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CONTENTS

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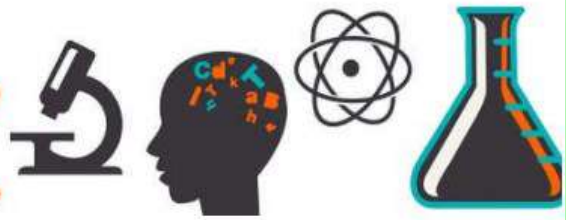
IUKL RESEARCH RETREAT 2016

After being temporarily halted for one year in 2015, RMC continued the effort to organise the IUKL Research Retreat 2016 on 22 December 2016. A total of twenty (20) lecturers from different faculties participated in the retreat. The one-day program was conducted at Conference Hall of IUKL. The objective of the retreat was to guide the participants in producing a well-written research proposal for MOHE's grants and other sources of funding on a worthy research topic.

RMC was honored to invite two panel members, Prof. Emeritus Dr. Samsudin A Rahim (UKM) and Assoc. Prof. Dr. Ahmad Zaharin bin Aris (UPM) to share their FRGS evaluation tips and experiences in securing grants from MOHE. During the proposal development session, both panels managed to provide constructive comments and advice to the research group members on several of research proposals. The program has imparted the necessary guidelines to the participants in producing a winning research proposal for future submission.

MOSTI eScienceFund

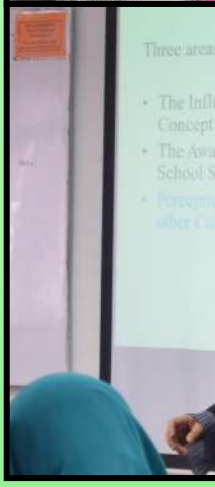
MOSTI e-DANA WORKSHOP



An announcement had been made via eSciencefund portal regarding the closure of Science Fund and Techno Fund by MOSTI effective from April 2017. Instead, MOSTI has been introducing a total new pre-commercialisation fund called **SMART Challenge Fund** and **GO-Fund** to replace the previous funds. MOSTI has developed their new web-based instrument application through **eDana** online system at https://edana.mosti.gov.my.

A half-day workshop on introducing the new funds and providing guidance to our IUKL's academicians on application process had been held by RMC on 25 July 2017 (Tuesday) at Open Lab 2, Block 11, IUKL. A speaker from officer of Fund Division of MOSTI, Puan Intan Maslina Ngaimon had come to deliver the talk to about 22 lecturers from fields of Science & Technology in the workshop.

INFRASTRUCTURE UNIVERSITY KUALA LUMPUR 2016 research COLLOQUIUM



The first IUKL research colloquium had been organized by Research Management Centre (RMC) on Tuesday, 25 October 2016 at Auditorium, Blok 2. This event marks a milestone among the many initiatives undertaken by the RMC to establish a vibrant, dynamic and sustainable research environment among the academics in IUKL.

The main objective of the colloquium is to serve as a platform for IUKL researchers to present and share their research outputs that have been conducted at IUKL over the years since the internal fund was launched in year 2010.

This colloquium managed to showcase 25 completed research projects that were entirely funded by IUKL internal research fund. The colloquium featured two categories of Best Paper Presentation Awards that aimed to recognise and reward exceptional research work by IUKL researchers. In addition to the individual awards, prize was also awarded for Best Faculty Research Award to honor the most active and research outputs faculty.

The winners of the event are shown in the following table.

AWARD	RECIPIENT
Best Paper Presentation Award *(Social Science)*	Prof. Dr. Siti Maziha Mustapha
	Kamaljeet Kaur
Best Paper Presentation Award *(Science & Technology)*	Assoc. Prof. Dr. Kong Wei
Best Faculty Research Award	Faculty of Applied Science and Foundation Studies

Professor Datin Dr. Ruzy Suliza Hashim from National University of Malaysia was invited as the event's honourable keynote speaker with her Topic: "Making Your Research Relevant: Some Tips to Live By", had given a very insightful speech to the audiences.

SPECIAL AWARDS

In conjunction with the event, IUKL also gave special token of appreciations to those researchers who have secured external research grants and to those project leaders who won the innovation competition nationally for IUKL. The recipients are as follows:-

RECIPIENTS OF EXTERNAL RESEARCH GRANT	
Assoc. Prof. Dr. Kong Wei	MOHE's grant FRGS Phase 2010 MOHE's grant FRGS Phase 2013
Dr. Sylvia Chieng	MOHE's grant FRGS Phase 2014
Dr. Mohd Sofiyan Sulaiman	MOHE's grant FRGS Phase 2016
RECIPIENTS OF NATIONAL INNOVATION COMPETITION	
Dr. Fariba Jafari	Silver Award in ITEX 2014
Dr. Mohd Sofiyan Sulaiman	Silver Award in ITEX 2015 Gold Award in ITEX 2016
Ir. Tengku Anita Raja Hussin	Bronze Award in ITEX 2015
Noorbaya Binti Mohd Salleh	Bronze Award in PECIPTA 2015

WRITING FOR SCHOLARLY JOURNAL WORKSHOP

As part of continued effort to improve IUKL's research publications, RMC had conducted one full day workshop on "Writing for Scholarly Journal" on 23 August 2017 (Wednesday) from 8.30a.m. to 4.30p.m. at Open Lab 2, Block 11, IUKL. Prof. Dr. Normaliza Abd Rahim, from Faculty of Modern Languages and Communication, UPM was invited as the honorable guest speaker.

This workshop aimed to develop the step-by-step writing for scholarly journals among IUKL academicians on the academic writing skills. The knowledge gained from this workshop is crucial to encourage them to write and publish quality of academic papers in the right journals. The writing journal workshop had attracted 35 IUKL academicians from various fields to participate.

LIST OF REGISTERED CONSULTANCY PROJECTS (2015 – 2017)

RMC is also committed to extend full support and assistance to IUKL's academic staffs that are providing their professional services in various fields of expertise to clients outside the institution. The list shown below is the list of registered consultancy projects with RMC in year 2015-2017.

