interview methods, observations and evaluation of reflection notes is the methodology used in this study. A total of 3 industry supervisors and 5 students were involved in this study. The findings of the study show that the achievement of the Learning Domain (LD) of the Kitchen Operation Course is greatly influenced by the factors of students' attitude towards the given task, self-confidence, supervisor confidence and self-exploration learning. Students are encouraged to improve their soft skills so that they can be more confident and be able to communicate more effectively throughout their WBL in the industry. Further research needs to be conducted to understand the phenomenon and focus should be given to the domain of learning outcomes that are less mastered by students.

EVALUATION OF THE USE OF INFORMATION SECURITY APP FOR INFORMATION SECURITY COURSE (DFS30023) AMONG SEMESTER 4 STUDENTS OF JTMK MERSING POLYTECHNIC

Zulkifli Bin Sarji , Mohd Azuwan Efendy Bin Mail and Munirah Binti Ab Rahman

The use of applications that combine various technologies in the teaching and learning (TnL) process at the school level as well as institutions of higher learning are gaining attention in the world of education to create a more enjoyable environment and then get better learning outcomes. Therefore, the provision of quality TnL materials online should be given emphasis to support the 9th leap of Malaysia education plan policy 2015-2025. The main purpose of this study was conducted to obtain feedback on the level of student evaluation of application development for the Information Security course (DFS30023). Student assessment is assessed in terms of design, content and overall level of application produced. This study uses a quantitative approach with questionnaires as a research instrument. Questionnaires were distributed to 34 students who took the

DFS30023 course at the Department of Information and Communication Technology (JTMK), Mersing Polytechnic. The findings of the study were analyzed using SPSS version 16. The results of the study found that the application design is at a high level with a mean score of 4.39. While for the content of the application obtained a mean score of 4.46 and the overall level of the application developed is 4.52. In conclusion, the findings of the study show that students agree from the aspect of design and content used in application development for the course DFS30023. However, there are improvements that need to be implemented to make this application more effective such as improving the main page that contains information such as course synopsis, course syllabus, course duration, course videos and frequently asked questions (FAQ). In addition, the provision of stable and high-speed broadband facilities should be held to ensure that this application can be accessed by students more quickly, reduce the waiting time for file downloads and avoid interruptions while watching (TnL) videos.

THE POTENTIAL OF BARLEY AS ADHESIVE IN PARTICLEBOARD

Emilia Enggoh , Edi Shahril Bin Kamal and Adrian Ang Angkal

This study aims to know the physical and mechanical properties of particleboard bonded with Urea-Formaldehyde (UF) and barley. The hot press temperature used in this project was 150°C and the target density of the particleboard was 0.60g/cm3. Two types of binder mixing ratio were used in this project; 100% of UF and 80:20 (Barley:UF). The particleboard were tested to determine their mechanical and physical properties according to Japanese Industrial Standard [A5908:2003]. The physical tests that were conducted are; density, moisture content, thickness swelling, and water absorption. While the mechanical test that was carried out is static bending. The density result for 100%(UF) and 80:20 (Barley:UF) are 0.40g/cm3 and 0.54g/cm3,respectively.As for the moisture content, the moisture content for 100% (UF) and 80:20 (Barley:UF) are the same which is 9.78%.The result for thickness swelling for 100% (UF) and 80:20 (Barley:UF) are 8.53% and 13.98%, respectively. While for water absorption, the percentage of water absorption for particleboard bonded with 100% UF is 60.58% and particleboard bonded with 80:20 (Barley:UF) is 59.38%. As for the static bending test, the modulus of elasticity (MOE) for 80:20 (Barley:UF) and 100% UF are 327.88 N/mm2 and 151.77 N/mm2, respectively .While the modulus of rapture (MOR) for 80:20 (Barley:UF) and 100% (UF) are 1.56 N/mm2 and 0.92 N/mm2, respectively. Based on the physical test result, it was found that only thickness swelling tests that not met the minimum Japanese Industrial Standard [A5908:2003]. While, for mechanical tests, both static bending test do not met the minimum value of Japanese Industrial Standard [A5908:2003].

KAJIAN KEBERKESANAN BIJI ASAM JAWA DAN KULIT PISANG SEBAGAI AGEN KOAGULAN

Farihah Mansor and Ernie binti Zulkifli

The purpose of coagulation and flocculation process are to form large particles that can be separated and removed in the deposition process. Alum used in the water treatment process has its disadvantages for long-term effects. Tamarind seeds and banana peel are made into a powder before mixing with 100 ml of distilled water to act as a coagulant agent. Jar tests are performed to obtain the optimal dose of several coagulant doses. The dosage used is 0.5ml, 10ml, 15ml, 20ml and 25ml. Tamarind seed solution can reduce up to 80% turbidity value, while banana peel decreases turbidity value by 51.5%. For a solution of a mixture of tamarind seeds and banana peel (Tamnana) can reduce the turbidity value by 88.1% almost equal to the use of Alum as a coagulant agent which is 91.7%. A mixture of Tamnana and 20% Alum showed a decrease in turbidity value of up to 92.1% where it was higher than Alum capacity. In conclusion, the use of Tamnana natural coagulation agent can reduce the value of turbidity in the water treatment process and can be used as a substitute Alum, indirectly the chemical-based water treatment process can be reduced.

IMPROVEMENT OF THE SHEAR STRENGTH OF CLAY SOIL USING RICE HUSK ASH (*RHA)*

Mohammad Pauzi Bin Mokhtar , Azrina Bt Madihi and Siti Rozana Binti Romali

This study involved clay soil sample from Landeh, 10 mile area Kuching Sarawak. The main purpose of this study is to compare the differences of the shear strength between the original clay soil and the one mixed with rice husk ash (RHA). Additionally, this project aims to determine the RHA that can be used in percentage of 2%, 6%, 10%. Three laboratory tests were carried out such Atterberg Limit, Compaction Standard Proctor Test and Triaxial Test. The recorded data shows that the results of the soil samples taken can be classified as clay soil (liquid limit over then 25%) and (plastic limit over then 20%) according in our search (Meschyan, 1995). Compaction Standard Proctor test were carried out to obtain the maximum strength the clay soil when RHA were added with the specific percentage. From the results obtained, it showed that RHA have potential improvement of the shear strength of the clay soil.

