ENVIRON

BULETIN PUSAT PENGAJIAN KEJURUTERAAN ALAM SEKITAR

PROGRAM LAWATAN KERJA KE UNIVERSITI WALAILAK THAILAND

GU8 CONSORTIUM: AN OFFICIAL VISIT TO XIAMEN UNIVERSITY, CHINA

Industrialized Building System (IBS)

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Industrialized Building System (IBS)

Practical Session at UniMAP main campus, Pauh Putra.

The participants and organizer representative

Oleh: Zuraini Mohd Ideris

A short course on Industrialized Building System (IBS) was organized by The School of Environmental Engineering and UniMAP Holding (M) Sdn Bhd on 12th to 15th November 2013. It is an annual program in collaboration with Proven Holding (M) Sdn Bhd. For this year, the participations are mainly from members of Perbadanan Usahawan Nasional Berhad (PUNB) which comes from various states.

The 3 days program is divided into 3 parts. Day one, the participants were exposed with theory such as fundamentals of IBS, IBS score calculation, Proven IBS system and policy of requirement. The practical session was conducted at Day Two where participants have the chance to witness and conduct site works located at Pauh, Perlis. A site visit for a near completion of IBS building located at Sungai Chuchuh was conducted on the last day of training. The implementation of this course has attracted the interest of participants and on top of this the participants are eligible to obtain 25 CCD points from CIDB.

PECIPTA 2013

Prepared by:
Dr Umi Fazara Md Ali

KUALA LUMPUR, 9 November : Universiti Malaysia Perlis (UniMAP) succesfully won 16 Gold, 19 Silver and 16 Bronze including the Institute Higher Education research and young researchers category in the recent International Conference and Exposition on Invention of Institution of Higher Learning (PECIPTA) 2013 held at Kuala Lumpur Convention Centre (KLCC). School of Environmental Engineering was represented by Dr Nasrul Hamidin, Zuraini Mohd Ideris and Dr Umi Fazara Md Ali. They succesfully grabbed silver and bronze medal each for products entitled 'Powerful Photo-anode' and 'Health Risk Assessment in Human Environment'.

For this year, UniMAP have send 50 products which have high commercial value, in line with the theme of this year's PECIPTA - "Transforming Research and Innovation Towards Commercialization ". A total of 493 products being exhibited in this three days event. The ceremony was officiated by Deputy Director of Institute of Higher Learning , Higher Education Department, Datin Ir. Dr. Siti Hamisah Tapsir . Also present was Deputy Vice - Chancellor for Research and Innovation, Universiti Utara Malaysia (UUM), Prof. Dr. Abdul Razak Saleh.

PECIPTA 2013 which runs from 7th to 9th November 2013 was jointly organized by UniMAP and UUM; it was participated by 19 public and four private universities nationwide. In addition, total of 39 products from 23 schools throughout Malaysia was participating under the category of Young Researchers. It was reported that for the first time , PECIPTA 2013 were joined by international institutions, namely Taiwan, Korea, Turkey, Egypt, Indonesia Thailand and Qatar who have also sent 19 products to compete.

BIOMALAYSIA AND BIOECONOMY ASIA PACIFIC 2013

Prepared by: Dr. Tengku Nuraiti Tengku Izhar

BioMalaysia & Bioeconomy Asia Pacific 2013 Conference & Exhibition is Malaysia's premier and largest biotechnology event in the region. It was the launch pad for the regional and international biotechnology industry and entry to the hubs in Asia. Themed 'Convergence of Ideas, Confluence of Opportunities'; it became the focal regional platform for discourse and collaboration, encourage partnerships and the entry point into Asia Pacific's market in the field of biotechnology and connected global players in the building of sustainable bio-economy.

This year "BIOMALAYSIA & BIOECONOMY ASIA PACIFIC 2013" was held in Johor Bahru at the Persada Johor International Convention Centre from 21st – 23rd October. This event was participated by various institutions from local and international which showcased innovations, solutions, products and emerging bioscience technology.

Congratulations to Dr Tengku Nuraiti Tengku Izhar and Dr Farrah Aini Dahalan for their achievement in BioMalaysia 2013.

Silver Medal

– RicH COMPOST FOR LANDFILL TOP COVER :Dr Tengku Nuraiti Tengku Izhar.

Bronze Medal

- DURABLE LATEX GRANULES: A POTENTIAL RECYCLED PRODUCTS RECOVERED FROM TREATED LATEX WASTEWATER: Dr Farrah Aini Dahalan.

PROMOSI @UniMAP

Oleh: Roshazita Che Amat

Promosi merupakan platform utama dalam memperkenalkan UniMAP kepada bakal pelajar dan masyarakat. Justeru itu, peluang ini digunakan sebaik mungkin untuk memberi infomasi yang jelas dan tepat mengenai UniMAP secara langsung kepada bakal pelajar. Selalunya promosi dijalankan selari dengan program yang dianjurkan oleh Kementerian Pelajaran seperti JOM MASUK U, Karnival Pendidikan dan Kerjaya Kolej Matrikulasi, lawatan ke sekolah dan sebagainya.

Program promosi@UniMAP ini melibatkan beberapa staf daripada UniMAP Anjung KL, UniMAP Anjung Kulim dan semua pusat pengajian. Setiap wakil pusat pengajian yang menyertai kumpulan promosi perlu mempromosikan semua program di UniMAP dan bukan hanya program PPK masing – masing. Justeru itu semua ahli promosi perlu mengetahui dan mampu menjelaskan dengan tepat latar belakang setiap program yang ditawarkan di UniMAP bagi mengelakkan sebarang kekeliruan dan ketidaktepatan info ketika promosi.

Pada kali ini PPKAS telah diberi tanggungjawab untuk mempromosikan UniMAP di Karnival Pendidikan dan Kerjaya Kolej Matrikulasi Perak yang terletak di Gopeng apda 9 – 10 Disember 2013. Cik Nur Fitriyah, pensyarah program teknologi kejuruteraan telah dilantik untuk memberi ceramah promosi kepada pelajar. Ini adalah pilihan yang tepat kerana pada masa yang sama UniMAP sedang mempromosikan Program Teknologi Kejuruteraan.Tugas ini agar mencabar kerana kebanyakan pelajar matrikulasi lebih berminat untuk memilih program – program yang ditawarkan oleh RU dan APEX berbanding UniMAP. Walaubagaimanapun, kami berjaya meyakinkan mereka dan terbukti berjaya kerana peratusan pelajar kolej ini yang memilih UniMAP adalah tinggi berbanding kolej – kolej matrikulasi lain.

Sepanjang program ini, booth UniMAP mendapat sambutan yang sangat baik. Apatah lagi dengan kehadiran beberapa orang pensyarah yang mampu menjelaskan secara terperinci mengenai program – program yang ditawarkan. Sedikit sebanyak kaedah ini memberi panduan kepada bakal pelajar mengenai bidang pengajian yang bakal dipilih kelak. Hampir 80 % pelajar yang berkunjung ke booth UniMAP berminat untuk menyertai UniMAP kelak. TAHNIAH!!!

1ST PPKAS POSTGRADUATE THESIS WRITING WORKSHOP

'Writing Thesis – Steps towards Successful Postgraduate Studies'

Prepared by: Dr. Farrah Aini Dahalan

Writing thesis dissertation is one of the measures of scholarly work in academia as well as an indicator of a research accomplishment for postgraduate studies. In view of this, The School of Environmental Engineering organised a workshop to provide yet another platform for strategic actions in thesis writing for in-house postgraduate students. Too often the art of thesis writing is not taken seriously. Therefore this initiative from the School of Environmental Engineering lead by the Postgraduate Programme is crucial to encourage postgraduate students to prepare their thesis with passion.

On the 7th February 2013, the workshop was held at our own venue in The School of Environmental Engineering. The workshop was chaired by the Postgraduate Programme Coordinator, Dr. Fahmi Muhamad Ridwan. The facilitators for the one-day workshop included Dr. Farrah Aini Dahalan and Dr. Umi Fazara Md Ali. This workshop aims to assist the participants in evaluating their existing writing skills and plan their own progress during the writing stages. The students are emphasized to:

- Understand the purpose and scope of a thesis
- Have considered the style and structure of the thesis, and university regulations governing the thesis
- Understand what may and may not be included in a thesis and how to acknowledge any joint work.
- Have considered whether it is desirable for their thesis to be 'embargoed'
- Have identified practical ways in which the thesis may be planned, drafted and completed and understand the role of their supervisor in this process
- Have identified some writing tools and strategies to help them get started (and keep going!)
- Have more confidence in their ability to write the thesis

Dr. Fahmi Muhamad Ridwan, the Postgraduate Programme Coordinator suggested that this workshop could be recognized as a starting point of a very useful new exercise of The School of Enivronmental Engineering for the sake of academic capacity. The model workshop may be repeated at other locations in the future with similar emphasis on the thesis dissertation preparation.

WORKSHOP ON BIOLOGICAL ASSESSMENT ON THE HEALTH OF FOREST & RIVER IN SG. CHUCHUH AND MATA AIR

Prepared by: Dr. Farrah Aini Dahalan

The Sg. Chuchuh campus which is situated just 10 minutes away from the Malaysia-Thailand border is rich with flora and fauna that would allow general public to value experience and gain knowledge about the nature, plants and animals in their natural habitats. UniMAP aims to set pristine Sg. Chuchuh campus as a community-based 'living laboratory' for identifying, evaluating and assessing indicators of progress towards promoting biodiversity research activities within UniMAP. On the 11th-13th June 2013, The School of Environmental Engineering (SEE), Centre of Excellence Advanced Sensor Technology (CEASTech) and Institute of Sustainable Agrotechnology have jointly organized a three days-workshop on biodiversity of Sg. Chuchuh campus, UniMAP.

With the aim of improving identification and field skills of biological groups and raising standards of data collection and management, researchers from the Forest Research Institute Malaysia (FRIM) and Universiti Teknologi Malaysia (UTM) were invited to facilitate the programme.

The programme identifies the gap areas that need to be taken up by UniMAP as a challenge to explore into biodiversity research along with engineering aspects. Various activities including fauna watching from the canopy walk on tree top, hands-on microbenthos biomonitoring in Sg. Chuchuh river, jungle trekking, introduction to flora and herbs in forest, birds watching, and research seminar were enjoyed by the participants from various programme.

During this workshop, UniMAP has introduced the Wireless Sensor Network (WSN) technology developed by CEASTech.