REGISTRATION NO.	CONSULTANCY CATEGORIES	PROJECT LEADER	PROJECT TITLE	PROJECT PERIOD	GROSS INCOME (RM)
IUKL/RMC/2015/CS/(1)	Training / Workshop	Naimah Yusoff	4th I-GEO Seminar on Pavement Industry in Malaysia	27 April 2015	39,128
IUKL/RMC/2015/CS/(2)	Training / Workshop	Naimah Yusoff	In House Training on River Bank Erosion Prediction	13 May 2015	19,900
IUKL/RMC/2015/CS/(3)	Training / Workshop	Naimah Yusoff	5th I-GEO Seminar on Landslide Hazards and Disaster Management	15 June 2015	16,850
IUKL/RMC/2015/CS/(4)	Training / Workshop	Assoc. Prof. Dr.Kong Wei	Introduction to SPSS for Postgraduate Students	19 August 2015	1,230
IUKL/RMC/2015/CS/(5)	Training / Workshop	Mohd Sofiyan Sulaiman	Earthquake Risk in Malaysia: Past, Present and Future	5 October 2015	4,570
IUKL/RMC/2015/CS/(6)	Training / Workshop	Ir. Mohd Nasir Bin Hussin	Esteem and STAAD Pro Training	21 November 2015	2,000
IUKL/RMC/2015/CS/(7)	Training / Workshop	Ir. Mohd Nasir Bin Hussin	Staad Pro Training	10 - 17 December 2015	3,400
IUKL/RMC/2016/CS/(1)	General Professional Advisory	Naimah Yusoff	A Novel Approach to Reuse Alum Sludge in Manufacturing of Soil Erosion Protection Bricks/Blocks and Building Material using Admixtures and Thermal Curing	January 2016 - June 2016	33,410.80
IUKL/RMC/2016/CS/(3)	Specialist Service	Prof. Dr. Roslan bin Zainal Abidin	Report on Categorization Potential Erosion Risk, Geohazard Early Warning System (EWS) for Slopes, Slope Hazard and Risk Map, Forecasting Erosion Induce Landslide	13 August 2015 – 31 May 2016	12,250
IUKL/RMC/2016/CS/(4)	Training/ Workshop	Dr. Mohd Sofiyan Sulaiman	6th I-Geo Seminar Series: "Climate Change Scenario In Malaysia - Prediction & Technology	15/2/2016	2,040
IUKL/RMC/2016/CS/(5)	Training/ Workshop	Sharifah Natrah bt Syed Mukhiar	MS Project 2013 Training Workshop	30 May 2016	7,000
IUKL/RMC/2016/CS/(6)	Training/ Workshop	Syed Khairi Bin Syed Abbas	Discover Cube Software-2016 Seminar	13 October 2016	1,150
IUKL/RMC/2016/CS/(7)	Training/ Workshop	Sangeetha Valloo	Microsoft Excel And Powerpoint Training	25 May - 2 June 2016	1656.25
IUKL/RMC/2016/CS/(8)	Training/ Workshop	Dr. Mohd Sofiyan Sulaiman	AutoCAD 2D and Primavera Workshop	27 - 30 Dec 2016	1190
IUKL/RMC/2017/CS/(1)	General Professional Advisory	Prof. Dr. Siti Maziha Mustapha	Practicum Coach	9/1/2017 - 26/5/2017	1800
IUKL/RMC/2017/CS/(2)	General Professional Advisory	Pramita Kaur Sidhu a/p Pram Singh	FACE'S Proofreading and Editing Services	March 2017 - April 2017	500
IUKL/RMC/2017/CS/(3)	Specialist Services / Research	Dr. Samson Soon	The Immunity Improvement of Asian Arowana (Scleropages formosus) against Bacterial Haemorrhagic Diseases	18 August 2017 - 17 August 2018	20,000 (Phase 1)

LIST OF IUKL INTERNAL RESEARCH FUND PROJECTS (2010 – 2017)

IUKL Internal Research Fund was formed to encourage IUKL's academic staffs to kick start their research in the institution. Below shows the list of research projects which were approved under the IUKL Internal Research Fund since 2010 until 2017.

PHASE 2010

No.	TITLE	PROJECT LEADER	FACULTY	STATUS	
				START	END
1	The Guiding Grid: Assessment to Support Learning	Dr. Karthiyaini Devarajoo Archanaa Maniappen	SCLS	January 2010	Completed
2	Interference of L1 in L2 Writing Skills among Chinese Speaking Learners	Assoc. Prof. Dr. Christiantine Della	SCLS	June 2010	Completed
3	Gamma Rays Irradiation Effects on High Temperature Superconductor YBCO with Nano-sized Particles Additions	Dr. Kong Wei	SASF	January 2011	Completed

PHASE 1/2011

No.	TITLE	PROJECT LEADER	FACULTY	STATUS	
				START	END
1	Predicting Purchase Intention for Halal Cosmetic Product	Kamaljeet Kaur	SCLS	May 2011	Completed
2	Nation branding: Public perception of the 1 Malaysia campaign	Assoc. Prof. Dr. Siti Maziha Mustapha	SCLS	June 2011	Completed
3	Interlingual Interference of L1 (Arabic) on L2 (English) Syntactic Structures of Libyan EFL Students' Writing in the English Language	Suraya Amirrudin	SCLS	January 2011	Completed
4	Relationship between Interactions-Based Diversity and Intercultural Sensitivity Among Undergraduates Students	Norzita Yunus	SCLS	January 2011	Completed
5	Integrating Facebook As A Communication Tool to Support Language Learning and Teaching	Zulkarnin Zakaria	SCLS	July 2011	Completed
6	Kajian Keberkesanan Pelaksanaan Matapelajaran Wajib Universiti di IPTS di Persekitaran Lembah Kelang	Dr. Che Pee Saad	SASF	September 2011	Completed
7	Factors that Determine Students' Preference in Selecting Higher Learning Institution	Jaya Chitra Ramalu	SASF	June 2011	Completed
8	The Effectiveness of Problem-Based Approach For Programming Course: Tertiary Education	Robiatul A'dawiah Jamaluddin	SITI	June 2011	Completed
9	The Effectiveness of Social Network Application as a Educational Tools for Information Technology	Suhaila Sardi	SITI	June 2011	Completed

PHASE 1/2012

No.	TITLE	PROJECT LEADER	FACULTY	STATUS	
				START	END
1	Sustainable Cultivation and Supply of Temperate Species Sea Cucumber & Scallops	Lee Su Yee	SASF	February 2012	Completed
2	A Study of Student and Staff Expectations and Experiences on Academic and Social Life in a Private Higher Education Institution	Dr. Che Pee Saad	SASF	September 2012	Completed
3	A Novel Approach to Reuse Alum Sludge in Pottery Manufacturing and Building Material Using Silica and Thermal Curing	Dr. Faris Gorashi	SETI	January 2013	On-going
4	The Preferred Teaching and Learning Style of Engineering Students and Their Lecturers at KLIUC	Harold Poong Wan Hing (taken over) Dr. Angela Abu-Asba (Leader left the University)	SCLS	August 2012	Completed

PHASE 1/2013

No.	TITLE	PROJECT LEADER	FACULTY	STATUS	
				START	END
1	Fixed Scalar for QN-SD in Solving Large Scale of Unconstrained Optimization Problems	Mohd Asrul Hery Ibrahim	FASF	March 2013	Completed
2	Retailing Model Between Foreign Hypermarket and Local Minimarket in Malaysia	Dr. Goi Mei Teh	FBA	Jane 2013	Completed
3	Factors Influencing Sijil Pelajaran Malaysia Students in Choosing Their Tertiary Education Pathway through STPM, A-Level or Foundation Programmes	Hanita bt Ismail	FASF	August 2013	Completed