EFFECT OF NUMBER OF SCREWS ON CONNECTION STRENGTH AND MODE OF FAILURE IN COLD-FORMED STEEL HYBRID CONNECTION

Rackford Bong and Falinah Misol

CFS (Cold-Formed Steel) is increasingly being used in construction due to its light weight, high durability, high strength, and material consistency. A new connection method on CFS that combines self-drilling screws (SdS) and adhesives for CFS connections or known as CFS hybrid connection has potentially offers an increase in connection strength. A total of 36 specimens were tested in the laboratory. The failure modes were observed and the collected test data were analyzed. The results demonstrate that when the number of screws in the connection increases, the strength of CFS hybrid connection also increases. A statistical analysis using the Pearson correlation test was conducted to determine the relationship between the number of screws and connection strength and the results shows a statistically significant correlation exists between the number of screws and connection strength in hybrid connection. The mode of failure for CFS hybrid connection specimens in this study is cohesive failure and followed by Self-drilling screw tilting failure.

A STUDY ON SHEAR STRENGTH OF MARINE SOIL BY USING WASTE PAPER SLUDGE AS AN ADDITIVE MATERIAL

Farihah Mansor and Daliela Ishamuddin

Construction on marine soil area is a great challenge in the field of geotechnical engineering and have develop many problems such as slope instability, bearing capacity failure or excessive settlement. Marine soil is the soil that has a natural moisture content of higher than its liquid limit. High compressibility and low shear strength are the reason for most of the problems encountered. Waste paper sludge is one of the waste generated from process of paper production and generally have no economic value. The addition of waste paper sludge as a stabilizer enhances the strength and stiffness modulus of the raw soils. The objectives of this technical report are to investigate the physical and engineering properties of plain marine soil and marine soil with difference percentage of waste paper sludge and also to evaluate the optimum percentage of waste paper sludge that gives the maximum strength. Laboratory soil testing have been done to identify the soil characteristics and shear strength parameters. There are five test have been done such as moisture content, sieve analysis, Atterberg Limits test, compaction test and Triaxial test. The 5 % of waste paper sludge is the optimum percentage to stabilize the marine soil at the maximum deviator stress 636.3 kPa at effective stress of 200

kPa. The addition of 5 % waste paper sludge to stabilized marine soil also improved the total shear strength with increment 103 % of friction angle, ϕ from 13° to 26.5° compared to marine soil only. The cohesion value also improved from 70 kPa to 100 kPa. Hence, waste paper sludge is suitable as improvement methods for marine soil. Utilization of waste paper sludge can reduce the construction cost as well as to promote the environmental friendly method of soil stabilization and solving disposal problems.

GAYA PENGAJARAN PENSYARAH DAN HUBUNGANNYA DENGAN PENCAPAIAN PELAJAR DALAM KURSUS MATEMATIK KEJURUTERAAN

Siti Huzaima Binti Jamri and Hetiyanah Binti Jatjo

This study aims to identify the common practice of lecturers' teaching style among the Engineering Mathematics lecturers. This study also aims to determine the students' achievement in the Engineering Mathematics course. Other than that, the other aim is to determine whether there is a significant correlation between lecturers' teaching style and students' achievement. A survey was conducted among 150 students from Politeknik Kota Kinabalu that took the Engineering Mathematics 1 course by using a questionnaire. The teaching styles used in the study are based on Grasha's Teaching Style Inventory questionnaire. Data were analyzed using SPSS. The highest teaching style practice by Engineering Mathematics 1 lecturer is expert style with a mean 4.47, followed by facilitator 4.44, personnel model 4.37, delegator styles 4.26, and authority styles 4.19. The analysis shows that there is no significant relationship between teaching styles and students' achievement in Engineering Mathematics 1.

TAHAP KEPUASAN MAJIKAN TERHADAP PRESTASI LATIHAN INDUSTRI PELAJAR KOLEJ KOMUNITI BEAUFORT, SABAH

Liaw Yin Huat, Siti Norazian binti Miskam and Azlenah binti Mohd Sen

In realizing the government's intention through the Fourth Leap, which is to produce quality TVET Graduates in the Malaysian Education Development Plan (Higher Education) or PPPM (PT) - 2015 - 2025, The Department of Polytechnic and Community College Education is doing its best to ensure that the TVET graduates produced are in good quality, skilled and meet the demands of the industry. Therefore, the implementation of industrial training (IT) in the real field of employment becomes the basis of preparation for all prospective community college graduates before they step into the real world of a working environment. Industrial Training (IT) is a compulsory condition for all students in the fourth

semester before being awarded a certificate in their respective fields after graduation. This study was conducted to identify the level of employer satisfaction on the IT performance of the students from Beaufort Community College, Sabah (KKBS) during industrial training and comparing student achievement based on their respective study programs. 81 people out of 96 students were involved in this study. A set of questionnaires was used as a research instrument containing 15 items using the Likert Scale. The data were analyzed using Statistical Package for the Social Science (SPSS) version 21.0 software. Overall, the findings of the study found that the level of employer satisfaction on the performance of KKBS students' IT is at a high level and there is no significant difference between the min and all student study programs with the level of employer satisfaction on KKBS students' IT performance.

DESIGN AND DEVELOPMENT OF THE AQUAPONICS MONITORING SYSTEM

Limi Chong and Ida Rosmanizan Abdullah

Aquaponics is an alternative of food production method that combines aquaculture and traditional hydroponics techniques. It is a symbiotic relationship that facilitates a sustainable system as all the nutrients and water are re-circulated to grow plants and aquatic life. This agricultural technique can replace other traditional methods if used effectively. This paper aims to design and fabricate a small-scale aquaponics system with the addition of a monitoring system. Since the aquaponics method is soil-less, LECA was used as a plant growing medium. The vegetables planted were kangkong and mustard green while the fish type using in this system was catfish. The parameters monitored in this system were the air temperature, the relative humidity, the light's intensity, the LECA moisture and the water level. For programming, the microcontroller used was Arduino UNO and Arduino IDE for software. Then, the output showed on LCD Display. At the same time, the Node MCU ESP8266 device and Blynk App were used to receive sensor data on the smartphone. Additionally, the LECA moisture level, relative humidity, and temperature readings were plotted in the graph to compare the readings taken in four different times a day. The results showed that the LECA moisture level was maintained above 100 because of its great water storage properties. While the humidity and temperature readings were in the range of optimum temperature between 180C – 300C for most vegetables and 220C - 290C for warm water fish such as catfish and tilapia. Overall, this aquaponics system helps to save space, time, and water consumption. On top of that, users can monitor important parameters in the aquaponics system to optimize plants and fish growth.