Biodiversity assessment on the health of forest and river was launched at Sg. Chuchuh campus via WSN where the real-time data of indigenous organisms such as bats, deer, wild boar, monkeys, weasel, birds, were successfully captured. The biodiversity of Sg. Chuchuh was scrutinized by the biology experts from FRIM during the seminar session. FRIM has shown their keen interest and has assured continuous support to assist UniMAP in preserving the pristine land of Sg. Chuchuh campus as it is rich in biodiversity. From the workshop, research collaborations between UniMAP, FRIM and UTM were also discussed for future needs.

GU8 CONSORTIUM: AN OFFICIAL VISIT TO XIAMEN UNIVERSITY, CHINA

Prepared by: Dr. Farrah Aini Dahalan

On the 24-28th of September 2013, Dr. Farrah Aini Dahalan was assigned to represent UniMAP in Xiamen University, Fujian, China to get together with the researchers in Xiamen University into finding research direction on ecotoxicology. Among GU8 members, research in ecotoxicology has been actively collaborated and well discussed between Xiamen University, University of Hull (United Kingdom) and University of Le Havre (France) for the past years since their longstanding relationships in GU8. As a new member, UniMAP has foresee the field of ecotoxicology may provide vast opportunity in research collaboration, knowledge sharing and international cooperation as the Global U8 Consortium offers allied institutions several key advantages that are complementary, cost-saving and, above all, beneficial from an educational perspective.

Background of Xiamen University

Xiamen University is considered to be one of the most beautiful campuses in China, and is a major tourist destination in Xiamen. Xiamen University's main campus is located in Siming District, southwestern Xiamen. Located at the foot of the green mountains, facing the blue ocean and surrounded by Xiamen bay. The main campus is picturesque with beautiful scenery and parks, and is one of the main tourist attractions in the heavily-touristed Xiamen. The university also has campuses at Xiang'an and Zhangzhou. A new campus is being built in the mainland district of Xiamen, Xiang'an District. Construction began in 2011 and the first phase is scheduled to be completed in 2013. The new campus will cover 243 hectares and is expected to accommodate 30,000 students. Xiamen University had 20 schools containing 43 departments, and many key research institutes. According to University Undergraduates Teaching Assessment and Chinese Universities Evaluation Standings, the university is ranked 11th in China and has maintained the top 20 ranking in China. Besides being excel in academia, Xiamen University also is one of the attractions in tourism in Fujian province. The university welcome tourists and open it's door to 300 visitors per day. The attraction spots within the university include the lake garden which surrounded by blooming fresh flowers, and the archaeology and paleontology museum at the School of Humanities. The architecture of both Siming and Xiang'an campuses are most amused by international tourists. The main trademark of the university is it's own long stretch of beautiful private beach which received tourist from all over the world daily. This has given tourist an experience of both academia and tourism in package. Gu Lang Xu Island which situated just across the university's beach is another fascinating tourist spot which offers unique township and it is famous for seafood cuisine and products.

The Meeting

The first meeting was scheduled to meet Prof. Shaobin Tan, the Director of Corporate and International Affairs whom also attended the previous GU8 joint meeting in Fortaleza, Brazil together with Prof. Dr. Ali Yeon Md Shakaff and Assoc. Prof. Dr. Khairul Nizar Ismail. Meet up session was made at his office in Siming Campus overlooking the university's green and vibrant scenery. Prof Shaobin Tan was overwhelmed with the interest and effort shown by UniMAP in GU8 researches. He suggested that long-term collaboration must be made between UniMAP and Xiamen University in terms of designing joint research programs, R&D funding sources and activities in the area of marine and environmental sciences that each GU8 member could join. In addition, he suggested that joint papers could be possibly developed besides sharing facilities, methodology and technology.

The second meeting was hosted by Prof Mindong Bai from the College of Environment and Ecology which located at Xiang'an district which is one hour distance from the Siming campus. Introduction to the GU8 Workshop on Ecotoxicology and Biomass which was then scheduled to be hosted by UniMAP in December 2013 was delivered to the faculty members of College of Environment and Ecology, and College of Oceanography & Environment including postgraduate students and fellow professors in the field of ecotoxicology, water treatment, botany, marine biodiversity, bioremediation and pollution control. During the December 2013 workshop on Ecotoxicology, Xiamen University has sent Prof. Wang Xinhong and Prof. Liu Yunquan, the two Ecotoxicology experts to attend the event. The visit has provided a real opportunity for very fruitful relationship and cooperation between UniMAP, Xiamen University and GU8 Consortium.

PROGRAM LAWATAN KERJA KE **UNIVERSITI WALAILAK THAILAND**

Oleh: Nur Liza Binti Rahim

Program Lawatan Kerja ke Universiti Walailak (WU) yang terletak di daerah Tha Sala, Nakhon Si Thammarat, Thailand telah dilaksanakan dengan jayanya pada19, 20 dan 21 Disember 2013. Perjalanan ke Universiti Walailak mengambil masa selama 5 – 6 jam dari Jabatan Imigresen Bukit Kayu Hitam. Lawatan yang julung kalinya diadakan ini melibatkan 14 orang staf dan 2 orang pelajar daripada Pusat Pengajian Kejuruteraan Alam Sekitar.

Lawatan balas ini bertujuan untuk menjalinkan kerjasama antara dua universiti serta mempelajari dan memperlihatkan kepada staf dan pelajar tentang perkhidmatan, pengoperasian dan kemudahan di Universiti Walailak. Selain itu, staf juga dapat mempelajari cara-cara Universiti Walailak mengekalkan keunggulan wawasan serta strategi pembangunan tersendiri untuk terus bersaing diperingkat antarabangsa.

Lawatan kerja ini melibatkan sesi taklimat dua hala dan perbincangan mengenai bahagian-bahagian dan kepakaran di kedua-dua buah universiti. Disamping itu, delegasi UniMAP juga tidak melepaskan peluang untuk melawat ke makmal-makmal yang terdapat di WU untuk melihat kemudahan yang disediakan kepada pelajar dan juga khidmat perundingan.

Selain mengeratkan hubungan kerjasama antara UniMAP dengan WU, lawatan kerja ini juga diharapkan dapat menjadi pemangkin kepada program kerjasama, perkongsian bidang kepakaran dan pertukaran pelajar bagi kedua-dua buah universiti serta dapat bertukar-tukar pandangan melalui sesi perbincangan dan soal jawab antara universiti. Lawatan seperti ini juga mampu merancang kerjasama yang baru untuk membawa kedua-dua pihak ke tahap kegemilangan yang lebih baik pada masa akan datang.

PELAJAR DARI UNIVERSITI WALAILAK

Oleh : Razi Ahmad

Pihak PPKAS telah menerima dua orang pelajar ijazah pertama daripada Universiti Walailak, Thailand bagi mengikuti program pertukaran pelajar bermula 2 September 2013 hingga 20 Disember 2013. Pelajar-pelajar ini adalah Peerayut Korpium di bawah seliaan Dr Umi Fazara Md. Ali yang menjalankan projek biogas dan Warayunyoo Seysawa di bawah seliaan En. Razi Ahmad yang terlibat dalam projek Pyrolysis. Selama lebih kurang empat bulan di UniMAP, para pelajar ini telah menjalankan projek penyelidikan tahun akhir bersama-sama para pelajar tahun akhir PPKAS.

PERLIS BEBAS ASAP ROKOK

Oleh : Zuraini Mohd Ideris

Baru-baru ini bertempat di Hotel Seri Malaysia Kangar, satu Bengkel Pemantapan Pelan Strategik Inisiatif Perlis Bebas Asap Rokok (PEBAR) telah diadakan. Bengkel dua hari ini dianjurkan oleh Jabatan Kesihatan Negeri Perlis yang dipengerusikan oleh YAB Menteri Besar Negeri Perlis. Bengkel ini melibatkan hampir keseluruhan jabatan kerajaan di Negeri Perlis antaranya Exco Pembangunan Wanita, Keluarga & Masyarakat, SUK Negeri Perlis, Exco Kesihatan, Penasihat Undang-Undang, Exco Kerajaan Tempatan, Jabatan Penerangan Negeri, Jabatan Penerangan, Pusat Racun Negara USM (CTOB), Pejabat Mufti Perlis, Jabatan Alam Sekitar, Jabatan Agama Islam, UniMAP (Pusat Pengajian Kejuruteraan Alam Sekitar), UiTM (Sains Sukan), LPPKN, Jabatan KEMAS, Jabatan Belia dan Sukan, Jabatan Kesihatan dan Keselamatan Pekerjaan (DOSH), Institute of Health Behavioural Research (IPTK), Majlis Perbandaran Kangar (MPK) serta beberapa badan NGO yang lain. Secara amnya, bagi melancarkan perlaksanaan program ini beberapa jawatan kuasa kecil diwujudkan seperti jawatankuasa kerja Advokasi dan Promosi, jawatankuasa kerja Jaringan Kerjasama & Bina Upaya, jawatankuasa kerja Perkhimatan Berhenti Merokok, Jawatan kuasa kerja Perundangan & Penguatkuasaan dan jawatan kerja Pemantauan & penilaian.

Objektif utama program ini adalah sebagai usaha mewujudkan kawasan atau zon sama ada secara keseluruhan atau sebahagian sebagai kawasan bebas asap rokok demi untuk melindungi orang awam dari ancaman pendedahan kepada asap rokok. Bertitik tolak dengan itu, dua kawasan cadangan telah dipilih untuk bakal digazedkan sebagai kawasan bebas asap rokok iaitu Arau (pasaraya C-Mart dan kawasan sekitaran) dan Kuala Perlis (Jeti Kuala Perlis dan kawasan sekitaran).

Secara amnya, PPK Alam Sekitar bersama pihak DOSH dan Jabatan Alam Sekitar berada di bawah jawatan kerja pemantauan & penilaian yang bertindak dalam ujian penentuan kualiti udara sebelum perlaksanaan, semasa perlaksanaan dan selepas perlaksanaan. Ujian yang telah dicadangkan adalah Particulate matter (PM 2.5), Volatile organic compound (VOC).

Buat masa ini hanya empat bandar berstatus bebas asap rokok iaitu Luang Prabang (Laos), Davis City (Filipina), Chandigarth (India) dan Melaka (Malaysia). Inisiatif bebas asap rokok di Malaysia kini giat dijalankan di beberapa negeri seperti Pulau Pinang, Johor dan Mulu Heritage.