PHASE 2/2013					
No.	TITLE	PROJECT LEADER	FACULTY	STATUS	
				START	END
1	Design of Dual-Band H-Shaped Patch Antenna for DCS and WLAN Applications	Thana Pakkiam A/P Krishnan	FETI	November 2013	Completed
2	A New Healthcare Information Platform: Youth Consumer Behavior And Confidence Level Towards Healthcare Websites	Liew Chee Kit	FACE	September 2013	Completed
3	Effectiveness of Integrated Marketing Communication (IMC): A Study on IMC Strategy Towards IUKL Rebranding	Dr. Khor Mi Nee	FACE	October 2013	Completed
4	Correlation between IUKL Engineering Students' Performance in Mathematics and Their Learning Attitudes	Nora'Asikin Abu Bakar	FAST	December 2013	Completed
5	Directory of soil erodibility profile at Muda River and Muar River	Naimah Yusoff	FETI	January 2014	Completed
PHASE 1/2014					
No.	TITLE	PROJECT LEADER	FACULTY	STATUS	
				START	END
1	Application of an extended Stimulus-Organism-Response framework to Higher Educational Institutions	Vigneswari Kalidas	FBA	January 2014	Completed
2	The Role of Feng Shui Element and other Related Variables in Developers' Corporate Image Building	Liew Chee Kit	FACE	October 2014	Completed
PHASE 1/2015					
No.	TITLE	PROJECT LEADER	FACULTY	STATUS	
				START	END
1	Relationship among resources, processes and outputs of mosques in Malaysia	Muhd Fauzi Bin Abd. Rahman	FBA	March 2015	Completed
2	Islamic Leadership Principles and Accountability of Islamic Insurance Institutions: A PLS Path Modelling Approach	Raja Rizal Iskandar bin Raja Hisham	FBA	March 2015	Completed
3	Identification of Malaysian Marine sponge Stylissa sp. Using DNA barcoding approach	Aizat bin Mohd Razali	FASF	June 2015	Completed
PHASE 2/2015					
No.	TITLE	PROJECT LEADER	FACULTY	STATUS	
				START	END
1	Factors Influencing Poor Academic Performance of the International Students of IUKL: Focusing in Mathematics and Science subjects	Hanita bt Ismail	FASF	October 2015	Completed
2	Comparison between Local and Foreign Students in Terms of Student Characteristics and Learning Methods that Affect Academic Performance	Jaya Chitra Degala Ramalu	FASF	November 2015	Completed
PHASE 2016					
No.	TITLE	PROJECT LEADER	FACULTY	STATUS	
				START	END
1	Awareness and perception among IUKL Academician towards the issues of sustainability in Malaysian Palm Oil Industry	Noor Hidayu Binti Zakaria	FASF	June 2016	Completed
2	Removal of Heavy Metals in Aqueous Solution using Agricultural Waste as Low Cost Adsorbents	Dr. Manal Mohsen Abood	FETI	June 2016	Completed
3	Sediment Transport in the Presence of Grain-Scale Organization	Mohd Sofiyan bin Sulaiman	FETI	June 2016	Completed
PHASE 2017					
No.	TITLE	PROJECT LEADER	FACULTY	STATUS	
				START	END
1	A Compact Multiband Microstrip Patch Antenna Design for Personal Wireless Communication Systems	Thana Pakkiam A/P Krishnan	FETI	November 2017	On-going
2	The Influence of Cultural Diversity on Employee Performance: Comparison of Malaysian and Indonesian Universities	Jun Aida Binti Tasirin	FBA	November 2017	On-going

LIST OF IUKL EXTERNAL RESEARCH PROJECTS (2010 – 2017)

RMC is committed to give full support and assistance to IUKL's academic staffs who apply for the external research funding. RMC will share all information whenever there are opportunities from the external research fund bodies such as MOHE grants, MOSTI funds, Toray and etc. The list shown below is the list of research projects which were granted from external funding bodies since 2010 until 2017.

YEAR	NAME OF GRANT	PROJECT TITLE	PROJECT LEADER	AMOUNT GRANTED (RM)	STATUS
2011	HTC KL	Erosion risk potential categorization in Langat River	Prof. Dr. Roslan Zainal Abidin	193,000	Completed
2011	FRGS (MOHE)	Gamma ray irradiation effects on high temperature superconductor Y-Ba-Cu-O with nanomagnetic particles additions	Dr. Kong Wei	74,000	Completed
2012	LRGS (MOHE)	Water & Energy safety (UCOREN project)	Prof. Dr. Roslan Zainal Abidin	27,500	Completed
2013	PRGS (MOHE)	Steel Fibre (SteFib) Column	Dr. Nurharniza Abdul Rahman	300,000	Completed
2014	FRGS (MOHE)	Phase formation and transport current enhancement of thallium-based high temperature superconductors with artificial pinning	Assoc. Prof. Dr. Kong Wei	95,000	In Progress
2014	HTC KL	A Novel Approach To Reuse Alum Sludge In Manufacturing of Building Material and Pots Admixtures and Thermal Curing	Assoc. Prof. Dr. Faris Gorashi	174,300	Completed
2014	FRGS (MOHE)	Production of Bio-ethanol from Temukut (Brewers rice)	Dr. Sylvia Chieng	131,500	In Progress
2014	Wah Seong Corporation Berhad	Proposal to Conduct a Study in Wah Seong	Dr. Khor Mi Nee	17,000	Completed
2014	Al Hijrah Media Corporation	Ke Arah Penjenamaan TV Alhijrah-Analisis Penontonan dan Pemprograman	Prof. Dr. Faridah Ibrahim	46,264	Completed
2014	Pasau University, Germany	Ethic Media and Cosmopolitan Communication: between inclusion and exclusion-Malaysia	Prof. Dr. Faridah Ibrahim	10,000	Completed
2014	Institut Penyiaran Dan Penerangan Tun Abdul Razak (IPPTAR)	Penonjolan imej wanita dan kanak-kanak di drama televisyen/Portrayal of women and children in TV drama.	Prof. Dr. Faridah Ibrahim	40,000	Completed
2016	FRGS (MOHE)	Behavioral of River Stability for Mountain Rivers in Malaysia	Assoc. Prof. Dr. Manal Mohsen Abood Previous: Dr. Mohd Sofiyan Bin Sulaiman	99,200	In Progress
2017	FRGS (MOHE)	Reconstructing Stakeholders Engagement Theory Through The Implementation of Government Transformation Program (GTP)	Prof. Dr. Faridah Ibrahim	47,600	In Progress
2017	FRGS (MOHE)	Potential Optimum Model of Waterbody on Urban Streets in Melaka City	Dr. Golnoosh Manteghi Previous: Prof. Dr. Zulkifli Hanafi	66,700	In Progress
2017	FRGS (MOHE)	Metal Ferrite Nanoparticles Addition on Thallium-based High Temperature Superconductors	Assoc. Prof. Dr. Kong Wei	64,000	In Progress

IUKL RESEARCH JOURNAL VOL.4 NO.1 (2016)

INFRASTRUCTURE UNIVERSITY KUALA LUMPUR RESEARCH JOURNAL
Vol. 4 No. 1 2016

CONTENTS

IUKL RESEARCH JOURNAL VOL.5 NO.1 (2017)

INFRASTRUCTURE UNIVERSITY KUALA LUMPUR RESEARCH JOURNAL
Vol. 5 No. 1 2017

CONTENTS

REMOVAL OF HEAVY METALS FROM AQUEOUS SOLUTION USING AGRICULTURAL WASTE AS LOW COST ADSORBENTS

Associate Professor Dr Manal Mohsen Abood, Nik Nuraini Azhari
Faculty of Engineering and Technology Infrastructure, IUKL

Treatment processes for heavy metals removal from industrial wastewater often involve precipitation, membrane filtration, ion exchange, adsorption, and co-precipitation/adsorption. Studies on the treatment of effluent bearing heavy metals have revealed adsorption to be a highly effective technique for the removal of heavy metals from waste stream. Activated carbon has been widely used as an adsorbent but these treatment processes are expensive, with large amount of hazardous sludge produced and also will not fully remove the metal. In recent years, the need for safe and economical methods in the elimination of heavy metals from contaminated waters has necessitated research to eliminate heavy metals using low cost agricultural waste or biological materials through the bio-sorption process.