FAKTOR PENDORONG KEMASUKAN PELAJAR BAHARU KE JABATAN KEJURUTERAAN AWAM, POLITEKNIK KOTA KINABALU

Norshilla binti Abdu Rasim

The increasing number of IPTAs and IPTSs provides ample opportunities for Sijil Pelajaran Malaysia (SPM) students to further their studies. The programs offered are geared towards the current market and employability demand. Therefore, the process of selecting a place for further study and the selection of a program of the study become more difficult and extensive. The purposes of this study are to identify the medium used by students to obtain information about the programs offered and to identify the factors that motivate students to choose the program. This study is a quantitative study using questionnaire instruments. The respondents consisted of 77 students in semester 1 of the Civil Engineering Department in Politeknik Kota Kinabalu (PKK). The findings of the study showed that most students obtain information from their parents, their friends and also the internet. While the factor driving the selection of study programs is the reputation of an IPT, which showed three items with the highest mean; experienced, qualified academic staff and recognized study program. Students relate these factors as a guarantee of success in their studies, enhance employability and post-graduation expectation. Therefore, institutions need to work hard in maintaining quality to convince students and prospective students.

COMMUNICATION APPREHENSION AMONG MUET CANDIDATES IN POLITEKNIK MERSING

Athirah binti Ahmad and Baizura binti Hasni

This study explores Politeknik Mersing (PMJ) Malaysian University English Test (MUET) Session 1 2020 candidates' oral communication apprehension level and the communication contexts that cause communication apprehension to them. In order to obtain the data for the study, McCroskey's PRCA-24 questionnaire was distributed to 63 MUET Session 1 2020 candidates from three major departments which are Commerce Department, Electrical Engineering Department and Information Technology and Communication Department. The gathered data was then analysed using Microsoft Excel software. Based on the evaluated data, 16% of the respondents are discovered to possess high level of oral communication apprehension and only 6% of them possess low level of oral communication apprehension. Meanwhile, the rest 78% of them possess moderate level of oral communication apprehension. In addition, the communication context that causes them to be most apprehensive is group discussion with the highest CA score of 27.

Group discussion also is the communication context that makes most of respondents feel apprehensive about.

PROBLEM SOLVING IN INFORMATION SYSTEM DEVELOPMENT ENVIRONMENT USING TRIZ INVENTIVE PRINCIPLES

Esstree Bin Ishak , Norhaziah Md Salleh and Sulaiman Sarkawi

TRIZ or Theory of Inventive Problem Solving is a method to solve problems based on logical data or variables. Recent studies and findings show that TRIZ is also suitable in information system development environment by modifying and altering some of the Inventive Principles to fit the process of information system development. Information systems cannot be physically touched as in engineering systems. Thus, the purpose of this study is to observe and analyse the usage of the TRIZ Inventive Principles for students to solve problems in developing information systems. This study uses the first seven of the 40 Inventive Principles to find out the most commonly used inventive principles in information system development. The study is based on the results of tests given to an experimental and a control group consisting of 107 students from Mukah Polytechnic, Sarawak. Each group was given a test and training sessions and the test scores obtained from each student of each group was statistically analysed using t-test. The results indicated that there was a significant difference in problem solving between both groups. The TRIZ group showed great improvements in the ability to solve problem as compared with the control group. Thus, with these findings, we can conclude that some of the TRIZ inventive principles can be used in information system development environment in polytechnics curriculum.

PERBEZAAN SIKAP DAN MINAT GURU DALAM PENGGUNAAN BAHAN MEDIA ELEKTRONIK MENGIKUT FAKTOR DEMOGRAFI

Sylvester Gindan and Precilla Gindan

This study was conducted to identify whether the attitudes and interests of teachers are different to the use of electronic media materials in the teaching and learning of Integrated Living Skills (KHB) according to demographic factors such as gender, options and teaching experience. In this study, the respondents used are teachers in secondary schools in Kota Kinabalu district who teach Integrated Living Skills subjects involving 21 schools. Questionnaires were used as research tools to collect data. Data obtained from 150 respondents were analyzed using Statistical Package for the Social Sciences (SPSS) version 16.0. Findings show that there is no significant difference between teachers' attitudes and interests according to demographic factors.

HUMAN FOOTSTEP AS EMERGED HARVESTING ENERGY THROUGH PIEZOELECTRIC SENSORS

Tan Poh Chuar

Electricity demand for powering modern devices is increasing for human has a sustainable and comfortable living. Renewable energy such like wind, solar, heat and more nature sources attracted the researchers to find out the better of power generation. The paper is to experiment study the harvesting energy through piezoelectric sensor in the mechanical-electrical energy conversion. The study experimental is setup and results are recorded in varying values of compression in gram of mass on the piezoelectric sensor in two (2) sizes. Analysis the results are done to investigate the amount of energy produced by the piezoelectric sensor in varying excited compression (freefall of mass) to identify the suitable force for generating optimum power. We noticed that highest of energy generated by the small piezoelectric sensor is 0.1004 micro-watt compared to 0.0942 micro-watt by medium piezoelectric sensor. The results also presented small piezoelectric sensor has better efficiency in power generation than medium piezoelectric sensor. Then, piezoelectric sensor circuit embedded in shoe sole and the output of harvesting energy through 29kg kid in walking was investigated. Average DC output is 13mV by 20 steps in walking was collected. This means that piezoelectric sensor has potential become a low power generation.

SISTEM PENGESAN DAN PENYEDUT ASAP BERASASKAN IOT

Lian Ai Fang , Nurul Aziyana Binti Kamaruddin and Hasliza Binti A. Rahim @ Abd. Rahman

In line with new and developing technology, the Internet of Things (IoT) has been applied in many areas to ease users' lives nowadays and in the future. IoT-based innovation is enhanced with the Blynk application. Blynk is a platform for IOS and ANDROID to handle the module for Arduino, Rasbery Pi, Wemos and etc. through the internet regardless of distances. This paper presents Smoke Detection and Absorber based IoT that uses wifi technology to send emergency notifications to the user's mobile phone through the Blynk application as soon as the smoke is detected. At the same time, the LED is on, the buzzer will emit an alarming sound, and then the exhaust fan will be activated to absorb the smoke. Generally, the main components of this project consist of a gas sensor MQ5, a Node MCU ESP8266, a buzzer, an exhaust fan, and a mobile phone. The Blynk application can display parameter such as saturation of smoke and it could be controlled by users to determine the desired value for saturation of smoke to be detected. The

implication of this paper is to prevent users from smoking in the toilet that will bring harm to the users.