MAJLIS PERWAKILAN PELAJAR (MPP) UniMAP BAGI SESI 2013/2014

Oleh: Tengku Nuraiti Tengku Izhar

Pada 28 November lalu Pilihanraya Kampus (PRK) UniMAP telah diadakan dan Kumpulan Pro Universiti telah memenangi keseluruhan 33 kerusi Majlis Perwakilan Pelajar (MPP) bagi sesi 2013/2014.

Empat orang pelajar PPKAS juga merupakan barisan MPP untuk sesi kali ini. Mereka adalah Aini Syafiqah (Kejuruteraan Bangunan, Tahun 3) Naib Yang Di Pertua II, Nur Fateha Asmuni (Kejuruteraan Alam Sekitar, Tahun 3) Penolong Ketua Perhubungan Mahasiswa, Nurain Farhanah Kamarul Baharein (Kejuruteraan Alam Sekitar, Tahun 3) Exco Alumni, dan Nabila Najwa Norizan (Kejuruteraan Alam Sekitar, Tahun 3) Exco Keusahawanan.

Naib Canselor UniMAP, Brig. Jen. Datuk Prof. Dr. Kamarudin Hussin dalam ucapannya berkata setiap manifesto yang dibawa semasa tempoh berkempen diharapkan dapat dilaksanakan dalam menggarap kepercayaan para pelajar terhadap organisasi tersebut.

“MPP perlu memperlihatkan sebagai sebuah organisasi yang utuh dan bersatu padu dalam apa jua suara dan tindakan yang akan dipersoalkan. Pihak universiti mengharapkan komitmen yang tidak berbelah dari anak-anak sekalian untuk melaksanakan tanggungjawab ini dengan penuh dedikasi.”katanya.

Beliau harap barisan MPP kali ini dapat bergerak seiring dengan kesedaran dan pemikiran Universiti kerana MPP bukan saja mewakili pelajar tetapi juga merupakan cerminan kepada universiti.

Akreditasi EAC 2013

Oleh: Dr. Sara Yasina Yusof

Lawatan akreditasi Malaysia (BEM) telah berlangsung selama dua hari bermula pada 2 Oktober sehingga 3 Oktober 2013. Program Kejuruteraan Alam Sekitar (RK07) merupakan salah satu daripada 13 buah program di UniMAP yang terlibat dengan penilaian akreditasi pada kali ini. Lawatan akreditasi 2013 di PPK Alam Sekitar telah dinilai oleh dua orang panel Majlis Akreditasi Jurutera (EAC) iaitu Ir. Ahmad Tamby Kadir yang bertindak sebagai ketua dan juga PM. Ir. Adnan Zulkiple.

Tujuan lawatan akreditasi 2013 adalah bagi memperolehi pengiktirafan BEM bagi program RK07 (new cycle) untuk bakal graduan sesi 2014 sehingga 2017. Pengiktirafan oleh BEM ini adalah penting bagi membolehkan program ini diiktiraf oleh BEM seterusnya membolehkan bakal graduan PPKAS berdaftar sebagai Jurutera Professional yang sah. Lawatan pada kali ini telah disertai oleh pemegang-pemegang taruh PPKAS yang terdiri daripada Panel Penasihat Industri (IAP), Pemeriksa Luar (EE) dan alumni program RK07. Lawatan akreditasi pada kali ini berlangsung dengan lancar. Penglibatan semua staf dan pemegang taruh PPKAS secara langsung atau tidak langsung amatlah dihargai. Sehingga kini PPKAS masih menunggu keputusan rasmi oleh pihak BEM mengenai status akreditasi bagi RK07. Adalah amat diharapkan keputusan BEM akan memihak kepada PPKAS dan segala kerja keras semua pihak akan terbalas. Terima kasih semua dan semoga kita semua berjaya!!

GU8 WORKSHOP
and Joint Research Committee Meeting on Ecotoxicology and Biomass/ Biofuel

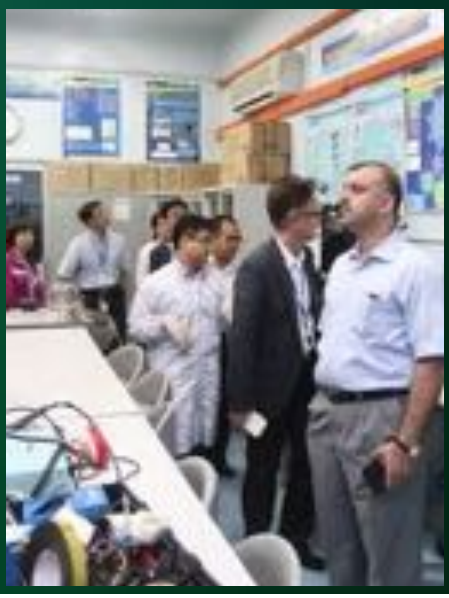
Prepared by : Dr. Naimah Ibrahim

School of Environmental Engineering together with School of Bioprocess Engineering and School of Material Engineering under the guidance of Majlis Professor has co-hosted a GU8 Workshop and Joint Research Meeting on Ecotoxicology and Biomass/Biofuel on 9-11th December 2013. This meeting was a follow on meeting from the Ecotoxicology Meeting hosted by University of Hull in March 2013. It brought together representative scientists, as well as the GU8 Joint Research Committee Vice Chair, Prof. Nichita from Le Havre University, for a progress and future strategy discussion in the research topic areas of Ecotoxicology and Biomass/Biofuel from the GU8 partner universities of UniMAP, with an impressive number of local attendees, Le Havre, Xiamen, Inha and Hull.

The event was officially started on Monday, 10th December, with a lunch and opening ceremony at Hotel Seri Malaysia, Kangar, Perlis. In the afternoon, the delegation paid a visit to UniMAP Centre of Excellence for Advanced Sensor Technology (CEASTech), School of Bioprocess Engineering, School of Environmental Engineering and also nearby paddy fields in relation to the ecotoxicological projects to be undertaken by UniMAP researchers. By 5 pm the participants were taken by bus to Kipli's Nipah Farm in Kuala Sanglang, Perlis for a tea break. That place was a nice surprise. The place was set-up in a nipah farm, in the middle of paddy fields; food was served in small huts surrounded by nipah trees; and thousands of dragonflies were flying about in the nearby field. So refreshing and natural! Even local participants were mostly first timers, and all international participants love the traditionally prepared laksa Kedah and nira nipah.

The research workshop was conducted on the next day, in parallel sessions; Ecotoxicology and Biomass Sessions in School of Manufacturing Engineering facilities, Pauh Putra Campus. The ecotoxicology session was chaired by Dr Farrah Aini Dahalan, while the biomass session was chaired by Assoc Prof Dr Zainab Hamzah. International participants from Le Havre, Xiamen, Inha and Hull University and local participants from DOE, USM, UPM and UniMAP presented their research as listed in the following table. The session was then wrapped by Prof Dr Ali Yeon Md Shakaff, followed by a discussion among the GU8 committee members.

That night a gala dinner was held in Hotel Seri Malaysia, and the program was officially closed by the Deputy Vice-Chancellor, Dato' Prof Dr Zul Azhar Zahid Jamal. The excursion was on Wednesday, where all international participants were taken to visit Langkawi Island. They were brought to Sungai Kilim Nature Park (Kilim Geoforest Park), Galleria Perdana and Eagle Square (Dataran Lang).



LIST OF PUBLICATIONS AND RESEARCH GRANT 2013
(July – Dec 2013)