The efficiency of sunflower husk as a low cost agriculture waste (bio adsorbent) that could remediate aqueous solution free of heavy metal ions have been investigated. The influences of three parameters, namely pH, initial metal concentration and contact time of adsorbent on the performance of sunflower husk have been studied in batch method at room temperature. Sunflower husk (SFH) was collected from the local market, washed thoroughly to remove dust using distilled water, dried in an oven at 100 °C for 18 h, grounded using a laboratory mixer grinder, sieved to 150-300 µm, and rinsed using 0.1M NaOH. An airtight container is used to store and seal the ground powder to ensure no contact of atmospheric moisture. Stock solutions of Iron (II) sulphate, Zinc sulphate and Copper sulfate of 1000 mg/l were used as adsorbate, and solutions of various concentrations were obtained by diluting the stock solution with distilled water. Iron, Zinc and Copper concentrations were determined by DR 2800 spectrophotometer. All the chemicals used were of analytical grade reagent and were carried out in 1000 ml volumetric flasks at the laboratory temperature of 25±2°C. Batch adsorption experiments were carried out by mixing 1.5 g of SFH powder with 300 ml of Fe in the form of iron sulphate in a 500 ml beaker using the jar, tester equipment at 25 ± 2 °C at desired initial Fe concentration, pH of the solution, contact time and mixing time. The mixing rate is given at 150 RPM for 2 hours until equilibrium is reached. Then, at the end of mixing the adsorbent particles were separated from the suspensions by a filtration process through 0.43 µm Double Ring Qualitative filter paper. The filtrate is then sampled to measure the concentration of Fe(II) ion using the spectrophotometer. All samples were carried out under the same standard condition as stated and the average results were computed. This procedure repeated for Zinc and Copper ions.

We found that the maximum adsorption is reached at pH 8. Moreover, the process tends to be rapid with the initial 10 minutes and equilibrated in 120 minutes with uptake of more than 70%. The Freundlich and Langmuir isotherm models are used to describe the biosorption of heavy metal ions onto sunflower Husk. The Freundlich model tends to fit the equilibrium data better by giving a correlation coefficient of 0.99 and maximum adsorption capacity is found to be at 1.396 mg/g. The results obtained prove that sunflower husk has great potential to be used as low cost bio-adsorbent to remove heavy metals in wastewater in order Cu< Zn< Fe.

BIOETHANOL PRODUCTION FROM TEMUKUT USING SACCHAROMYCES CEREVISIAE & ZYMOMONAS MOBILIS

Dr. Sylvia Chieng, Mohd Firdaus Ma'as
Faculty of Applied Science and Foundation Studies, IUKL

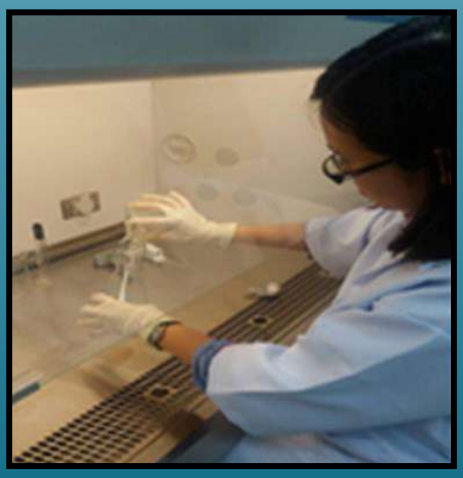
In 2016, the Statistical Review of World Energy reported an increase in global primary energy consumption, with oil remained as the world's leading fuel, accounting for a third of global energy consumption. The growth in global oil consumption was driven by developing countries, particularly China and India, which provided the largest increments in consumption. The continuous and unrestricted consumption of fossil fuel can lead to a stark depletion of its reserves and causes environmental issues such as pollution of the atmosphere with sulphur oxide and carbon dioxide produced through burning of these fuels. To overcome total dependency on fossil fuel as an energy source, various efforts had been taken towards the development of alternative sources which are renewable, sustainable and economical. Presently, these renewable sources include solar, wind, nuclear, hydro and biofuels.

The use of biofuels such as bioethanol as an alternative energy source is favourable due to its flexibility to be produced from a wide range of sustainable feedstock, agricultural or waste materials. Among the agricultural residues, biomasses from rice crop are the largest biomass feedstock in the world. The production and processing of rice generated various wastes such as rice straw, husk, bran and broken rice. Among the by-products of rice processing, production of ethanol has been mainly focused on the utilization of rice straw and rice husk as feedstocks. However, feasible bioethanol production from these lignocellulosic biomasses is hindered by its complex structure, the presence of inhibitor compounds and the need of an efficient pre-treatment technology. The other rice by-products are mainly used as animal feeds, production of rice flour or as feedstock in beer production. At present, studies on these by-products as feedstock for bioethanol production are still very limited. In this study, *temukut* or commonly known as Brewer's rice, a mixture of broken rice, rice bran and rice germ, is utilized. Due to its carbohydrate content, *temukut* may serve as a good source of biomass for bioethanol production.

The *temukut* used in this study was from rice variety MR 220, obtained from a local rice milling factory in Tanjung Karang. Prior to production of bioethanol through fermentation, pre-treatment of *temukut* was carried out in the presence of hydrochloric acid at 121°C. This was then proceeded with enzymatic hydrolysis with α-amylase and glucoamylase to release fermentable sugars from complex carbohydrates. A total of 17.9 g/L reducing sugar was successfully obtained from pre-treated *temukut*. Using the yeast, *Saccharomyces cerevisiae*, and bacteria, *Zymomonas mobilis*, fermentation of the *temukut* suspension was carried out for 36 hours. The growth of the microorganisms, sugar consumption and ethanol production were observed and analysed throughout the fermentation process.

Both microorganisms displayed similar growth rate and were able to utilize sugar quite effectively as seen from the depletion of reducing sugar concentration within the fermentation period. *S. cerevisiae* was able to utilize about 87.5% of total reducing sugar in the temukut suspension, while *Z. mobilis* utilized about 82.3%. A maximum ethanol concentration of 6.56 ± 0.23% (v/v) was obtained from *S. cerevisiae* at 24 hours fermentation, while *Z. mobilis* produced a maximum ethanol concentration of 16.83 ± 0.28% (v/v) at 22 hours fermentation. The ethanol concentration obtained was comparable to those obtained from other rice biomasses. Additionally, the overall ethanol production for *Z. mobilis* throughout the fermentation period was also significantly higher than *S. cerevisiae* ($p < 0.05$). This could be due to its tolerance to higher ethanol concentration, therefore making *Z. mobilis* a more efficient ethanol producer as compared to *S. cerevisiae*.

In conclusion, this study has successfully optimized the pre-treatment of *temukut* to produce fermentable sugars. Through fermentation of pre-treated *temukut* suspension, a substantial amount of bioethanol was produced, highlighting the potential of *temukut* as an alternative biomass source for bioethanol production. *Z. mobilis* was also proven to be a better fermenter than *S. cerevisiae*.



AWARENESS AND PERCEPTION AMONG IUKL ACADEMICIAN TOWARDS THE ISSUES OF SUSTAINABILITY FOR MALAYSIAN PALM OIL INDUSTRY

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Faculty of Applied Science and Foundation Studies, IUKL

The words "sustainable" is very popular in alternative energy circles because some people are concerned about how Malaysia can sustain the traditional energy resources such as oil and gas. In agricultural standpoint the word sustainable implies a relationship to an ecological balance such as conserving an ecological balance by avoiding the depletion of natural resources. Palm oil is used in many products. These palm oils are renewable sources, but also biodegradable which means that they can ensure the production of environmentally friendly products, (MPOB, 2014). Malaysia palm oil industries are very good for its foreign exchange earnings. The good demand for oil as well as biodiesel as an alternative fuel will strengthen the Malaysian palm oil industry. However, issues of sustainability are part of the challenges that must be faced by the industry in the future because of the rapid development that raises many questions about sustainability.