KAJIAN SEMULA KESAN PERUBAHAN ARUS BAGI PROSES PEMESINAN EDM DIE-SINKING TERHADAP KADAR PENYINGKIRAN BAHAN (*MRR)*

Mohamad Najib Bin Mohamad Zain , Wan Siti Fatimah Bt AB Rahman and Ahmad Nasir Bin Mohamed Noor

The modern manufacturing process is evolving in line with current technology. One machining process used is electro discharge machining (EDM). The electro discharge machining process (EDM) is a machining process using electric charge to erode the surface volume of a metal. The EDM machining process is the process of electrical-thermal response between the workpiece and the electrode. This machining method is widely used in the manufacturing industry specifically for the manufacture of something that requires a certain process. The EDM process is commonly used to machine very hard materials that cannot be done traditionally. Material removal rate (MRR) is an important aspect of the measurement of a machining process using EDM machines. Various experiments have been conducted by researchers to see the effect of changes in machining parameters including the effect of electric current on MRR. This study is to discuss the effects of current changes on MRR by using different materials, EDM machines, and methods based on previous studies. It is hoped that the analysis of the findings of previous experiments will help to identify the methods and use of appropriate materials in conducting future experiments.

LITERASI APLIKASI PERISIAN KOMPUTER DALAM KALANGAN PELAJAR. KAJIAN EMPIRIKAL DI POLITEKNIK KOTA KINABALU

Heather Valarie Benilus , Noorain Imbug and Rusli bin Amir

Computer literacy can be defined as knowledge and capability in using the computer and its technology with efficient from beginner, intermediate and advance level. Computer literacy can also be refers as comfortable level of a person in using computer program and its application; it also can be referred as the understanding how the computer works and being handled. However, computer literacy is becoming the most discussed topic in the education system nowadays. Most of the university graduates are incompetent to use Microsoft Office application. Actions should be taken in order for them to improve their literacy in Microsoft Office application so that they can prepare themselves in job hunting. This research is about identifying the computer literacy among Politeknik Kota Kinabalu students; the students are mostly Sabahan. There are 125 respondents

for this study. Overall, the finding to this study verify that the computer literacy among Politeknik Kota Kinabalu is at a modest level. There are a few proposals being discussed in this studies to improve the computer literacy among students.

KAJIAN TERHADAP PENERIMAAN BIDANG KEUSAHAWANAN DALAM KALANGAN PELAJAR SEMESTER 2 HINGGA 5 DI POLITEKNIK METrO BETONG SARAWAK

Siti Hajar binti Arani

Entrepreneurship is one of the most salient career fields and is a paramount contributor to the country's economic development. This coincides with the government's call to encourage Malaysians to make this field as their fundamental career choice. This study was conducted in the session of December 2019 on 125 students who were in their 2nd to 5th semesters at The Polytechnic of METrO Betong, Sarawak (PMBS). This study was enacted to identify the acceptance of entrepreneurship among students. The respondents of this research were students from two different programs namely; Diploma in Finance and Banking and the Diploma in Tourism Management. The data in findings have been analyzed to acquire the values of frequency, percentage, and mean. The results of the analysis depict that the mean value in identifying students' interest when it comes to the field of entrepreneurship is 3.84, which is at a high point. Concurrently, the results of the analysis for the study of factors that attract students to the field of entrepreneurship recorded a loftier mean for motivational factors, which is 3.96. It is evident that there are factors that influence students' interests in the field of entrepreneurship as can be comprehended from the findings of this study.

KESAN PENGGUNAAN APLIKASI WARIS TERHADAP SIKAP, MOTIVASI DAN KECEKAPAN KENDIRI PELAJAR DALAM MEMPELAJARI WARISAN SEJARAH

Ab Aziz Ikhwan Ab Wahab , Siti Farahiah Mohamed and Mohd Fadli Ahdon

Mobile learning is a transformation into learning methods without being subject to the physical location of the learning process. The evolution in educational technology has led to the use of mobile learning in line with heutagogical based learning and the industrial revolution 4.0 which covers various areas of learning including history-based learning. Therefore, a mobile learning application called WARIS (Warisan Perlis) has been developed as one of the learning alternatives for the historical heritage of the state of Perlis which includes historical places in the state of Perlis Indera Kayangan. A pilot study shows that 78.2% of students from Arau Community College have problems to know about Perlis's historical heritage due to the difficulties in obtaining the necessary reading and references. The

WARIS application was developed to aid the public, especially the younger generation (digital native) to refer to the historical heritage information of the state of Perlis and also allows user to test their understanding through reinforcement training provided. A study was conducted to see the potential use of the WARIS application by using the Kurt Lewin model in looking at the effect of the use of the WARIS application on students' attitudes, motivations and self-efficacy. Pre and post tests were conducted on the study respondents to compare the total marks obtained by the respondents before and after WARIS application was used. The findings showed an increase of score of 28.4% from 55.60% in the pre-test to 84% in the post-test. In addition, a likert scale testing instrument containing 4 constructs of the Instructional Materials Motivation Scale (IMMS) was used to test the respondents' feedback while using the WARIS application. The results of the study found that mobile-based learning applied in WARIS can be one of the alternatives to preserve culture in enriching and preserving the heritage of the nation.

MODERN TOOLS FOR HILL PADDY CULTIVATION PROCESS

Chicha Bagu and Hatimi Mudin

Dibbler is a farmers' tools to make holes during the paddy cultivation process. These tools are usually made from wood and are more than 1.5 meters long. The process of cultivating hill paddy is more difficult to use machine compared to cultivating paddy fields. This is due to the different topography. Traditional hill paddy dibblers have only one function which is to make holes. Filling the holes with paddy seeds will require either more manpower or consume time since the process is done separately from making the holes. Furthermore, this process may cause back pain due to back bending over a long period. Therefore, this innovation was created with the aim to help farmers in saving time and manpower when cultivating hill paddy. In addition, this tool can solve the problem of back pain experienced by the farmers

VIBRATIONAL ENERGY ABSORPTION CHARACTERISTIC ACROSS HYDROSTATIC BEARING ON ROTOR

T.Seperamaniam , Ahmady Bin Solong and Mohamad Khirudin Bin Amdan

Hydrostatic bearing with the selection of circular recess as design in experiment analysis for energy absorption characteristic in terms of vibratory factor through dynamic responses has shown potential filtration effect. The purpose of this paper is to understand the dynamics response integral energy characteristic absorption

across the shaft. Evaluation of the pressure differentiation from a steady-state increased to 10 bar, subsequently gives the energy absorption integral in percentage drop to 95%. Additionally, the frequency spectrum shows that the natural frequency of the shaft magnitude in the acceleration domain is also affected when the fluid pressure increased, by five subsequent pressure variations. The hydrostatic bearing with circular recess provides satisfactorily results on the energy reduction end- to- end rotor-bearing system from the results gained 95% reduction on the amplitude from initial pressure gradually to 10 bar incremental. Overall average of 20% vibratory absorption at each stage noticed at the rotating frequency 32 Hz. The experimental test validates on 19 mm shaft diameter rotating speed 2500 rpm, hydraulic oil type DIN 515224 at 40 0C with kinetic viscosity of 22 mm2/s, and operation pressure at 1.4 bar. The test conducted at a laboratory using National Instrument (NI) data acquisition Sound and Vibration Assistant.