Journals

No.	Author(s)	Title	Publisher	Impact Factor
1	Nabilah A. Lutpi, N.Najihah Jamil, ,C.K.Kairulazam C.K.Abdullah, Yee-Shian Wong, Soon-An Ong, and T.Nuraiti T.Izhar	Sorption of Methylene Blue and Acid Orange 7 Onto Ananas Comosus Peels and Leaves Based Activated Carbon	Applied Mechanics and Materials Vol. 330 (2013) pp 112-116 (Scopus)	Scopus
2.	Nabilah A. Lutpi, W.Fadhilah W.M.Khalik, C.K.Kairulazam C.K.Abdullah,Yee-Shian Wong, Soon-An Ongand T.Nuraiti T.Izhar	Adsorption Efficiency of Garcinia Mangostana Linn. (GML) Shells Based Activated Carbon	Applied Mechanics and Materials Vol. 330 (2013) pp 136-140 (Scopus)	Scopus
3.	L. Nabilah Aminah, S. T. Leong, Y. S. Wong, S. A. Ong, and C. K. Kairulazam	Biodiesel Production of Garcinia Mangostana Linn. seeds by Two-Phase Solvent Extraction and Alkali-Catalyzed Transesterification	International Journal of Chemical Engineering and Applications, Vol. 4, No. 3, June 2013	Scopus
4.	Noor, M.N., A.M. Mustafa Al Bakri, Yahaya, A.S., Ramli, N.A., Fitri, NF.M.Y.	Filling Missing Data using Interpolation Methods: Study on the Effect of Fitting Distribution.	Key Engineering Materials 594-595,889-895.	Scopus
5.	Noor, M.N., Yahaya, A.S., Ramli, N.A., A.M. Mustafa Al Bakri	Mean imputation Techniques for Filling the Missing Observations in Air Pollutant Datase	Key Engineering Materials 594-595,902-908.	Scopus
6.	M. Ali Umi Fazara, Ishak Jainoo, Khairul Nizar Ismail, Kamaruddin Hussin, Muhammad Ridwan Fahmi	Physicochemical Properties of Pyrolitic Carbon Black from Waste Tyres	Key Engineering Materials, Advanced Materials Engineering and Technology II, Trans Tech Publication,pp 178-182	Scopus
7.	Muhammad Ridwan Fahmi, Nasrul Hamidin, Che Zulzikrami Azner Abidin, M. Ali Umi Fazara, M.D. Irfan Hatim	Performance Evaluation of Okra (Abelmoschus esculentus) as Coagulant for Turbidity Removal in Water Treatment	Key Engineering Materials, Advanced Materials Engineering and Technology II, Trans Tech Publication,pp 226-230	Scopus
8.	Ong, S.-A., Ho, L.-N., Wong, Y.-S., Zainuddin, A.	Adsorption Behavior of Cationic and Anionic Dyes onto Acid Treated Coconut Coir	Separation Science and Technology (Philadelphia) 48 (14) , pp. 2125-2131	Scopus
9.	Abdulkareem, O.A., Mustafa Al Bakri, A.M., Kamarudin, H., Khairul Nizar, I., Saif, A.A.	Effects of elevated temperatures on the thermal behavior and mechanical performance of fly ash geopolymer paste, mortar and lightweight concrete	Construction and Building Materials 50 , pp. 377-387	Scopus
10.	Mustafa Al Bakri, A.M., Abdulkareem, O.A., Kamarudin, H.,Khairul Nizar, I., Rafiza, A.R., Zarina, Y., Alida, A.	Microstructure studies on the effect of the alkaline activators of fly ash-based geopolymer at elevated heat treatment temperature	Applied Mechanics and Materials 421 , pp. 342-348	Scopus
11.	Abdulkareem, O.A., Mustafa Al Bakri, A.M., Kamarudin, H., Khairul Nizar, I.	Alteration in the microstructure of fly ash geopolymers upon exposure to elevated temperatures	Advanced Materials Research 795 , pp. 201-205	Scopus
12.	Ahmad, R., Hamidin, N., Md Ali, U.F.	Effect of dolomite on pyrolysis of rice straw	Advanced Materials Research 795 , pp. 170-173	IF: 2.775
13.	Maniam, G.P., Hindryawati, N., Nurfitri, I., Jose, R., Ab. Rahim, M.H., Dahalan, F.A., M. Yusoff, M.	Decanter cake as a feedstock for biodiesel production: A first report	Energy Conversion and Management 76 , pp. 527-532. (2013)	5 Yr IF: 3.075
14.	Khalilah Abdul Khalil, Rosfarizan Mohamad, Arbakariya B. Ariff, Yamin Shaari, Yazid Abdul Manap, Siti Aqlima Ahmad, Farrah Aini Dahalan and S. Mustafa.	Optimization of Milk-Based Medium for Efficient Cultivation of Bifidobacterium pseudocatenulatum G4 Using Face Centered Central Composite-Response Surface Methodology (FCCD-RSM)	Accepted November 2013: Biomedical Research International XX:XXX-XXX. (2013)	2.880
15.	S.T. Sam, N.Z. Noriman,S.Ragunathan, H. Ismail.	Tensile properties LLDPE/Soya Spent Powder: Oven Aging;	Advanced Materials Research Vol. 795 (2013) pp 429-432	Scopus
16.	S.T.Sam, N.Z.Noriman, S.Ragunathan, O.H, Lin, H. Ismail,	Thermal Properties of Linear-Low Density Polyethylene (LLDPE)/SoyaSpent Powder Blends with the Addition of Epoxidised Natural Rubber;	Advanced Materials Research Vol. 795 (2013) pp 433-437	Scopus
17.	Lokman Hakim, N.Z. Noriman, S.T Sam, S.A.B.Shahnaz, S. Ragunathan,	Cure Characteristics and Hardnessof Recycled Latex Catheter (LCr) filled Standard Malaysia Rubber (SMR L) Compounds.	Advanced Materials Research Vol. 795	Scopus
18.	S.Ragunathan1*, Azlinda A.G1, S.T.Sam.	Polypropylene/Acrylonitrile Butadiene Composites containingrice husk powder: Effects of trans-polyoctylene rubber (TOR)	Key Engineering Material	Scopus
19.	Mustaqqim Abdul Rahim1, a, Zuhayr Md Ghazaly1, b, Ragunathan Santiagoo1,	The Behaviours Of Steel Fiber As Main Reinfocement In High Performance Slurry Infiltrated Fiber Reinforced Concerete.	Key Engineering Material	Scopus

20.	S.T.Sam S.Ragunathan,	Tensile and Morphological Properties of Low Density Polyethylene/ Spear Grass Composites	Key Engineering Material	Scopus
21.	Yee-Shian Wong, Tjoon Tow Teng, Soon-An Ong, M. Norhashimah, M. Rafatullah and Jing-Yong Leong	Methane Gas Production from Palm oil wastewater-An Anaerobic Methanogenic Degradation Process in Continuous Stirrer Suspended Closed Anaerobic Reactor	Journal of the Taiwan Institute of Chemical Engineers (Elsevier) Article In Press. (2013) http://dx.doi.org/10.1016/j.jtice.2013.10.002	(Impact Factor: 2.084)
22.	Ain Nihla Kamarudzaman, Tay Chia Chay, Mohd Faizal Ab Jalil and Suhaimi Abdul Talib	Biosorption of Iron (III) from Aqueous Solution using Pleurotus ostreatus Spent Mushroom Compost as Biosorbent.	Advanced Materials Research. Vol. 781-784 (2013), pp. 636-642.	Scopus
23.	Ain Nihla Kamarudzaman, Alice Dandun Anak Gana, Mohd Faizal Ab Jalil and Roslaili Abdul Aziz	Landfill Leachate Treatment Using SSF-FWS Constructed Wetland Planted with Limnocharis Flava and Eihhornia Crassipes under Different Hydraulic Loading Rate.	Key Engineering Material, Vol. 594-595 (2013), pp 344-349.	Scopus
24.	Rahim, N.L., Salehuddin, S., Ibrahim, N.M., Amat, R.C., Ab Jalil, M.F.	Use of plastic waste (high density polyethylene) in concrete mixture as aggregate replacement	Advanced Materials Research 701 , pp. 265-269	Scopus
25.	Nur Liza Rahim, Norlia Mohamad Ibrahim, Shamshinar Salehuddin, Roshazita Che Amat, Syakirah Afiza Mohammed, Cik Roziana Hibadullah	The Utilization of Aluminum Waste As Sand Replacement In Concrete	Advanced Materials Research	Scopus
26.	Norazian, M.N., Yahaya, A.S., Ramli, N.A., Yusof, N.F.F.M., Abdullah, M.M.A	Roles of Imputation Methods for Filling the Missing Values: A Review	Advances in Environmnetal Biology, 7(12) October Special issue (2013), 3861-3869	Scopus
27.	M.R. Taha, A. H. Ibrahim	Characterization of nano zero-valent iron (nZVI) and its application in sono-Fenton process to remove COD in palm oil mill effluent	Journal of Environmental Chemical Engineering 2 (2014) 1–8 (Elsevier)	Scopus

Proceedings - Seminars – Conferences

No.	Author(s)	Title	Publisher
1	L. Nabilah Aminah, and Jamaliah Md Jahim	Immobilization of thermophilic hydrogen producing	International Conference : Alternative Energy in Developing Countries and Emerging Economies 2013 (AEDCEE 2013)
2.	L. Nabilah Aminah, S.T. Leong, C.Y. Ho, Y.S. Wong, C.K. Kairulazam	Characterization of Garcinia Mangostana Linn. Seeds as Potential Feedstocks for Biodiesel Production	The 3rd World Conference on Science and Engineering (WCSE 2013)
3.	L. Nabilah Aminah, Jamaliah Md Jahim	Characteristics of biofilm formed on granular activated carbon by immobilization of hydrogen producing bacteria from palm oil mill effluent sludge	The fifth World Hydrogen Technologies Convention (WHTC2013)
4.	Nabilah Aminah Lutpi, Jamaliah Md Jahim	Thermophilic Fermentative Hydrogen Production using Granular Activated Carbon Immobilized Mixed Microflora	International Conference on Engineering and Built Environment (ICEBE) 2013
5.	M.A. UmiFazara, IshakJainoo,KhairulNizar Ismail, KamaruddinHussin, Muhammad RidwanFahmi	Physicochemical Properties of Pyrolitic Carbon Black froWaste Tyres	The International Conference on Advanced Material Engineering & Technology (ICAMET 2013)
6.	Muhd Hafiz Abd Rahim, Mohd Irfan Hatim Mohamed Dzahir, Umi Fazara Md Ali	Development of Hematite (Fe2O3) Photo-Anode Thin Film By Spray Pyrolysis	9th World Congress of Chemical Engineering (WCCE9)
7.	N. Ibrahim, D. Poulidi, P. Evangelos and I. S. Metcalfe	The role of sodium surface species on the catalytic and electrocatalytic properties of Pt/YSZ system in NO reduction by propene.	19th International Conference on Solid State Ionics, Kyoto, Japan, 2 – 7 June 2013.
8.	Che Zulzikrami Azner Abidin, Fahmi, Ong Soon-An, Siti Nurfatin Nadhirah Mohd Makhtar, Nazzery Rosmady Rahmat, Razi Ahmad	Decolorization and COD Reduction of Textile Wastewater by Ozonation in Combination with Biological Treatment	Malaysian Technical Universities Conference on Engineering & Technology (MUCET) 3-4 December 2013, Kuantan, Pahang
9.	Salsuwanda Bin Selamat, Akio Miyara	Numerical modelling of thermal performance for horizontal slinky-loop ground heat exchanger	JSME 26th Computational Mechanics Division Conference, Saga, Japan, November 2–4, 2013
10.	Razi Ahmad, Nasrul Hamidin, Umi Fazara Md Ali, Che Zulzikrami Azner Abidin.	Characterization of Bio-oil from Palm Kernel Shell Pyrolysis	Malaysian Technical Universities Conference on Engineering & Technology (MUCET) 3-4 December 2013, Kuantan, Pahang
11.	S.Ragunathan, S.T.Sam, N.Z.Noriman, W.A.Amneera, A.M. Andrew, H. Ismail.	Comparison of Mechanical Properties of Polypropylene/Acrylonitrile Butadiene Rubber/Rice Husk Powder Composites modified with Silane and Acetic Anhydride Compound.	2nd International Conference on Sustainable Materials 2013 (ICoSM2013). BatuFerringhi, Penang. 26-27 March 2013.
12.	S.T. Sam, N.Z. Noriman,S.Ragunathan, H. Ismail.	Tensile properties LLDPE/Soya Spent Powder: Oven Aging.	2nd International Conference on Sustainable Materials 2013 (ICoSM2013). BatuFerringhi, Penang. 26-27 March 2013.