The aims of this research were to determine the awareness and perception level among IUKL academician towards the issues of sustainability in Malaysian palm oil industry. In this study, 150 sets of questionnaires were distributed manually to IUKL academicians. The number of samples for this study was determined using this formula $s = X^2NP(1-P)/d^2(N-1)/X^2P(1-P)$. This questionnaire was divided into three sections. Section 1 about demographic information, section 2 about awareness level and section 3 was about perception level. The data gathered from the questionnaires were administered and analysed using Independent t-Test by using SPSS software.

Based on the survey, 32.3 % were male, and 65.2% were female academicians in IUKL. 87.0% of respondents were aged between 26-40 years old while 13% were between 41-55 years old. There were three major races in IUKL with these distributions, 87% Malay, 8.7% Indian and 4.3% Chinese. In terms of education level, 91.3% were PhD and Master holders, while 8.7% were bachelor holders. Among all the respondents, 69.6% had income levels between RM2001 - RM4000 while 30.4% were between RM4001-RM6000. 65.2% of respondents choose palm oil as their cooking oil while 34.8% prefer to use non palm oil as cooking oil.

Percentage of type of cooking oil preferred by academicians in IUKL showed that 65.2 % of respondents preferred palm oil as cooking oil while 17.4% prefer olive oil and sunflower oil respectively as their cooking oil. The Likert scale was used to measure the level of awareness among IUKL academicians towards the issue of sustainability for Malaysian palm oil. There were 10 factors tested, i.e., biodiversity, ecosystems, best management practices in oil palm plantation, sustainable agriculture practices in oil palm plantation, plantation land, sensitivity towards environmental issues, economic, cultural, sustainability and negative coverage in media about oil palm industries.

From the results it is shown there were no significant difference in term of awareness between palm oil user and non palm oil user. Both groups were aware of the issues of sustainability of the Malaysian palm oil industry. In environmental issues, respondents' perception was that oil palm plantation highly contributed to environmental issues.

In conclusion, IUKL academicians were aware about the issues of sustainability in the Malaysian palm oil industry. Therefore, it is very important for the Ministry of Plantation Industries and Commodities to convey and to increase consumer awareness, especially on the issues of sustainability to Malaysian citizens. It is very important to remove the negative perception to ensure that the palm oil industry in the country is within the boundary of sustainable development. Palm oil is a natural product; hence it could lead to more demand and commitment from the palm oil industry to reach sustainability and to remain sustainable in the future.

COMPARISON BETWEEN LOCAL AND FOREIGN STUDENTS IN TERMS OF STUDENT ATTITUDES AND LEARNING METHODS THAT AFFECT ACADEMIC PERFORMANCE

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Identifying students' attitudes and learning methods that can contribute to better results can enhance the academic performance of students. The academic performance of foreign students is not as good as the local students. Many foreign students have raised concern the assessment and learning methods employed in Infrastructure University Kuala Lumpur (IUKL) among students. Influences of social culture in learning approach may cause differences in the motivation to study and academic performances between local and foreign students. These are perhaps some of the reasons why the failure rate among foreign students is higher in IUKL today. The poor performance of these students is a great concern. The report by a panel from the Malaysian Qualifications Agency (MQA) during their visit recently also suggested that a clear process of defining and assessing student learning and assessment methods would assist faculty in teaching and supporting students. For the students, the process will assist them in managing their own learning. As a result, there is a need to develop appropriate learning and assessment methods to help students improve their performance.

The objectives of the research are:

- To identify the students' learning methods and their performance in academics.
- To identify the students' attitudes and their performance based on the existing methods of assessment.
- Establish efficient methods of assessment from the student's perspective that would contribute towards better performance.

A quantitative survey method was used to identify factors that affect the student's performance in examinations. The questionnaire was designed to investigate and establish three categories as follows:

- Student's attitude and student interest were measured using the respective student's CGPA.
- Student's learning method, effort and preparation for the exam were measured against their results.
- The difference in attitudes between local and foreign students that affect their performance in examinations.

In terms of the student's attitude, the students with poor results ranked choosing lecturers, preferring to buy notes than copying and approaching lecturers after class as the top three attitudes. However, the students with the highest grades ranked tried to understand each step discussed by lecturers, being keen to go to class and understanding the subject taught in the lecture as the top three attitudes in class. This is evident from students with higher grades ranking trying to understand each step taught by the lecturer and understanding the lecture as the most important compared to students with poorer results that seem to focus more or buying notes and approaching lecturers for clarification after lectures. In terms of learning method, students with higher grades ranked updating notes and tutorials regularly and completing the exercises/tutorials in the classroom where the lecturer can help as the two most important characteristics. These two methods have been ranked the lowest among students with poor results. The results also indicate that students who are more focused in class, complete tutorials in class and actively discuss problems in class with the lecturers obtain better grades than students who concentrate more on doing their tutorials after class.

Similar to the other attitudes, it is evident that students also emphasised on being prepared prior to going to classes, have active participation and discussion with lecturers and focus on understanding the subject being taught and questions given tend to obtain better examination results than students who try to study after class on their own when classes are over. Both local and foreign students with poor results rank preferring to buy printed notes and choosing lecturers as the highest ranked attitudes. Both also ranked asking questions during lectures the lowest ranked attitude followed by going early to class. This indicates that both local and foreign students who obtain poor results have limited participation and interaction with lecturers in class. Hence, it can be concluded that students who obtain good academic results be it foreign or local are students who concentrate during lectures, participate in class, discuss with lecturers during class or immediately after class and update notes and tutorials regularly and complete exercise or tutorials in the classroom.

FINDING SPONGEBOB: IDENTIFICATION OF MARINE SPONGE USING DNA - BARCODING APPROACH

Aizat Mohd Razali*, Dr. Samson Soon and Teffanie Arputheraj
Faculty of Applied Sciences and Foundation Studies

Marine sponges live in a wide range of ocean habitats, from the polar regions to the tropics. Having great weather on her side, Malaysia is blessed with a high level of biodiversity on the ocean floor with a large variety of corals, marine sponges and sea organisms. The vibrant colour and shape attracts human tourism activity and marine organisms for their prey-predatory relationship. Marine sponges' unique characteristics correspondingly play a huge role in balancing the ecosystem and the food chain on the ocean floor. The filtration capacities of sponges for instance, convert suspended particles or dissolved matter into food for other animals and play a role for the recirculation of carbon, silicon, and nitrogen.

Sponges are also known as the largest bioactive compound producers and known for its pharmaceutical potency. Even more interesting is that up to 40% volume of sponges may consist of bacteria and the presence of these bacteria aid in removing waste and producing chemical defences. These bacteria also contribute to the bioactive metabolites that may include anticancer, antibacterial, antifungal, antiviral, antiprotozoal and antifouling agents. Despite the contribution to the ecosystem, pharmaceutical, tourism and even entertainment (our beloved SpongeBob), the public community in general still lacks a true understanding on sponges. As a start, A SPONGE IS AN ANIMAL. Yes, it is a benthic, bottom dwelling, minimal movement organism, but marine sponge were historically concluded to be the earliest form of animal life (recent finding state Comb Jelly being the world's first).

In Malaysia, no official directory of sponge species has been created so far - hence we are deficient of information on the species that we may have in our seas. A matter of fact is that the accurate identification of marine sponges from the Phylum Porifera has always been a daunting task due to its inherent taxonomic complexities and error-prone morphology-based identification process. Misidentification of this organism has occurred in several studies and may lead to failure in the prediction of chemical compositions, hence affecting the results of studies. Spicules identification, the conventional method for sponge identification is found to be time and cost consuming. Even more, it is not able to explain the relationship among species or its evolution.