PEMBANGUNAN DAN PELAKSANAAN SISTEM RAKAMAN PENGAJARAN DI POLITEKNIK UNGKU OMAR

Mohd Assidiq Bin Che Ahmad , Mohd Amirul Helmi Bin Ismail and Mohd AdilBin Mat Ti @ Mokti

The purpose of this paper is to discuss the Development and Implementation of Lecture Video Recording System in the Mini Lecture Theater Room (MLT), Ungku Omar Polytechnic (PUO), and Ipoh Perak. Problems that arise when the administrator requires this MLT room to have a lecture recording system for lecturers so that students can review video-based teaching at a cost-effective rate. The author using Open Source Software, which is available free on the internet, namely Opencast, developed this system named Caprewind. The original programmer using Java, Html and JavaScript software, developed this system. Preliminary preparation to ensure this system runs well requires server management skills using UNIX-based operating systems namely Centos and computer programming knowledge. With this system, lecturers can implement their teaching recordings in the MLT room, which in turn allows students to access instructional videos through the website at any time. With this system as well, lecturers cannot only record the lessons to be accessed to students, but also benefit the organization, especially PUO because it saves a lot of cost in terms of implementation. The implementation and discussion in this working paper can to some extent provide very useful input to system administrators in educational institutions throughout Malaysia in developing a more effective and cost-effective teaching recording system.

EFFECT OF GINGERIZATION PROCESS IN UNTREATED USED COOKING OIL AND ADDITIONAL OF NAPHTHALENE AS A STABILIZER IN PRODUCED BIODIESEL ON PH VALUE AND VISCOSITY

Zainal Abiddin Ahmad, Muhamad Nazri Abu Shah and Hatta Azuwar Dahlan

Biodiesel from used cooking oil (UCO) is successfully produced by our fabricated Mini Plant in Politeknik Kuching Sarawak. The effect of additional gingerization process for UCO towards pH Value and Viscosity biodiesel is conducted. The gingerization process is an additional of fresh slices ginger (in 10wt% and 15wt %) in UCO at 60^{o}C for 30 minutes under stirring for biodiesel production. By FTIR analysis, a symmetrical FTIR pattern is observed for both conditions, but the detection functional group of C=O for 10wt% additional slice ginger in peak spectrum 1690cm-1 slightly shift to the right value 1705cm-1 for 15wt% of slice ginger. Besides, high intensity of addition 15wt% ginger slice is observed, significantly promote the formation of biodiesel methyl esters (biodiesel) by the broadening of the peak spectrum. Thus, this proved that ginger slices able to act as bioactive to treat the UCO for improvement in yield production of biodiesel. The additional of naphthalene in UCO about 7.5g naphthalene promote the pH value is 6.62 and the upper limit of standard biodiesel about 7.5 mm2/s which is the most similar value with ASTM D6751 standard. Thus, this proved that ginger slices able to act as bioactive to treat the UCO for improvement in biodiesel production, and the additional small amount naphthalene in biodiesel improve the pH condition and viscosity behavior.

APPLYING VALUE STREAM MAPPING FOR PROCESS IMPROVEMENT: AN *SME* CASE STUDY

Jason William Vitales and Joan Wang Yee Juen

Small and Medium Enterprises (SMEs) are an increasing force for national economic growth. Most of the operating departments in any organization are putting massive effort to reduce the costs of the services they offered. Therefore, this study concentrates on how to reduce the lead time for the manufacturing division of a company hence investigating the production lead time reduction once proposed lean tools techniques are applied using Value Stream Mapping (VSM) approach. VSM is a standard tool used in lean continuous improvement programs to help understand and improve the material and information flow within organizations. The study began with an understanding of the existing products and processes followed by the information flow in an SME in Sabah known as TIMSB. Once developing the current value stream mapping (CVSM), the next step is to

think about the future value stream mapping (FVSM), the new road map for production considering guidelines to eliminate waste and streamline the product flow and information. The result obtained from this study showed a significant 70.8 percent of the reduction in lead time with the Pull System, 5S, and Total Productive Maintenance (TPM) from 1925.9 minutes to 561.5 minutes while maintaining its value-added time of 198.6 minutes were proposed through an action plan for TIMSB management.

SUCCESS FACTORS IN MATHEMATICS ACHIEVEMENT IN POLYTECHNIC BY GENDER

Mohd. Rizal Bin Abdul Raman and Ying-Leh Ling

This study aims to identify the dominant factors that influence student success in mathematics achievement in polytechnics. Specifically, studies were also conducted to determine whether there were significant differences in the factors of success in mathematics by student gender. The study sample was obtained through a sampling method aimed at involving 84 students who have achieved excellent achievement in mathematics throughout their studies. Further, the instrument used for this study was adapted from Anthony (2000) consisting of 39 items. A pilot study was conducted on 35 students with a reliability coefficient of 0.975. The findings of the study showed that four dominant factors have been identified as determinants of mathematics achievement in polytechnics, namely focusing on learning, attending lectures regularly, taking notes on lectures, and controlled learning environment. Besides, t-test analysis also found the significant differences in the two factors of student engagement across the college and controlled learning environment with the gender of the students.

THE EFFECTIVENESS OF *HABA* TECHNIQUE IN ACCRUAL ACCOUNTING ADJUSTMENT: CASE OF POLYTECHNICS MUKAH

Shazrin Eqwal Bin Sulaiman and Adi Jaya Bin Adam

The purpose of this research is to examine the effectiveness of HABA technique in improving student's academic performance and strengthening the knowledge and skills of the student on performing the accrual accounting adjustment. This research is designed by adopting the quasi-experimental pre-test and post-test method. The questionnaire has been distributed to first semester accounting students of that took basic accounting course. The descriptive statistic was used for the data analysis. Referring to the result it shows that, there is significant improvement in student's achievement after applied the HABA technique based on

the grading system. In fact, most of the student's agreed that this technique able to strengthen their knowledge and skills for the preparation of accrual accounting adjustment.