13.	S.T.Sam, N.Z.Noriman, S.Ragunathan, O.H, Lin, H. Ismail.	Thermal Properties of Linear-Low Density Polyethylene (LLDPE)/SoyaSpent Powder Blends with the Addition of Epoxidized Natural Rubber.	2nd International Conference on Sustainable Materials 2013 (ICoSM2013). BatuFerringhi, Penang. 26-27 March 2013.
14.	Lokman Hakim, N.Z. Noriman, S.T Sam, S.A.B.Shahnaz,S. Ragunathan.	Cure Characteristics and Hardness of Recycled Latex Catheter (LCr) filled Standard Malaysia Rubber (SMR L) Compounds.	2nd International Conference on Sustainable Materials 2013 (ICoSM2013). BatuFerringhi, Penang. 26-27 March 2013.
15.	S.Ragunathan, Azlinda A.G, S.T.Sam.	Polypropylene/Acrylonitrile Butadiene Composites containing rice husk powder: Effects of trans-polyoctylene rubber (TOR)	2nd International Conference on Advanced Material Engineering & Technology (ICAMET 2013). Bandung, Indonesia. 28-30 November 2013.
16.	Mustaqqim Abdul Rahim, ZuhayrMdGhazaly, RagunathanSantiagoo.	The Behaviours Of Steel Fiber As Main Reinfocement In High Performance Slurry Infiltrated Fiber Reinforced Concerete.	2nd International Conference on Advanced Material Engineering & Technology (ICAMET 2013). Bandung, Indonesia. 28-30 November 2013.
17.	S.T.Sam&S.Ragunathan.	Tensile and Morphological Properties of Low Density Polyethylene/ Spear Grass Composites.	2nd International Conference on Advanced Material Engineering & Technology (ICAMET 2013). Bandung, Indonesia. 28-30 November 2013.
18.	Umar Kassim1, Sobry Abdullah2, Zulkifli Udin3	Flexibility Supply Chain In Industrialised Building System (Ibs)	The 3rd International Building Control Conference (IBCC) 2013 Royale Chulan, KL 21 NOV 2013.
19.	Ayu Wazira Azhari, Victor C.H. Lim, Suhaila Sepeai, Kamaruzzaman Sopian, Saleem H Zaidi.	Heteroepitaxial Growth of SixGe1-x Films on Nanostructured Si Substrates.	Photovoltaic Science and Engineering Conference PVSEC-23, Taipei, Taiwan.
20.	Victor C.H. Lim, Ayu Wazira Azhari, Nowshad Amin, Kamaruzzaman Sopian, Saleem H Zaidi.	Investigation of Laser-Fired Aluminum Foil Back-Contact in Silicon Solar Cells.	Photovoltaic Science and Engineering Conference PVSEC-23, Taipei, Taiwan
21.	Saleem H Zaidi, Seow Seow, Cheow Siu Leong, Ayu Wazira, Kamaruzzaman Sopian.	Morphological Characterization of Monofacial and Bifacial Crystalline Silicon Solar cells.	Photovoltaic Science and Engineering Conference PVSEC-23, Taipei, Taiwan
22.	Ain Nihla Kamarudzaman, Tay Chia-Chay, Liew Hong-Hooi, Mohd Faizal Ab Jalil and Suhaimi Abdul-Talib	Application of Biosorption for Heavy Metals Removal: A Review.	Proceeding of the Second EnvironmentAsia International Conference (EAIC 2013), 15-17 May 2013, Thailand.
23.	Ain Nihla Kamarudzaman, Nik Noor Athirah Nik Yusoff, Mohd Faizal Ab Jalil and Roslaili Abdul Aziz	Heavy Metals Removal from Landfill Leachate by Using Two-Stage Constructed Wetlands Planted with Limnocharis Flava and Eichhornia Crassipes.	Proceeding of the Second EnvironmentAsia International Conference (EAIC 2013), 15-17 May 2013, Thailand.
24.	Ain Nihla Kamarudzaman, Voon Kim Feng, Mohd Faizal Ab Jalil and Roslaili Abdul Aziz	Water Quality Study of Timah Tasoh Lake in Perlis, Malaysia.	Proceeding of Joint International Conference on Nanoscience, Engineering, and Management (BOND21), 19-21 August 2013, Penang.
25.	Ain Nihla Kamarudzaman, Tay Chia Chay and Suhaimi Abdul-Talib	Optimisation Of Iron (III) Biosorption Using Pleurotus Ostreatus Spent Mushroom Compost Under Batch Experiment.	Proceeding of International Postgraduate Seminar 2013, 25-26 June 2013, Shah Alam.
26.	Mohd Faizal Ab Jalil, Ain Nihla Kamarudzaman, Nor Fashihah Mohd Noor and Mohd Fadli Ismail	Factors Influencing the Involvement of the Community in Recycling Programme in Perlis, Malaysia.	Proceeding of Joint International Conference on Nanoscience, Engineering, and Management (BOND21), 19-21 August 2013, Penang.
27.	Nor Fashihah Mohd Noor, Farah Adibah Adnan, Syafawati Ab. Saad, Haslina Zakaria, Nornadia Mohd Yazid, Mohd Faizal Ab Jalil and Ain Nihla Kamarudzaman	A Study of Relationship between Rainfall and Timah Tasoh Reservoir Level using Regression Analysis.	Proceeding of Joint International Conference on Nanoscience, Engineering, and Management (BOND21), 19-21 August 2013, Penang.

Fundamental Research Grant Scheme (FRGS) 2013

No.	Researcher	Title of Research Grants	Total (RM)
1	Naimah Ibrahim, Umi Fazara Md. Ali, Sara Yasina Yusuf, Ragunathan Santiagoo, Razi Ahmad	Kinetic study of low temperature selective catalytic reduction of NOx over modified carbonaceous waste material	RM 109,900
2.	Farrah Aini Dahalan, Sara Yasina Yusuf, Siti Aqliam Ahmad, Irnis Azura Zakarya, Naimah Ibrahim, Wan Amiza Amneera Wan Ahmad	Biodegradation of Metaldehyde-Niclosamide Ethanolamine Using Aerobic Granular Sludge To Reduce Xenobiotics Effect In Paddy Fields	RM 88,000
3.	FahmiMuhammad Ridwan, Ong Soon An, Umi Fazara Md. Ali, Che Zulzikrami Azner Abidin	Mechanism of Catalytic Ozonation for Disintegration of Sludge from Municipal Wastewater Treatment Plant	RM 86.000
4.	Mohd. Zulham Affandi Mohd. Zahid	Influence of Vertical Earthquake on the Reinforced Concrete Buildings	RM 70,000

RAGS 2013

No.	Researcher	Title of Research Grants	Total (RM)
1	Wan Amiza Amneera Wan Ahmad,Sara Yasina Yusuf, Nasrul Hamidin, Farrah Aini Dahalan, Zainura Zainon Noor, Syafawati Ab. Saad	Carbon Footprint of Local Fruits Production in Malaysia From the Utilization of Agro-statistics Data and Tailored Emission Factors Quantification	RM 45,960
2.	Shamshinar Salehuddin,Nurliza Rahim,Norlia Mohamad Ibrahim, Syakirah Afiza Mohamed	Performance Of Reinforced Concrete Wall Panel With Rubber Tyre As Sand Replacement For IBS Component	RM 52,200
3.	Razi Ahmad, Dr Umi Fazara Md Ali, Dr Nasrul Hamidin, Dr Irnis Azura Bt Zakarya, Wan AmizaAmneeraBinti Wan Ahmad	Synthesis, Characterization and Performance Study of Calcium Oxide Catalyst from Waste Eggshell for Pyrolysis of Empty Fruit Bunch.	RM 54,200
TOTAL (RM)			RM 152,360

UM RESEARCH COLLABORATIVE GRANT SCHEME

PROGRAM RAKAN PENYELIDIKAN UM

No.	Researchers	Title of Research Grants	Total (RM)
1	Umi Fazara Md Ali, Sara Yasina Yusof, Nor Fauziah, Prof Kheireddine Aroua, Rozita Yusoff, Ahmad Shamiri	Production, Characterization and Modification of Sea Mango (Cerbera Odollam) based Activated Carbon for CO2 Adsorption	RM 45,000

STABILITY OF A SIX STOREY STEEL FRAME STRUCTURE

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Abstract-- The world nowadays requires more tall buildings to overcome limited land space and creating high esthetic value. However, these high rise buildings require high frame structure stability for safety and design purposes. This research focused on non linear geometric analysis to be compared to previous studies on linear analysis. The linear analysis did not consider deformed configuration which can be considered as least accurate. On top of this, several designers did not incorporate the wind load which could lead to sway effect to tall buildings. In this study, a six storey 2-D steel frame structure with twenty four meter height has been selected to be idealized as tall building model. The model was analyzed by using SAP2000 structural analysis software with the consideration of geometric non linear effect. At the same time, several factors including the use of bracing and varying distributed loads on beam's element were also applied to study the sway and stability of the building. In addition, several cases including placing a fully bracing, bracing at half height of the building and alternate bracing were also studied. This study showed that a steel frame with the consideration of wind load produce greater sway value as compared to the steel frame without wind load. The sway prediction by using linear analysis was found to be less compared to the sway prediction from non linear analysis. This indicates that the non linear analysis is vital and significant element to be adopted for the analysis of tall building. The study also found that the use of bracing system results in small sway values compared to the frame without bracing system. As for consideration to costing aspect, the use of alternate bracing provide better option compared to half bracing in terms of stability of the building. The analysis results also showed that the adjustment of distributed load at upper part of steel frame structure able to provide different sway values which increases the stability of the building.

Index Term-- Geometric non linear, stability, bracing system, steel frame structure

I INTRODUCTION

Tall building is the most structure that requires stability because it consist a lot of frame structure with different width and height. Building will be unstable if inadequate of lateral support and may resulted to collapse. Buildings and structures are considered stable with lateral supports by using either bracing system or shear system or both such as wall to ensure the stability of the building. Moreover, the important thing to consider are the software to be used to analysis the tall building structure and a wind speed at construction area to avoid any problem in future.

A fundamental consideration in designing a structure is that of assuring its stability under any type of loading condition. All structures undergo some changes in shape under load. In a stable structure, the deformations induced by the load are typically small, and internal forces are generated by the action of the load that tends to restore the structure to original shape after the load has been removed. In an unstable structure, the deformations induced by a load are typically massive and often tend to continue increase as long as the load is applied. By contrast, an unstable structure does not generate internal forces that tend to restore the structure to its original configuration. Unstable structures quite often collapse completely and instantaneously as a load is applied to them. It is a fundamental responsibility of the structural designer to assure that a proposed structure does indeed form a stable configuration. As example in Figure 1 is instability of frame structure under horizontal loads. Any horizontal load can cause deformations and clearly shows that the structure has no capacity to resist horizontal loads, nor does it have any mechanism that tend to restore it to its initial shape after the horizontal load is removed [1].