The utilization of DNA barcodes and a taxonomic system with a DNA sequence provides an opportunity to understand the evolutionary factors that shape species distributions in space and time. Furthermore, the tiny amount of sample needed for the DNA barcode identification approach is perceived as a more environmentally friendly method as it may support the sustainability of the sponge colony.

We utilize a rapid and simple molecular approach to circumvent this problem and tested the method to investigate the species of marine sponges found in Pulau Bidong fore reef zone (latitude: 5°61'49.33", longitude: 103 °07'11.36") based on the CO1 DNA barcode of marine sponges. Approximately 0.3 g DNA of the marine sponge was extracted and amplified using polymerase chain reaction (PCR). Amplification of the DNA barcode from the marine sponge samples was based on the standard COI barcoding fragment using degenerate primers in a PCR followed by gel electrophoresis. Identification of the sponge was conducted based on molecular technique following the method introduced by Meyer *et al* (2005). The DNA sequencing were conducted by 1st Base Laboratory Malaysia and analyzed using BioEdit Sequence Alignment Editor 7.2.3 program for homology of sequencing results and Basic Local Alignment Search Tool

Figure 1: *In-situ* photograph of the specimens colony. All samples were morphologically similar (yellow and firm). The sponge appears to be orange color when photographed with the flash on. Colony A was found at the depth of 7.9 meters while B and C were found at the average depth of 15.8 meters.

(BLAST) program at *http://blast.ncbi.nlm.nih.gov/* for the detection with the most similar species in NCBI data base.

The results of our research indicated that the marine sponge DNA identification is not an easy mission indeed - sponge itself is known to contain several meta-genomic DNA. However the study on DNA barcode for marine sponge identification is important as it is the only way to determine its species. In this study, the marine sponge DNA was successfully extracted using a spin column method followed by successful establishment of degenerate forward/ reverse primer set for DNA barcoding work. A COI DNA barcode fragment was successfully amplified from all specimens using PCR using the standard three step PCR method. Despite good quality of DNA obtained from the extraction process, re-amplification of the DNA was required to obtain decipherable sequence of DNA. Molecular analysis based on the gene sequence was confirmed that the sponge belongs to *Hemiasterella sp*. UCMPWC1021 - a marine sponge that has been reported to produce anticancer compounds.

The successful identification of *Hemiasterella sp.* marks the first report this particular species is present in the Bidong Archipelago and in our Malaysian waters. The water parameters may suggest the optimum condition for the growth of this marine sponge. Further studies on the environmental factors may confirm the details. The profile data generated can be transformed into a reliable depository platform for species confirmation and distribution. This depository could also contribute to future novel biocompound discoveries and efficient marine sponge conservation efforts.

FACTORS INFLUENCING ACADEMIC PERFORMANCE OF THE INTERNATIONAL STUDENTS: FOCUSING IN MATHEMATICS-BASED AND SCIENCE-BASED SUBJECTS

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Over the past decade, Malaysia has become the fastest growing destination for international students, showing an annual increase of over 16%. Its average ratio is almost 1:10 which is one of the highest proportions of international versus domestic students in the academic world. Infrastructure University Kuala Lumpur (IUKL), one of the private tertiary institutions in Malaysia also currently has a high international student population of around 33%. In the Faculty of Applied Science and Foundation Studies (FASF) for instance, approximately 50% of the students enrolled in the Foundation in Science course are from overseas. It is noticeable that the international students tend to face difficulties when performing mathematics-based and science-based subjects.

Therefore, this study was conducted to determine the level of academic performance of the international students in mathematics-based and science-based subjects and the factors that influence the international students in studying both subjects. A total of 291 respondents participated in this research. They were randomly chosen from five faculties in IUKL which offer mathematics-based and science-based subjects. Questionnaires were used to collect the data. Three types of analyses were then used to analyse the data, namely the calculation of arithmetic means, Kruskal-Wallis test and Spearman's Rank Correlation. The findings showed that a high percentage of the international students have poorer academic performances. The study also showed that there were significant differences between the students' overall performance and their grades in both mathematics-based and science-based subjects. While the correlations between the students' overall performance and their grades in both subjects were moderate.

Further analysis showed that student-lecturer interaction, support services and student characteristics have significant differences in the students' grades in mathematics-based subjects while for the science-based subjects, only student-lecturer interaction has a significant difference with the students' grades.

In conclusion, students and lecturers both have their own roles to play to improve poor academic performance. The weak ones will need to work harder while good students can help their peers to understand better the course subjects. Lecturers also have to keep an eye on poor performing students as well and guide them in their studies.

GOLD MEDAL FOR IUKL @ ITEX'16

The 27th International Invention and Innovation Exhibition (ITEX'16) was recently held from 12 to 14 May 2016 at the Kuala Lumpur Convention Centre. The gold medal team from the 'Pertandingan Rekacipta dan Inovasi Institusi Pengajian Tinggi Swasta 2014 (PERINTIS 2014)' represented IUKL to compete with other innovators at this prestigious exhibition.

The three-day event was memorable for IUKL as the one and only team representing the university brought home a Gold medal thus marking another astounding accomplishment for IUKL. The team encompassed IUKL's President and Vice-Chancellor, Prof. Dr. Roslan Zainal Abidin, Faculty of Engineering and Technology Infrastructure (FETI) lecturer, Ms. Naimah Yusoff; and Dr. Mohd Sofiyan Sulaiman who was the team leader. The product, 'RON Classification for Forecasting Riverbank Erosion' won its second Gold medal prior to its win in PERINTIS 2014.

The establishment of "RON" classification software which firmly indicates the relationship between soil composition and river bank erosion can be used as a tool in forecasting the risk level of river bank erosion in five (5) categories namely low, moderate, high, very high and critical.

The International Invention and Innovation Exhibition (ITEX) is an annual invention exhibition which gathers prolific inventors, key local and international players from the invention and innovation, research and development, manufacturing, financing and legal sectors specifically to explore new business ventures and to unveil new inventions or products. More than 20 countries took part in this exhibition.

ITEX '16
MALAYSIA
27th International Invention & Innovation Exhibition

PERINTIS
PERTANDINGAN REKACIPTA DAN INOVASI
INSTITUSI PENGAJIAN TINGGI SWASTA

PERINTIS 2016

The second Pertandingan Rekacipta dan Inovasi Institusi Pengajian Tinggi Swasta (PERINTIS) was hosted by UNITEN on 16 November, 2016 and officiated by the UNITEN chairman Tan Sri Leo Moggie. PERINTIS is a biennial event that is organised in partnership with the Ministry of Science, Technology & Innovation (MOSTI) and fully supported by the Ministry of Higher Education (MOHE) Malaysia. The event attracted a total of 141 participants from both private and public universities, and 28 entries from science schools across the nation. The PERINTIS competition, first hosted by Infrastructure University Kuala Lumpur (IUKL) in 2014 was established to showcase innovations and inventions from private universities specifically and other institutions of higher learning in Malaysia. With the motto being "BETTER BRIGHTER FOR SUSTAINABLE FUTURE", this year's competition managed to bring out the best innovators among students and academics alike that went on to showcase a wide range of cutting-edged innovations at the exhibition.