DEVELOPMENT OF DECISION SUPPORT SYSTEM VIA ERGONOMICS APPROACH FOR DRIVING FATIGUE DETECTION

Mohammad Firdaus Bin Ani, Seri Rahayu Kamat and Minoru Fukumi

Nowadays, driving activity has become more important as this medium being practical, faster, and cheaper in connecting humans from one to another place. However, driving activity can cause disaster or death to a human in daily life as they get fatigued while driving. Driver fatigue is a top contributor to road crashes. The primary objective of this paper was to develop a decision support system (DSS) for detecting the driving fatigue. The decision support system aims to provide systematic analysis and solutions to minimize the risk and the number of accidents associated with driving fatigue. Four major stages involved as the pillar in the development of decision support system; acquisition of knowledge, integration of knowledge, development of driving fatigue strain index using fuzzy logic membership function, development of decision support system for driving fatigue (DSSfDF) model using the graphical user interface. The decision support system is an essential system to analyze the risk factors that would contribute significantly to driving fatigue associated with the driving activity. Besides, the decision support system provides solutions and recommendations to the users to minimize the number of road accidents in Malaysia.

SIMULATION OF VARIOUS RESONATORS AS VISCOMETER FOR ENGINE OILS

Tze Ching Ong**,** Andy Buja**,** Dino Sabastian Ak Mawang**,** Chee Kiong Sia, Yee See Khee and Pauline Ong

Viscometer is an instrument used to identify the resistance of a fluid to shear or tensile stress. Accurate characterization of viscosity is important in analyzing many engineering situations, especially in the automation industries, which consume engine oils that associate with functionality or performance of vehicles and machineries. Therefore, the aim of this work is to simulate various sensors via resonators before the fabrication process is performed. The viscosity is justified based on the variation of dielectric properties of the fluid. T-resonator shows the highest sensitivity in all design with a S11 value of -54.212dB and DSRR with Roger 3003 performs the best in terms of Q-factor with 1883. This simulation results can be verified through experimentation as future works.

ELECTRIC WHEELCHAIR CONTROLLED BY JOYSTICK AND ANDROID/IOS SMARTPHONE

Haidie bin Inun, Caroline Dame Siagian, Shalizan bin Kadir, Benny Azmi bin Mohd Zamlan and Syahlan Abd Halim

A wheelchair is used by people who are difficult to walk because of having physical problems, injuries, or disabilities. There are many options and different types of wheelchairs such as manual wheelchairs, electric wheelchairs, and scooters depending on the patient's financial ability, physical limits, and strength. Not all people with movement disabilities have enough strength especially elders. Moreover, there is no wheelchair controlled by smartphones currently available in the market and even custom-made electric wheelchairs are very expensive. Therefore, the main objective of this project is to provide a solution to this matter by modifying an existing manual wheelchair that would use smartphones (android/iOS) and joystick to control its movement. So, the rationale of this project is it can help patients with movement difficulty to move easily with significantly at a lower cost. Implementation of this project will be using System Development (SDLC) Life Cycle methodology that divide the complex task into several phases of development. This project will be divided into two parts, namely the implementation of hardware and software. The main hardware of this system consists of Arduino microcontrollers and motors that can be controlled using a smartphone via Bluetooth module and joystick. Ultrasonic sensors are located on the rear of this wheelchair to detect objects or obstacles and buzz the buzzer so that the person who uses it can be acknowledged when there are objects behind during reverse movement. The software part will consist of Arduino programming using Arduino IDE software and mobile apps programming using MITT software. In the end, the implementation of this project can be used in universities, companies, hospitals, and at home as well to facilitate someone's movement without having to rely too much on help from others. In conclusion, this project is expected can help the disability and elder to move freely and control the electric wheelchair by themselves independently.

INVESTIGATIONS OF COMPLIMENTARY SPLIT RING RESONATOR (*CSSR*) AS VISCOMETER FOR ENGINE OILS

Andy Anak Buja, Tze Ching Ong, Jane Daniela Anak Mugan, Chee Kiong Sia, Yee See Khee and Pauline Ong

Engine oils or lubricating oils are used to reduce friction and wear by interposing a film of material between rubbing surfaces. Meanwhile, a viscometer is an instrument used to identify the resistance of a fluid to shear or tensile stress. Therefore, the material property of viscosity is important in analyzing many engineering situations, specifically in the automation industries that utilizing engine oils that associated with the functionality or performance of vehicles and machinery. Hence, this work aims to design and fabricate a Complimentary Split Ring Resonator (CSRR) sensor to measure the viscosity of different types of engine oils by evaluating their dielectric properties. The CSRR is used to measure the dielectric property of engine oils and establish the relationship between viscosity and dielectric properties. The findings show the lowest viscosity oil produces the lowest dielectric constant values and the highest viscosity oil has the highest dielectric constant values. These results gained enable the possibility of distinguishing the oil engine oils based on their dielectric properties. Therefore, future works on a more comprehensive study can be conducted by purchasing various engine oils that are available in the Malaysia market.

AUTO-PT MACHINE FOR BEAN SPROUTS PRODUCTION

Muhammad Arid bin Abdulahim, Abdul Halim bin Ruseh and Mohd Zaki bin Mohd Ismail

The development of research and innovation in agriculture is a process aimed at agricultural production while increasing income, productivity. Sustainability of research, innovation and creativity are important elements, especially Malaysia in its efforts towards developed countries and high-income citizens. Thus, the agricultural sector is also not left behind in cultivating research and innovation to ensure the country's food security. This action research aims to identify the effect of the use of innovative products, namely Auto-PT machine or Automasi Penanaman Tauge in increasing the production of bean sprout production. Bean sprouts are a type of food from the germination of beans either green beans or black beans. Bean sprouts actually has many benefits. In addition, this study also wants to identify the suitability of Auto-PT machine design as an innovative product in improving bean sprout production output. Innovation methodology of

Auto-PT was found to be able to increase the level of production and productivity of bean sprouts results to be more optimal. This action research was conducted by comparing the differences between conventional bean sprout method and Auto-PT machine innovation application. Cultivation of bean sprouts commercially requires facilities such as spaces, equipment, materials and techniques. The findings of the study show a significant physical difference of bean sprouts as a result of the use of Auto-PT machine in bean sprout cultivation. Therefore, the use of this Auto-PT innovation product can reduce production costs, water consumption costs and watering work costs. In addition to saving production costs, Auto-PT is also able to increase the yield of bean sprouts and in turn increase income.