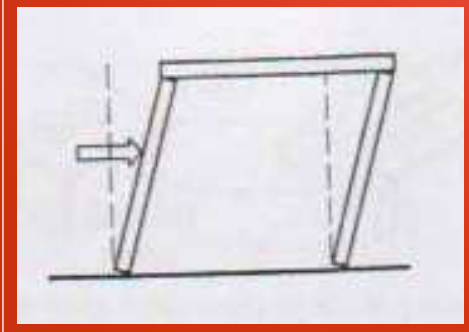

Fig. 1. Instability of frame structure under horizontal loads

In linear analysis, the material is assumed to be unyielding and no movement of load because base on undeformed configuration and do not have any iteration process. The calculation to obtain the result is also not complicated as second order analysis. Linear analysis is also known as first order analysis.

In non linear analysis the effects of finite deformations and displacements of the system are accounted for formulating the equations of equilibrium. Figure 2 show the straight elastic bar with horizontal and vertical load at edge of the bar. The axial force, P that acts on top of the bar has move follow the displacement in deformed configuration that use for next iteration process because of the presentation of horizontal load, P. Point b to b' is representing the displacement, Δ. This is only happen in non linear analysis that also known as second order analysis analysis [2].

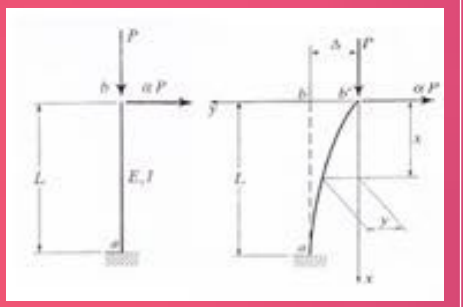

Fig. 2.
Pictorial representation of bar with second order effect

Braces are important parts in steel frames to resist lateral loads. But very few research have been carried out due to its complication in calculation. A brace is dominantly subjected to axial force and can be represented with a truss element. The force in braces is simple, but they are possibly buckled in compression, and elastic or elasto plastic bending deformations take place, which makes the relationship between the axial force and the axial deformation of braces becomes complex as shown in Figure 3 [3]. N represents the load acted at edge of the bracing and it can be in tension or compression, and at the same time it can becomes shorter or longer indicated as .

There have been so many cases in which the structures failed due to instability which require P-Delta analysis. One of the problems is affected from wind load. Wind creates inward and outward pressures acting on building surfaces, depending on the orientation of the surface such as flat. This pressure increases uplift on parts of the building, forcing the building apart if it is too weak to resist the wind loads. Therefore, the most important thing to overcome this problem is the connection between beam and column in a frame such as rigid or pin ended should be considered for a realistic design. It will become instability structural which means loss of some situation and come close to a failure such as buckling and sway if the structure cannot sustain for a certain load whether from dead load, imposed load, wind load and also natural phenomena like earthquake [4].

II THE DISTRIBUTED LOAD ON BEAM AND WIND CALCULATION

The distributed load acted on the beam element of the frame structure was calculated base on selfweight of slab and beam refers to plan view as shown in Figure 4. While the horizontal load is a wind load calculated using CP3, Chapter V (Part 2) [5]. The distributed load is 0.05 kN/mm for steel frame.

The formulas for wind calculation based on CP3 are as follows :

i. Design wind speed :
(1)

ii. Dynamic pressure :
(2)

iii. Wind force :
(3)

Figure 5 is the plan shape of the steel frame structure that was hit by wind and all parameter which was used in this calculation to obtain the Cf value. While in Table 1, the result of wind calculation using all formula explains previously.

TABLE I.
WIND CALCULATION RESULT USING CP3, CHAPTER V (PART 2)

Z (m)	V (m/sec)	S1	S2	S3	Vs	q	Cf	Wind Force (kN)
0	0	1.0	0.550	1.0	0.00	0.00	1.5	0.00
4	32.5	1.0	0.575	1.0	18.69	214.07	1.5	0.32
8	32.5	1.0	0.654	1.0	21.26	276.94	1.5	0.42
12	32.5	1.0	0.726	1.0	23.60	341.27	1.5	0.51
16	32.5	1.0	0.794	1.0	25.81	408.20	1.5	0.61
20	32.5	1.0	0.850	1.0	27.63	467.81	1.5	0.70
24	32.5	1.0	0.878	1.0	28.54	499.13	1.5	0.75

III CASES TO BE ANALYZED USING SAP2000

A. Case 1

Six storeys of steel frame without wind load and only distributed load is applied which is 0.05 kN/mm for all beams. The model is shown in Figure 3.

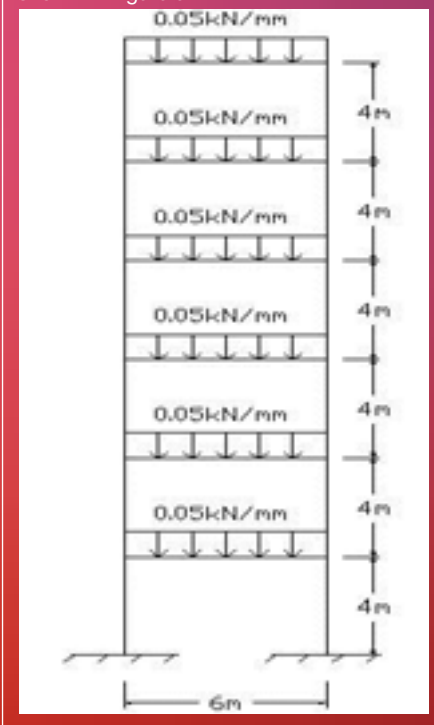

Fig. 3. Analytical model for Case 1

B. Case 2

In order to study the wind effect on the steel frame and to compare to Case 1, a six storeys of steel frame structure with wind load acted at left hand side of the frame was considered. All beams are also subjected to distributed load of 0.05 kN/mm. The model is shown in Figure 4. The values of horizontal load comes from winds, which also applied for next cases, are 0.32 kN, 0.42 kN, 0.51 kN, 0.61 kN, 0.70 kN and 0.75 kN respectively. These was based on CP3, Chapter V (Part 2).

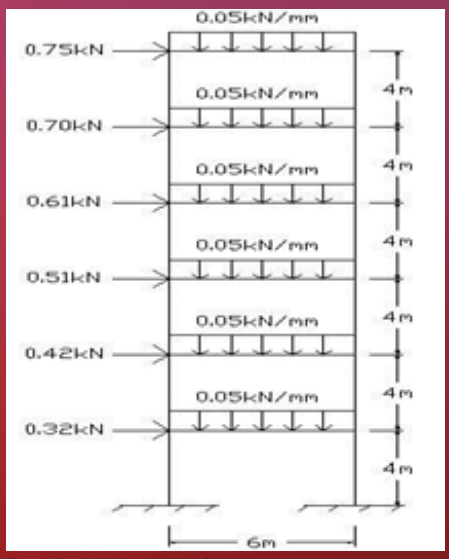

Fig. 4. Analytical model for Case 2

C. Case 3

The same six storeys steel frame structure is fully braced. The uniform distributed load and wind load are considered as shown in Figure 8. The type of brace used for this case is double channel with size of 260 x 90 x 35, mass per meter is 34.8 kg/m which is similar to case 5 and 6 respectively. Case 4 to 6 were based on the effect of brace to the stability of frame structure and the best brace system is identified to be proposed in real world.

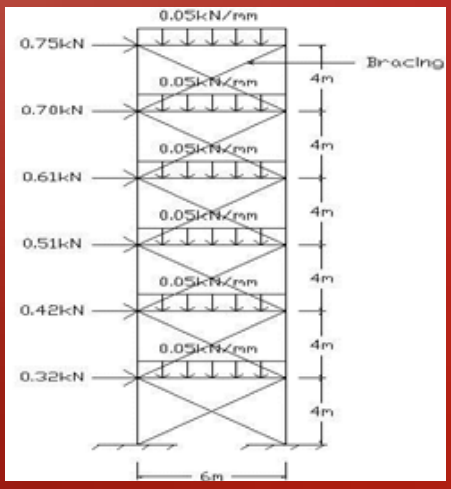

Fig. 5. Analytical model for Case 3 : Steel frame structure with fully braced

D. Case 4

The same six storeys steel frame structure with wind load and uniform distributed load partially braced consideration is from mid height of the building to top of the building.

E. Case 5

The six storeys steel frame structure with wind load and uniform distribution load consideration was applied with alternate bracing.

F. Case 6

The six storeys steel frame structure with wind load and distributed load consideration, the value of distributed load at third level to top level was increased from 0.05 kN/mm to 0.07 kN/mm. The value of distributed load was increased to study the effect of distributed load on the stability of the frame structure.

G. Case 7

The six storeys steel frame structure with wind load and distributed load consideration, the value of distributed load from third to top level of the frame was decreased from 0.05 kN/mm to 0.03 kN/mm. The results from this model was combined together with Case 6 to study the effect of distributed load to the stability of the structure. Case 6 and 7 are also important especially to designers in designing the building structure.

The displacement at level 0 for all cases was 0 mm because of fix restraint at joint. From Table 2 it shows that a frame with the absence of wind load or horizontal force was stable because the column can be considered stable in tension and unstable in compression. The displacement value only consider x direction or sway, U1 in SAP2000.

IV. RESULT AND DISCUSSION

Case 2 is a linear and non linear analysis of steel frame structure with the consideration of wind load. The result of sway was obtained from the analysis using SAP2000 for floor's level 0, 1, 2, 3, 4, 5 and 6.

Linear analysis and geometric non linear analysis require different formula and approach to overcome any structural problem. Of these differences, the geometric non linear was conducted based on deformed configuration [6]. At the same time, the stiffness matrix, will be updated and become reduced. This is to ensure that the sway results predicted from geometric non linear analysis is greater than linear analysis approximately more than 4%. The graph shown in Figure 6 was used to illustrate more clearly about the sway results obtained from linear and geometric non linear analysis. This finding shows that geometric non linear analysis seems to be important and cannot be underestimated. But with this small percentage difference, it can be neglected if the structure is not categorized as tall building.