At PERINTIS 2016, IUKL was represented by two teams from the Faculty of Engineering & Technology Infrastructure (FETI) and a team from the Faculty of Business & Accounting (FBA). Both teams from FETI managed a fantastic job of bringing home silver and bronze medals for their innovations in soil erosion & landslide prediction systems. IUKL's silver medallist led by Dr. Mohd. Sofiyan Sulaiman showcased an innovation called "Transport of Bed Load Sediment: Local Scale vs Reach Scale" and proved the functional application of predicting accurate riverbank erosions that leads to disastrous flooding. Whereas the team led by Puan Noorbaya Binti Mohd. Salleh demonstrated the successful application of landslide predictions using the new "ROAR" index developed by IUKL's very own Vice-Chancellor Prof. Dr. Roslan Zainal Abidin. The team from FBA led by Prof. Dr. Noor Saadah Zaina Abidin also clearly managed to excite the crowd despite not winning a medal through their lively interaction with industry players on the effective use of coirs from coconuts. Kudos to all IUKL teams for their fine achievements & a job well done. PERINTIS 2018 is next and will be hosted by the Malaysian Science University (MSU).

The fifth annual instalment of "IUKL Innovation & Invention Competition" (IUIIC) was held on 7th December, 2016 and was officiated by Associate Prof. Dr. Christianity Della, IUKL's Deputy Vice-Chancellor. It was also the first major event to be held at the all new IUKL academic block 11. The IUIIC remains a popular platform for IUKL's students and academics alike to showcase their wonderful designs, inventions and innovations. More importantly, it is the ultimate stage that displays innovations conceptualized from the university's six faculties. IUIIC 2016 saw a wide-array of impressive entries ranging from pathogen diagnostics, environmental solutions, ICT and robotics. Based on the theme "Innovate Beyond Tomorrow", the competition saw an important shift whereby entrants were bolder in their innovations which found solutions that may solve important real-world problems.

A total of 24 teams participated in IUIIC 2016. The event saw two teams winning Gold, whereas six and ten teams won silver and bronze medals respectively. The Two Gold medalist at IUIIC 2016 went on further to win the Best Commercial Innovation award and the Most Promising Invention awards respectively. Kudos to all IUIIC 2016 winning teams. Below is the list of winners:

GOLD MEDALS		
NO	**PRODUCT**	**NAME OF PARTICIPANT**
1	High Early Strength Self-Consolidating Concrete with Triple Blended Qua-Si-RHA	Dyg. Siti Quraisyah Bt. Abg. Adenan* Ihsan Ahmad Nainy Muhammad Zuhair Abdul Rasid Kamarul Izzulaslam Kamarulzaman
2	Autonomous Surveillance Mobile Robot	Mohamed Rashid Mohamed Jama * Muhammed Ishaku Khan Hung Meng Fallah Salem Ibrahim S

SILVER MEDALS		
NO	**PRODUCT**	**NAME OF PARTICIPANT**
1	Innovative Ferrocement Jacketing Techniques for Strengthening of Square RC Column	Dr. A. B. M. Amrul Kaish* Turlanbekov Asset
2	Design Of Autonomous Mobile Rescue Robot	Muawiyah* Kelkawi Adil Kamal Saleem Hafizah Hanun Binti Abu Bakar Surin Raj A/L Ganasan
3	Real-Time Visual Dna Detection System: A Rapid Nucleic Acid Amplification Detection Method using Robust Real-Time pH-dependent Visualisation Approach	Low Win Hui * Maisarah Binti Zainal Muhammad Hafsat Hassan
4	Removal of Heavy Metals From Aqueous Solution using Agricultural Waste as Low Cost Adsorbents	AP Dr Manal Mohsen Abood* Nik Nuraini Azhari Fahim Istiaque
5	3 in 1 Automated Sorting and Aluminium Can Crusher Recycle Bin	Amanda Law Siew Ling* Koh Kok Hong Lew Siew Ching Loh Xindy
6	Traditional Herbal Plants As Antimicrobial Agents	Thevananthini A/P Thangaraju* Sheeranjini A/P Gunaseelan Dr Sylvia Chieng

BRONZE MEDALS		
NO	**PRODUCT**	**NAME OF PARTICIPANT**
1	Formwork using Damp Proof Membrane (DPM)	Noor Amirah binti Mohd Anuar* Fatin Nadhirah binti M Royani Nik Arfiah Faten bt Nik Ariffuddin Ir. Tengku Anita Raja Hussin
2	Autonomous Mobile Vacuum Cleaner Robot	Mutty Bhimnath* Kirish Boodhoo Ahmad Rajab Abomala Vijaya Ragavan A/L Naranasamy
3	An Improvement of Safety Features on Motorcyclist's Helmet	Chaw Hui Wen* Lavinia Yew Wei Nee Lee Di Shen Kevin Yeo Jit Tong
4	Durable Plastic Road Curb	Vivesan Muniandy* Priyatharshini Rajandran Vanisri Maniraj Amirah
5	Amazing Holidays Start Now with Tenses	Sabrina Haque* Tahar M Mahmoud Fadhil Aml Ali Mohammed Mousay
6	Network oriented Fully Automated Secure Exam Paper Management System	Dr. Abudhahir Buhari * Dr. Mohamed Awadh Ahmed Ben Mubarak Haslin Hasan
7	Alternative raw materials for bioethanol production	Dr Sylvia Chieng * Shopana A/P Vejayan Nurmalina bt Khairul'Azam
8	Mobile Mailbox Delivery System Based On Android Application	Nasarudin Daud* Hajara Baba Zailani Sangeetha Vallo Hasliza Hashim
9	Smart Navigation Stick (SNS)	Syed Abdullah Bin Syed Mohsen Alhabshi* Tie Tzer Sheng Siong King Kai Muhammad Zulkhairi bin Jamaluddin
10	S.M.A.R.T LPG (Cooking Gas) Gauge	Jubaidah binti Mashod* Vigneswary a/p Kalidas Nur Fatin binti Kasbun Nor Hasikin binti Mamat

"Behavioral of River Stability for Mountain Rivers in Malaysia" is the name of the project that brought home a silver medal for IUKL by Prof. Dr. Roslan Zainal Abidin, Dr. Mohd Sofiyan Sulaiman, Ms. Nor Azidawati Haron, Mr. Goh Qui You, and their team leader, Assoc. Prof. Dr. Manal Mohsen Abood.

The project competed in the International Conference and Exposition on Inventions by Institutions of Higher Learning (PECIPTA 2017) which was held from 7 to 9 October 2017, at Stadium Tertutup Kompleks Sukan Negeri, Gong Badak, Terengganu. Mr. Mohd Firdaus Ma'as and team leader, Dr. Sylvia Chieng proudly represented IUKL as well in the event with their project, "Production of Bioethanol from Temukut".

Both teams received grants from the Ministry of Higher Education to participate in PECIPTA 2017, which received involvement from 40 public and private higher learning institutions, as well as seven polytechnics and two community colleges.

PECIPTA is a biannual event organised by MOHE, Malaysia together with a selected local university since 2001. This year the event was hosted by Universiti Malaysia Terengganu and Universiti Sultan Zainal Abidin. The aim of this event is to provide a platform for researchers from institutions of higher learning to showcase their innovative research products and services to the public.

IUIIC 2017

The annual "IUKL Innovation & Invention Competition" (IUIIC) was held at the all new IUKL academic block 11 on 20 December, 2017. The event was officiated by the Vice-Chancellor of IUKL, Prof. Dr. Roslan Zainal Abidin. IUIIC remains a very popular platform for IUKL's students and academics to showcase their inventions and innovations and 2017 was no exception as participating teams eagerly showcased their prototypes and innovations to a packed crowd. The event was also very meaningful as it affirms IUKL's commitments towards solving real-world problems through solutions that are sustainable, and environmentally friendly. As this year's theme implies, "Innovating for Sustainability" is all about innovations that can improve business processes, increase efficiencies, reduced waste and deliver better cost savings.