MAXIMAL RATIO COMBINER IN TIME-VARYING CHANNEL AMPLIFY-AND-FORWARD COOPERATIVE COMMUNICATION NETWORK

Sylvia Ong Ai Ling

This manuscript focuses on the Multiple Symbol Double Differential (MSDD) detection scheme in Amplify-and-Forward (AF) cooperative communication network employing Maximal Ratio Combining (MRC) at the receiver. In the wireless communication environment, high mobility, limited bandwidth as well as transmission capacity, and unreliable fading channels affects the channel transmission. Most of the previous works consider a flat-fading scenario, but this assumption is unjustified as cooperative communications are specially utilized in the mobile system, wherein the end users are mobile. As the end user moves under high-velocity environment, the channels experience fast fading which result in performance degradation. Thus, an AF-based cooperative communication method is proposed so as to mitigate the challenges. A comprehensive error probability and outage probability performance analysis are carried through the flat fading Rayleigh environment for the proposed MRC. Specifically, Pairwise Error Probability (PEP) expressions for the proposed MRC detectors are derived based on the Moment Generating Function (MGF). On top of that, Probability Density Function (PDF) analysis expression is derived to obtain the outage probability of the network. It can be observed that the MRC new combining weights that are based on the channel second-order statistic, perform better in terms of error probability as compare to the conventional MRC under time-varying channel environment. Furthermore, the simulations of the proposed MRC and the derived numerical analysis also validated under different faded channel and different number of relays.

NDVI PLANT HEALTH MONITORING FOR PEPPER VINES

Kedung Fletcher, Wahidah Binti Anuar and Razeli Bin Sani

The advancement in Internet of Things (IoTs) enables image processing in a small and low-cost scale in agriculture sectors. The classification of images for pepper vines in early stages will help pepper farmers to identify the health status of the pepper plants, thus help farmers to maximise the pepper production. This project is to propose the use of No InfraRed (NoIR) camera and Global Positioning System (GPS) module with Raspberry Pi to analyse the health of black pepper plants and track the coordinate location of the plants. The NoIR Camera has No InfraRed (NoIR) filter on the lens which makes it capable for doing Infrared photography and taking pictures in low light (twilight) environments. Internet of Things (IoTs) is designed to transfer data over a network without requiring human-to-human or human-to-computer interaction. The utilisation of Normalized Difference Vegetation Index (NDVI) included in the prototype to determine the health of pepper plants. The images and reports of pepper plant can be viewed via an android application. This application will help the farmers to monitor plant growth efficiently for better production.

IKLIM ORGANISASI DAN MOTIVASI KERJA: SATU KAJIAN KORELASI DALAM INSTITUSI PENDIDIKAN TVET

Bibie Anak Neo and Ying-Leh Ling

This study examines the relationship between organizational climate and work motivation of lecturers in polytechnics. This quantitative study used a questionnaire instrument distributed to 36 selected lecturers using a simple random sampling method. Data for organizational climate was measured using an instrument developed by Litwin and Stringer (1968) namely "Organizational Climate Questionnaire (OCQ)" translated by the National Translation Institute of Malaysia (ITNM, 2009). This OCQ instrument has 39 items to measure six dimensions in an organizational climate. While the work motivation of lecturers is measured using the instrument "A Questionnaire Measure of Individual Differences in Achieving Tendency (QMAT)". Data were analyzed using Statistical Package for Social Science (SPSS) For Windows Version 21.0.

THE IMPLEMENTATION AND CALIBRATION A LOW COST PROPELLER TYPE CURRENT METER IN THE LABORATORY

Diana Ringgau and Martin Anyi

Propeller type current meter or horizontal-axis rotor meters is an equipment that is used to estimate flow velocity in various fluids such as air, water, and oil. Several standard propeller type current meters had been produced by companies are to cater for the demands, but these products are costly and limited in accuracy of the real-time during data recording. The design and implementation of the proposed propeller type current meter is for river or stream application and thus, Velocity-area method was used. The current meter was implemented by manipulating mechanical performance which is more reliable and stable in measurement. The propeller type current meters are compact with Analogue to Digital Converter (ADC) that is embedded in microprocessor board for data processing. Meanwhile the Real Time Clock (RTC) module is used to maintain the accuracy of the real-time during data recording via Security Digital (SD) card and rechargeable Li-Po battery with DC/DC converter for power supply. The cost to build the propeller type current meter is 44.95% cheaper than commercial current meter. The testing and calibration process were conducted at laboratory. The propeller type current meter is tested in an 8-meter-long Flow Channel that varied from 0.3 m/s to 0.6 m/s and the result shows an average error is 1.0%. Therefore, the device shows an acceptable error and extremely useful to reduce research or operation cost.

DEVELOPMENT OF SUCTION HEAD PRESSURE FOR SPENT GARNET

Yueh Seng Chew, Tze Ching Ong and Andy Buja

Waterjet cutting operates by injecting water at high pressure together with abrasive material known as garnet to corrode the base material in the cutting process. The mixture of water, garnet and residue of corroded material is accumulated in the accumulation tank. The current practice in waterjet cutting industries do not recycle spent garnet and normally disposed in the landfill or mixed with cement in concrete for construction purpose. Hence, this research aims to investigate the optimum suction head for the recycling system of the spent garnet. The development of suction head in the recycling system is crucial to ensure the separation of spent abrasive garnet with material residue in forms of sludge. A closed-loop continuous flow filtering system is developed featuring venturi type sludge suction pump and multi-stage filters/separation. The venturi suction is connected to a primary pump and the secondary pump is attached at the other's end of the extraction flow. Findings show the highest extraction at 1.4833

liters per second of the spent garnet was achieved when the primary pump pressure is constant at 100 bar and secondary pump at 125 bar. Therefore, future works on a more comprehensive study can be conducted by deploying the significant results for field-testing in an industrial waterjet cutting.