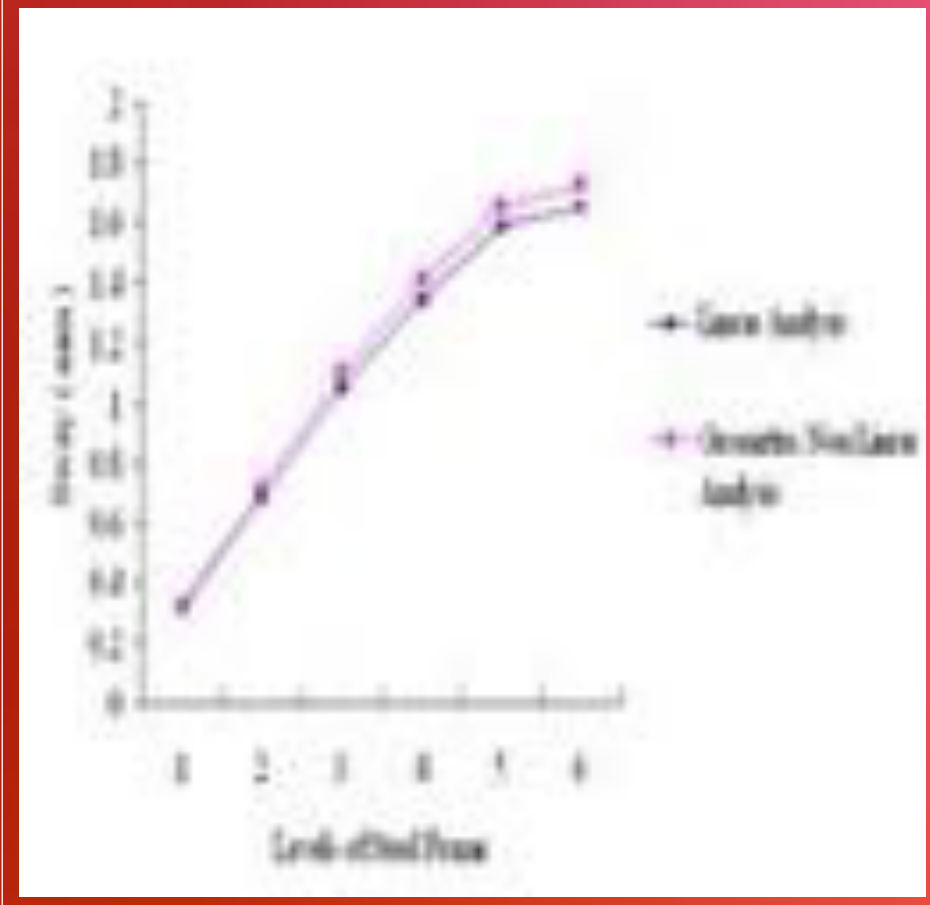

Fig. 6. Comparison between the results from linear and geometric non linear analysis

Case 3,4 and 5 is referring to linear and non linear analysis of steel frame structure with full bracing, placed at half of the building at top side and alternate bracing. The distributed load and wind load at different level of the steel frame structure is similar to Case 2. The result of sway is summarized in Table V.

TABLE V
COMPARISON OF SWAY FOR SEVERAL METHODS OF BRACING SYSTEM

Level	Fully		Placed at half of building (top side)		Alternate	
	Linear (mm)	Non Linear (mm)	Linear (mm)	Non Linear (mm)	Linear (mm)	Non Linear (mm)
0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1	0.1897	0.1899	0.3116	0.3255	0.3173	0.3254
2	0.1584	0.1586	0.6793	0.7127	0.3316	0.3401
3	0.1769	0.1773	1.0350	1.0813	0.5382	0.5534
4	0.1851	0.1857	1.0957	1.1428	0.5776	0.5933
5	0.2308	0.2315	1.1360	1.1839	0.7291	0.7473
6	0.1778	0.1787	1.0835	1.1321	0.6986	0.7173

There are several approaches that can be applied to decrease the sway such as using bracing system, applying different distributed load on beams and increasing the column sizes. From the analysis results shows that full bracing on steel frame gives smaller sway values as compared to the sway induced by placing the bracing at upper part of the building and an alternate bracing. If cost aspect is considered, alternate bracing system provide better solution and less sway values as compared to the steel frame build up with bracing system at upper part of the building as shown in Figure 7. The result also shows that the shape of sway is similar to S shape that also known as double curvature and can be considered as stiff. This is the best shape of sway compared to the other types of shape of sway [7].

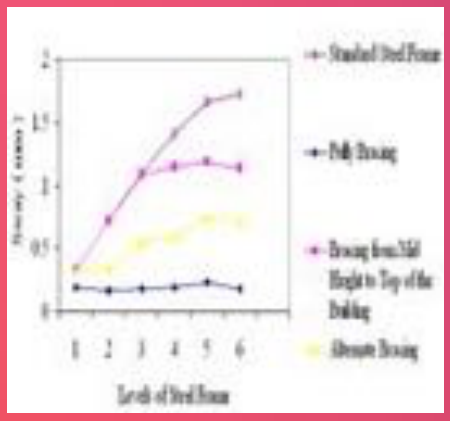

Fig. 7. Comparison of sway prediction (Geometric non linear analysis) due to different type of bracing system

From the analysis result for case 6 and 7, it shows that the average decreasing of distributed load on beam's element gave a smaller value of sway and increased in the stability of the building. Accordingly, for a tall building structure, it is suggested to have small load at the upper part of the building or can be decided to decrease the load gradually from bottom to top floor. Figure 8 shows the sway for steel frame structure due to normal, higher and lower values of distributed load acted on beam's element.

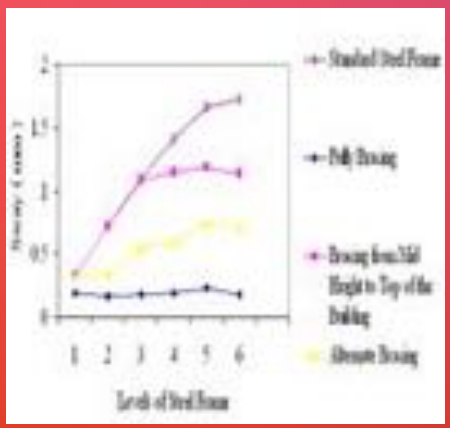

Fig. 8. Comparison of sway prediction (Geometric non linear analysis) due to different type of bracing system

V. CONCLUSIONS

Based on the results obtained from the analysis of steel frame structure, the following conclusions can be made.

1. It is recommended to consider the wind load and the area to construct tall building which able to eliminate or reduce the wind effect that may hit the building and increases the sway values. A threshold limit of wind speed is necessary to ensure the building is secure prior use.

2. This study clearly shows that the sway prediction from geometric non linear analysis is greater than linear analysis approximately 4 to 5 % different. Therefore, this study suggested that geometric non linear analysis is not significant to be applied in the analysis of structure because of the small percentage difference. This is because the model of steel frame structure is only 24 m and maybe more applicable for real tall building. Therefore, it is more practicable to use geometric non linear analysis because the slenderness of the structure will be counted in the geometric non linear analysis.

3. It is more practicable to put bracing system, to decrease the distributed load on upper part of the building and at the same time having higher stiffness at lower part of the building which decreases the sway value and improve the stability of the building.

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JAMUAN HARI RAYA PPKAS

Oleh: Norren Shariza Mohamed Mokhtar

Jamuan Hari Raya PPKAS telah menjadi antara aktiviti wajib bagi warga kerja PPKAS. Pada 3 Sepetmeber 2013, jamuan hari raya PPKAS telah diadakan. Staf berpeluang untuk menjamu selera dengan pelbagai hidangan yang bertemakan suasana hari raya.

Selain dari hidangan yang ditempah khas, staf-staf juga turut membawa hidangan tambahan untuk bersama-sama menjamu selera. Menu istimewa pada jamuan itu ialah kambing panggang, murtabak, satay, kek, dan bermacam lagi. Jamuan diadakan pada sebelah tengah hari bagi memberi peluang kepada semua staf agar dapat berkumpul bersama-sama.

Melalui perhimpunan ini, staf berpeluang untuk beramah mesra dan merehatkan minda untuk seketika dari tekanan kerja. Jika selama ini semua staf menumpukan perhatian pada kerja, kesempatan ini dapat dimanfaatkan dengan sebaik-baiknya untuk berkumpul, menjamu selera dan berbual antara satu sama lain. Semoga aktiviti ini dapat diteruskan pada masa akan datang kerana diharapkan ia dapat mengeratkan hubungan silatur rahim antara staf tanpa mengira pangkat.

GOTONG-ROYONG PPKAS

Warga kerja PPKAS telah mengadakan satu aktiviti gotong-royong membersihkan perkarangan pejabat am PPKAS di samping bertujuan untuk mewujudkan perpustakaan mini di ruang legar PPKAS. Aktiviti dimulakan di sebelah petang dengan semua staf memainkan peranan untuk saling membantu dan bekerjasama mengangkat perabot, mengemas, mencuci dan mebersihkan persekitaran. Idea mewujudkan perpustakaan mini ini adalah bertujuan memupuk budaya membaca di kalangan pelajar semasa mereka berada di perkarangan PPKAS sama ada sewaktu menunggu waktu kuliah atau berurusan di pejabat. Melaluinya, pelajar dapat meluangkan masa dengan membaca bahan-bahan bermutu yang disediakan di sini tanpa membuang masa yang seharusnya sebagai pelajar, digunakan dengan sebaik-baiknya

Gotong-royong ini turut menyumbang ke arah persekitaran PPKAS yang lebih bersih, tersusun dan teratur walaupun dengan ruang persekitaran yang terhad, namun ia masih boleh digunakan dengan sepratikal mungkin supaya dapat menyediakan satu persekitaran yang selesa kepada staf serta pelajar.

LAWATAN KE UNIVERSITI TUN HUSSEIN ONN (UTHM)

Oleh: Mohd Zulham Affandi Mohd Zahid

Pada 5 Disember 2013, Pusat Pengajian Kejuruteraan Alam Sekitar (PPKAS) telah mengadakan lawatan ke Fakuti Teknologi Kejuruteraan Universiti Tun Hussein Onn (UTHM) di Batu Pahat, Johor. Rombongan dari PPKAS terdiri daripada 3 orang pensyarah iaitu En. Mohd Zulham Affandi bin Mohd Zahid, En Md. Hadli Abu Hassan dan Pn. Liyana Ahmad Sofri serta seorang Pegawai Latihan Vokasional iaitu Pn. Nurul Huda Hashim.