IUIIC 2017 also saw the Memorandum of Understanding (MoU) Signing Ceremony on research collaboration and commercialisation between IUKL and BioGenes Technologies Sdn. Bhd. IUIIC 2017 also saw the introduction of a new parallel pitching session in the competition format whereby each participating team was invited to pitch their idea or product to a panel of invited industry experts.

Points scored would then contribute to the overall marks of each team's product /innovation entry. A record total of 38 teams participated in IUIIC 2017. Here are the IUIIC 2017 winning teams:

GOLD			
No	**Faculty**	**Project Name**	**Team**
1	FABE	Development Of Solar Powered Bamboo Catamaran	Adil Farizal Md Rashid, Zulkifli Hanafi, Golnoosh Manteghi, Mohd Hanafiah Abd Hamid
2	FASF	Next Generation Biomolecule: The Synthetic Antibodies	Nor Aina Syahirah Bt Nordin, Thibaranjinni A/P Vegian, Amira Syahirah binti Mohd Zulkefli

SILVER			
No	**Faculty**	**Project Name**	**Team**
1	FABE	BIOMIMICRY ELEMENTARY DESIGN – Innovating for Sustainability	Sharyzee Bin Mohmad Shukri, Idris Bin Taib, Nidkalan A/L Sundraja Sirgran, Balu A/L Chandran
2	FETI	Sustainable Self-Compacting Concrete (SCC) Incorporating Eco Qua-Fa	Dyg. Siti Quraisyah Bt. Abg. Adenan, Odiase Stephen Ovbeniyekede, Sana Ullah, Kartini Kamaruddin
3	FETI	Streambank Erosion Prediction Using Narx And Annarx Model	Dr. Azlinda Saadon, Sivanandan Jeyamani, Suleiman Abu Bakar
4	FABE	The A Project	Irenee Fan, Ar. Mohd Hayazi Agusi
5	FETI	Wireless Hand Gesture Vocalizer for Mute and Deaf People	Nurfarahdiana Bt Abd Rahim, Mouawia Mohamed

BRONZE			
No	**Faculty**	**Project Name**	**Team**
1	FCMIT	IUKL Labs' Temperature and Environment Monitoring System with Radio and Web Based Alert Feature	Dr. Abudhahir Buhari, Kesavan, Nasarudin Daud, Valeriano Dasalla
2	FETI	Adhesive Textile Composite for Rapid Strengthening of Concrete Columns	Dr. A. B. M Amrul Kaish, Rabbane Md Borhan Uddin, Muhamad Zuhair Abdul Rasid
3	FETI	Ultra High Performance Engineered Cementitious Composites for Strengthening Application	Dr. A. B. M Amrul Kaish, Nyiam Len Fong, Ernie Isnarti Binti Sahari, Benjamin Law Zeng Liang
4	FETI	Pome Treatment Efficiency Enhancement In Continuous Flow Stirred-Tank Reactor By Polyvinyl Alcohol Gel	Chen Chee Xiang, Nik Nuraini Binti Azhari, AP. Dr. Manal Moshen Abood, Khairunisah Binti Kamaruzaman
5	FETI	The Use Of Peanut And Sesame Seeds As A Coagulant For The Treatment of Turbid Surface Water	Alia Omer, AP. Dr. Manal Mohsen Abood, Nik Nuraini Azhari
6	FETI	An Index of Channel Morphology	Nor Azidawati Haron, Dr. Mohd Sofiyan Sulaiman, Goh Qui You
7	FETI	Timber IBS in Industry	Suhada binti Mohd Yusoff, Wan Nur Nasuha Mohamad, Ir. Tengku Anita Raja Hussin
8	FETI	Prefabricated Ferrocement Jacket for Retrofitting of Concrete Column	Dr. A. B. M Amrul Kaish, Yagoub Ahmed, Asmail Ahmed Khalel, Chan Yew Chun
9	FABE	Development of Interlocking Industrial Building System for Housing Using Incombustible Plastic Foam	Adil Farizal Md Rashid, Zulkifli Hanafi, Ahmad Zikril, Liza Yusri
10	FBA	Money Matters Accounting Game (MMAG)	Jubaidah binti Mashod, Teh Yik Hon, Ting Bei Yee, Fhazreena Jabarali
11	FACE	Might and Magic: An Effective Tool to Enhance Students Vocabulary Index and grammar in ESL Classroom	Mohammad Arifudin Bin Hasmanudin, Wan Muhammad Zamakhsyari Bin Wan Muhd fauzi, Reena Nadhirah Binti Said Abu Bakar
12	FETI	Enhancement Of Attached Growth Process By Using Orange Peel In Treating Secondary Pome	Angel We Chyi En, Nik Nuraini Binti Azhari, Yeo Ruien, AP. Dr. Manal Mohsen Abood
13	FETI	Hydro Cooler	Muhammad Eizlan Eizzat Bin Abdul Shukor, Amir Asyraf Bin Mohd Japri, Satren De Silva, Mohammad Syibli Syaddad Bin Mohd Alisjabana
14	FABE	ECOMIMICRY BUILDING DESIGN – Innovating for Sustainability	Idris Bin Taib, Sharyzee Bin Mohmad Shukri, Nur Adila Syaherah Bt Shahidan, Naja Izyan Binti Shahrom

SPECIAL AWARD		
Most Promising Invention Award		
FABE	Development of Solar Powered Bamboo Catamaran	Adil Farizal Md Rashid, Zulkifli Hanafi, Golnoosh Manteghi, Mohd Hanafiah Abd Hamid
Best Innovation Award		
FASF	Next Generation Biomolecule: The Synthetic Antibodies	Nor Aina Syahirah Bt Nordin, Thibaranjinni A/P Vegian, Amira Syahirah binti Mohd Zulkefli
Best Pitch Award		
FACE	Might and Magic: An Effective Tool to Enhance Students Vocabulary Index and grammar in ESL Classroom	Mohammad Arifudin Bin Hasmanudin, Wan Muhammad Zamakhsyari Bin Wan Muhd fauzi, Reena Nadhirah Binti Said Abu Bakar

IUKL Won Two Silver Medals @ ITEX'17

The 28th International Invention and Innovation Exhibition (ITEX'17) was recently held from 11 to 13 May 2017 at the Kuala Lumpur Convention Centre. Two teams were sent to represent IUKL to showcase their ingenious products and discoveries with other innovators at this prestigious exhibition. Nearly 1000 inventions by local and international inventors, research scientists, research institutions, individual inventors, young inventors and corporations were showcased at this event.

The three-day event was memorable for IUKL as both teams won silver medals along with certificates of appreciation hence marking another achievement for IUKL. The teams that brought home the silver medals were led by the President and Vice Chancellor of IUKL himself, Prof. Dr. Roslan Zainal Abidin and Ms. Dayang Siti Quraishah Abg. Adenan, a lecturer from the Faculty of Engineering and Technology Infrastructure.

The President's project, '"AR Index" is a collaboration research project with an architect firm in forecasting building design resilience in landslide risk areas via the architectural parameters and previously developed Rainfall-Soil Risk Chart. On the other hand, Ms. Dayang's project was on the "Durability and Strength Performance of Self-Consolidating Concrete Incorporating Triple Blended Qua-Si-Rha", a new self-consolidating concrete mix which is used in constructing buildings. She was also the gold medallist at the 5th IUKL Innovation and Invention Competition (IUIIC 2016).

The International Invention and Innovation Exhibition (ITEX) is an annual invention exhibition which gathers prolific inventors, key local and international players from various sectors to explore new business ventures and to unveil new inventions or products.

ITEX '17 MALAYSIA
28TH INTERNATIONAL INVENTION, INNOVATION & TECHNOLOGY EXHIBITION

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