USERS' INTENTION IN DEVELOPING INTERNET OF THINGS IN EDUCATION CONTEXT USING TECHNOLOGY ACCEPTANCE MODEL: A CASE STUDY

Rafidah Binti Ab Rahman, Rafizah Binti Ab Rahman and Azra Binti Mohammad Amirruddin

Internet of Things (IoT) is becoming prevalent in today's technologies spurs by the growth in connectivity as well as innovation in smart devices. IoT is a device that is interconnected and connected to the internet, capable of operating without any human interference or feedback and capable of making decisions on the basis of data collected through sensors. In this study, the relationship of Perceived Ease of Use, Perceived Usefulness, Perceived Enjoyment, Attitude Towards using IoT technology and user's Behaviour Intention to Develop was investigated and analysed using multiple linear regression. A short course on IoT development was conducted and participated by students and lecturers in three different sessions. The course requires same knowledge in programming (for android app development) and electronic component (for IoT device) which proved quite challenging as the participants have different level of experience for both programming skill and electronic knowledge. The result show that although only PU was found to be significant in the relationship with BI, the other factors (PEOU, AT and ENJ) taken in as whole with PU do account to 52.7% variation in predicting user's intention in developing IoT project. The study also found that PU stood as the most important predictor to user's intention to develop IoT followed by AT, ENJ and lastly PEOU. IoT development was deemed as requiring more effort by respondents indicates by the least significant factor which is PEOU. This may be caused by the respondents' lack of knowledge in certain skills needed in the endeavour. The results presented here may encourage the development of IoT technologies from members of educational institutions as it is expected becoming highly skilled workforce. Future research directions are also presented to be undertaken by interested party.

DATA DISSEMINATION PERFORMANCE OF PUBLISH/SUBSCRIBE APPROACH IN OPPORTUNISTIC NETWORK

Sanjay Charles Albert

An opportunistic network is a kind of communication technology that operates on rapid changes in the network topology. The main challenge in the Opportunistic Network is to identify the best path to deliver a message to the target destination. This is due to no definite paths that exist between source and destination. On top of that, the communication link is intermittent, which contributes to a high loss packet. In this situation, flooding is the best way to disseminate information. However, this approach consumes a lot of resources and data overhead. Therefore, there are few types of forwarding techniques had been proposed by researchers to provide efficient data dissemination in opportunistic networks such as Epidemic routing, Spray and Wait routing, and Prophet routing. Nevertheless, each of these routings has its limitation. All routing mentioned above requires an active node to push information so that a proper selection can be constructed to produce an efficient routing mechanism. In this paper, the Publish/Subscribe approach had been proposed as a way of disseminating information in an opportunistic network. This approach has a strong push element which can be further utilized for efficient data dissemination selection in an opportunistic network. The Epidemic approach is used as the benchmark to compare with the Publish/Subscribe approach for this study. As a result, this approach performs better then Epidemic in a particular situation with minimizing the data overhead and delivery delay while maintaining the data delivery.

DEVELOPMENT OF WALKER USING VISUAL CUE WITH MONITORING APPLICATION BASED ON INTERNET OF THINGS (IOT) FOR PARKINSONIAN GAI

Nur Aliah Binti Rozman and Zunuwanas Bin Mohamad

Freezing of Gait(FoG) is one of major issues that suffered by Parkinson's patient that may lead to loss of independence. One of the most method used by physiotherapist to improve the difficulty of walking is by visual cueing that help to draw attention and creates an immediate increase in the range of specific motions. In relation, mobility aids such as walker is used as medium to assist patient's movement along with implementation of visual cues. In order to overcome the problems, this walker provide a combination of visual cues application, walking speed limit for patient and wireless monitoring operation based on Internet of Things (IoT). The parameters like walking step and distance is the measurement in

determining patient progression. The objective of this reaserch to design a walker with concept of visual cuing for Parkinson's patient, o develop an application for rehabilitation monitoring system based on Internet of Things (IoT) and to analyze the data of patient progression based on the output of step count and distance.

THE EFFECT OF PSYCHOLOGICAL INERTIA ON STUDENTS ABILITY IN PROBLEM SOLVING

Esstree Bin Ishak, Norhaziah Md Salleh and Sulaiman Sarkawi

Psychological Inertia, or some may say Mental Inertia has long been a problem in problem solving. It is defined as the tendency of one's thought and manner to remain in one tradition, thoughts, beliefs, condition, and situation due to their life experience and nature. It is the inevitability to behave in specific way where the human brain has been programmed to set it as a default behavior. In order to overcome this "stuckness", a problem solver need to build a good thinking skill and must be able to come out of his/her own thinking norm. This paper will show on how the psychological inertia affecting student ability to solve problem and the result after they were provided with certain training and thinking skills.

STRANDS OF TONGUE: CODE SWITCHING IN THE MULTILINGUAL ESL CLASSROOM

Johan Severinus Tati, Suthagar Narasuman, PhD and Jane Kon Ling Wong, PhD

English is considered as an important second language in most countries including Malaysia. Sabah as a multiracial and multicultural Malaysian State has multilingual speakers with inherent language ability that code switching is often used in communication and education. This case study was carried out with the purpose of identifying the reasons for code switching practice and determining the domain language used in code switching among the multilingual ESL students at Penampang Community College in Sabah. A qualitative research approach was employed to collect data through interview from ten multilingual ESL students from this college. Findings of this study indicated that the multilingual students employed code switching as an instructional tool and a language learning strategy in the ESL classroom especially for translation, dealing with difficult vocabulary, encouraging them to speak in English and as an alternative to cope with difficulty in speaking English. Additionally, the domain language used by students in code switching is the Sabah Malay dialect (SMD). Code switching has a positive impact on students' interaction strategy, but its excessive use should be avoided as it may

slow the English language learning pace. Further research should explore the practice of code switching using a larger sample size and in other research setting such as other higher learning institutions in Sabah.

IOT-BASED MOBILE SOLAR POWER MONITORING STATION

Phillips Dharmaraj, Zinvi Fu, Farah Abdul Manap and Julie Shaleena Jany

In this paper, a low-cost mobile based multi-functional monitoring station is proposed to provide solar electricity and monitor weather and air quality. The main components of the monitoring station was developed with the Arduino Mega 2560, MQ135 gas sensor and a PV solar panel. On the other hand, the software was developed in C using the Arduino IDE. The monitoring station works by collecting data of voltage, harmful gasses and temperature of the surrounding. Test results in three locations in Kota Kinabalu has shown that the voltage, temperature and air quality ppm varied from 11 – 13 V, 27.31 – 28.13 ^{0}C and 70 – 83 ppm respectively, which is expected of the locality. These results are consistent with other designs and demonstrated that the device can reliably relay temperature and air quality data while providing solar power. Data collected by the monitoring station can be accessed remotely via the Blynk cloud server. Being mobile and self-powered, this device can be placed at any location for long-term monitoring.

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All parties that participated in

National Research and Innovation Conference &

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All others who have in one way or another

contributed towards the success of this Conference & Festival

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