Tujuan lawatan ini diadakan adalah untuk membuat penanda aras bagi program pengajian Teknologi Kejuruteraan Awam (Pembinaan) yang ditawarkan oleh pihak Jabatan Teknologi Kejuruteraan Awam, FTK-UTHM. Antara perkara yang hendak dilihat semasa lawatan tersebut adalah dari segi struktur kurikulum, kemudahan makmal, bilangan tenaga pengajar dan juga perancangan masa depan bagi program tersebut. Program dimulakan dengan ucapan aluan oleh timbalan dekan FTK-UTHM. Seterusnya ketua Jabatan Teknologi Kejuruteraan Awam memperkenalkan UTHM dan FTK kepada delegasi dari UniMAP serta perancangan kampus baru FTK UTHM di Pagoh. Untuk makluman, FTK-UTHM akan beroperasi di Pagoh sepenuhnya pada akhir 2015. Majlis diteruskan dengan perbincangan tentang struktur kurikulum program teknologi kejuruteraan awam (pembinaan) yang ditawarkan oleh kedua-dua universiti. Disebabkan kedua-dua program masih baru lagi dan kedua-duanya mempunyai satu kohort pelajar, perbincangan lebih tertumpu kepada perancangan kursus-kursus yang akan ditawarkan pada semester-semester hadapan. Selepas itu, kami dibawa melawat makmal-makmal yang ada di Fakuti Kejuruteraan Alam Sekitar dan Awam, UTHM yang juga digunakan oleh pelajar-pelajar teknologi kejuruteraan awam UTHM. Makmal mereka kelihatan lebih tersusun dan merangkumi semua makmal-makmal kejuruteraan awam seperti makmal bahan binaan, makmal alam sekitar, makmal hidraulik, makmal lebuhraya dan lalulintas, makmal struktur ringan dan makmal kerja ukur.

Lawatan diakhiri dengan ucapan penutup oleh Dekan FTK UTHM Profesor Madya Dr Ishak Baba dan disusuli dengan jamuan makan tengah hari.

Banyak perkara yang boleh dipelajari daripada UTHM terutamanya dari segi kemudahan makmal dan pembahagian tugas pensyarah. Diharapkan lawatan sebegini dapat dijalankan lagi pada masa hadapan supaya lebih banyak perkara dapat dipelajari dan dapat digunakan untuk membangunkan UniMAP. Selain itu, kita juga dapat bertukar-tukar idea dalam merancang sesebuah program dengan pihak luar yang lebih berpengalaman.

IBADAH KORBAN

Oleh: Mohd Zahir Hanafi

Pada 17 Oktober 2013 ,Universiti Malaysia Perlis (UniMAP) turut sama menunaikan ibadah korban pada sambutan hari ketiga Aidiladha. Sebanyak 14 ekor lembu dan sembilan ekor kambing berjaya dikorbankan termasuklah seekor lembu sumbangan menteri di Jabatan Perdana Menteri, Dato' Seri Dr Shahidan Kassim bertempat di kampus UniMAP Kubang Gajah.

Program ini turut diserikan dengan kehadiran Timbalan Naib Canselor Hal Ehwal Pelajar dan Alumni, Prof Madya Dr Fo'ad Sakdan. Beliau menjelaskan ibadah korban di UniMAP adalah merupakan program tahunan universiti yang melibatkan penyertaan di kalangan staf UniMAP sendiri.

Beliau juga menyatakan, agihan daging-daging korban ini akan diserahkan kepada golongan yang kurang berkemampuan dan bakinya akan dimasak secara gotong – royong untuk jamuan makan buat warga universiti serta penduduk setempat.

" Sebagai Umat Islam saya percaya kita bukan sahaja menunaikan tanggungjawab dengan melaksanakan ibadah korban tetapi turut menghayati erti sebenar pengorbanan itu sendiri".

" Pengorbanan dan kesabaran yang sebenar harus disandarkan atas sifat kehambaan dan ketakwaan kepada Allah S.W.T,akan menjamin kejayaan yang cukup bermakna,seperti mana pengorbanan Nabi."

POST GRADUATE STORY @ PPKAS

Prepared by: Dr. Naimah Ibrahim

Auditor panels from the Malaysian Qualifications Agency (MQA) have visited UniMAP for the purpose of postgraduate programs accreditation from 28th to 31st October 2013. PPKAS was visited by a panel auditor from Universiti Islam Antarabangsa Malaysia (UIAM), Associate Professor Dr Amir Akramin Shafie. He spent half-day on 30th October 2013 at PPKAS, going through documentation and procedures regarding postgraduate studies to evaluate our conformance to the Malaysia Quality Framework (MQF). PPKAS staffs, postgraduate students and alumni were also interviewed. Everything went well although this is our first accreditation for postgraduate program, so hopefully the result will turn out good.

The number of active postgraduate students in PPKAS has now increased to 28! New student intake between July and December 2013 include some of our respective academic staffs. We welcome new postgraduate students and have a great learning experience in PPKAS!

PhD

1. AZLINDA ABDUL GHANI
2. ROSHAZITA CHE AMAT
3. NORLIA MOHAMAD IBRAHIM
4. ISSA RAMADAN ALABIAD
5. SITI FATIMAH MOHD SARIF

MSc

1. KU SAHROM KU SALIM
2. MOHD HAFIZ RODZI

REFERENCE:

UniMAP Graduate Academic Management Information System (GAMIS)

PERSONALITI PILIHAN

DR. AFIZAH AYOB

Di lahirkan pada tanggal 15 Dis 1975 di Tunjang Kedah merupakan anak pertama dari dua beradik perempuan. Semenjak kecil dibesarkan dalam keluarga susah pada awal tahun 1980-an menyebabkan saya sentiasa terdorong untuk cuba keluar dari daerah tersebut. Cuma satu cara iaitu belajar bersungguh-sungguh. Terima kasih kepada ibu dan ayah sangat memberi sokongan dan dorongan untuk sentiasa berusaha.

Saya mendapat pendidikan awal di Sekolah Kebangsaan Tok Kepak dari tahun 1981 sehingga 1986. Di peringkat menengah saya bersekolah di Sekolah Kebangsaan Ayer Hitam sehingga tahun 1989. Seterusnya pada tahun 1990-91 melanjutkan pelajar menengah di Maktab Rendah Sains Mara Beseri, Perlis. Alhamdulilah permohonan untuk ke Program Matrikulasi Sains USM berjaya sehinggalah tamat peringkat Ijazah Sarjana Muda Kejuruteraan Awam di universiti yang sama pada tahun 1999. Pengalaman di Kampus Kejuruteraan Tronoh, Perak sangat menyeronokkan. Kampus yang terlalu jauh dari pekan besar, pelbagai kekurangan kemudahan serta nisbah pelajar perempuan terlalu sedikit berbanding lelaki untuk kursus kejuruteraan pada awal tahun 1990-an, menyebabkan hubungan sesama pelajar serta pensyarah lebih akrab. Tanpa disangka semasa di dalam semester akhir tahun 4 sebelum peperiksaan akhir, saya telah mendapat tawaran pekerjaan dari sebuah syarikat air di Johor. Ini menyebabkan cita-cita untuk melanjutkan pelajaran ke peringkat lebih tinggi terbengkalai. Seterusnya, pada tahun 1999-2003 saya bekerja di beberapa syarikat kontraktor pembinaan serta pemaju perumahan di Alor Star dan Klang.

Takdir dan jodoh, saya mendirikan rumahtangga pada tanggal 31 Ogos 2000 bersama suami Amran Ismail. Sehingga 14 tahun ini, kami dikurniakan sepasang cahaya mata. Disebabkan pekerjaan suami dalam bidang pembuatan barangan elektronik yang banyak tertumpu dikilang-kilang di negeri Pulau Pinang, saya dengan rela hati berhenti kerja dan menyambung pengajian peringkat sarjana dalam bidang Kejuruteraan Awam pada tahun 2004 secara sepenuh masa di Kampus Transkrian, Nibong Tebal. Suami dan keluarga terus menyokong hasrat saya itu. Tanpa pembiayaan kewangan dan juga tiada geran penyelidikkan saya terpaksa bekerja sebagai Pegawai Penyelidik kontrak selama dua tahun di Pusat Pengajian Kejuruteraan Awam bersama Ketua Projek Profesor Ahmad Farhan Saadullah. Bekerja sebagai Pegawai Penyelidik umpama satu rezeki yang ditunggu-tunggu, walaupun keletihan kerana dalam masa yang sama penyelidikan untuk pengajian sarjana perlu diteruskan. Bekerja dibawah seliaan Profesor Ahmad Farhan yang juga pensyarah serta Penasihat Akademik ketika diperingkat Ijazah Sarjana Muda sedikit sebanyak mendorong saya untuk menjadi pensyarah dan penyelidik. Alhamdulilah permohonan untuk program SLAB (PhD) Universiti Malaysia Perlis berjaya dan saya melanjutkan pelajaran ke peringkat PhD di Pusat Pengajian Teknologi Industri, USM sehinggalah tamat pada tahun 2013. Syukur dan gembira dapat kembali ke USM, dan terima kasih kepada Universiti Malaysia Perlis.

Cabaran dan dugaan yang cukup besar semenjak zaman persekolahan sehingga tamat PhD saya terima dengan penuh hikmah. Biarpun sangat terkesan namun tiada rasa serik untuk kembali ke Perlis dan berkhidmat di Universiti Malaysia Perlis, walaupun terpaksa meninggalkan suami tercinta di Juru, Pulau Pinang. Doa saya, agar Allah memberkati usaha dan pekerjaan saya dan suami sebagai ibadat untuk bekalan di hari akhir nanti. Amin.

PANDU UJI BOT UNIMAP

Oleh: Nazerry Rosmady Rahmat

Pertengahan tahun 2013 merupakan tarikh yang amat bermakna sekali kepada semua staf PPK Alam Sekitar. Pada tarikh yang bersejarah ini,pihak kontraktor telah menyerahkan bot laju Boston Whaler yang telah selesai dibaikpulih kepada pihak PPK Alam Sekitar. Bot Boston Whaler ini pada asalnya telah dilupuskan oleh pihak Jabatan Taman Laut negeri Kedah dan ianya telah diserahkan kepada PPK Alam Sekitar. Dengan adanya bot ini,pihak PPK Alam Sekitar telah pun mempunyai keupayaan untuk menjalankan penyelidikan di laut ataupun pulau-pulau yang berhampiran di perairan sebelah utara.Bot Boston Whaler ini dilengkapi dengan 2 unit enjin berjenama Suzuki, setiap satu berkuasa 150 kuasa kuda. Ia juga dilengkapi dengan radio VHF, GPS dan sistem sonar. Dengan kapasiti yang agak besar,bot ini boleh memuatkan sehingga 8 orang penumpang dan mampu mencapai kelajuan maksimum 40 knots. Setelah pengtauliahan, bot ini telah pun melakukan 3 kali perjalanan pergi dan balik ke Pulau Langkawi dan sekali ke Pulau Pinang.

KELAHIRAN

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