

# FACULTY OF ENGINEERING & BUILT ENVIRONMENT

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2019**

## MESSAGE FROM THE DEAN

**Prof. Ir. Dr. Leong Wai Yee**



Welcome to the Faculty of Engineering & Built Environment MAHSA University. I am honored to serve as the Dean and lead our efforts to improve engineering culture in MAHSA University through excellence in education, service and research.

Our faculty provides a few arrays of educational opportunities – from Bachelor of Engineering (Hons) in Electrical & Electronic Engineering, Bachelor of Civil Engineering (Hons), Bachelor of Mechanical Engineering (Hons) and Diploma in Electrical & Electronics Engineering, Civil Engineering, Mechanical Engineering and Quantity Surveying.

With continued support from MAHSA management, and in collaboration with many organizations and individuals, we look forward to advancing all aspects of our mission, continuing to build the status of Engineering and Built Environment nationally during the coming years.

In this newsletter, there are many reflections I could share over the past 3 months of construction, and I would like to take this opportunity to thank our engineer community involved. Each person involved is a key element to our success, and we could not do this without each of you. We have been blessed to have so many dedicated individuals surrounding us, and we are forever grateful. On behalf of the entire faculty, thank you.

**PROF IR. DR. LEONG WAI YEE**

Dean, Faculty of Engineering & Built Environment

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## IET PRESTIGE LECTURE & AWARD DINNER (PLAD) 2019

Institution of Engineering and Technology (IET) formed March 2006 by the Institution of Electrical Engineers (IEE) and the Institution of Incorporated Engineers (IIE), has more than 160,000 members worldwide and networks of members in 150 countries around the world, including Malaysia. Over 120 conferences and events are organized by the IET every year and one of them is the Prestige Lecture Award Dinner (PLAD). The IET Malaysia Local Network Chairman is none other than Prof. Ir. Dr. Leong Wai Yie, Dean, Faculty of Engineering and IT, MAHSA University. Faculty of Engineering and IT, MAHSA University staff attended the PLAD-2019 function.

PLAD is an annual event organized by the IET Malaysia Network, it is organized to identify and celebrate well-deserved individual achievers and outstanding industry players in areas of science and technology.

This year's 2019 PLAD would be the ninth of its kind since its inception in 2010, and it was a great honour to have been graced by the presence of The Minister of Energy, Science, Technology, Environment and Climate Change, YB Puan Yeo Bee Yin as the speaker for the prestige lecture.

Another Highlight from this year's PLAD was the awards time where various game changers and high achievers in the field of engineering were to be rewarded for their great contributions. The awards under different categories are IET Industry Excellence Platinum Award Winners, IET Industry Excellence Gold Award Winners, IET Industry Excellence Gold Awards- SME, IET social media Hero Award.

During the awards presentations the On-Campus's arms of IET were not left out, as they to where rewarded for their various contributions, IET On-Campus is an initiative run by students, for students, giving them the skills and experience needed to succeed in future career, delivered in a fun way, funded and backed by the IET, the presentations of the individual award was also given to various IET On-Campuses who have excelled in various ways, this was to encourage the On-campuses to do more in terms of organizing activities, conferences, technical talks and so on, amongst the various awards given MAHSA University was not left out as they won the social media Hero Award for their activeness in using the social media as a means to reach out and affect lives positively, and what's a dinner without some little game fun activities which included lucky draw and social media game by using the #IETPLADMALAYSIA2019 Lucky draws and games added to the fun and passion of the night, which was indeed a memorable one. The dinner also made a way to enhance link and relationships between the industry players and allowing the various students in attendance to experience yet another way creating



## STAFF'S ACHIEVEMENTS



### Ir. Prof Dr. Leong - Streamlining women in ICT

MAHSA University's Dean of Engineering and Information Technology, Ir. Prof Dr. Leong Wai Yie, recently represented the World Federation of Engineering Organisation at the United Nations Convention Centre, presenting on "Streamlining Women in ICT".

The third session of the Asia-Pacific Information Superhighway (AP-IS) Steering Committee and World Summit on the Information Society (WSIS) Review was held from 26 to 27 August 2019 at the United Nations Conference Centre. The meeting was attended by more than 150 participants representing thirty governments, eighteen specialized agencies and related organizations, twenty-four private sector companies and eighteen experts in Bangkok, Thailand. An exhibition was organized outside the meeting room to showcase the partners' initiatives, research and solutions relevant to the implementation of the initiative.

During the discussion session, Prof Leong discussed the key barriers to meaningful access by women (the gender digital divide). She informed the participants of the meeting that the barriers included are the availability of infrastructure (high cost, particularly for large areas with sparse populations); affordability (highest cost leads to lowest women users and largest gender gap); interest and perceived relevance (lack of relevant material in accessible languages); ability (limited basic skills and digital literacy by women users); safety and security (threat of cyber violence etc.); and social-cultural contexts (adverse gender norms and negative perceptions of ICT).

She noted that there are opportunities for improving gender digital divide including enhanced communications on access to information (cost-effective way to communicate); enhanced access to public services (with effective delivery of services regardless of time and distance); political participation (better representation from women in political debates and forums); and socio-economic participation (boost national and women's incomes). She gave best practices on Malaysia women in ICT and



## STAFF'S ACHIEVEMENTS

### MAHSA University's Engineering Lecturer Is Plenary Speaker For The 4th Women Engineers Summit (Pwes4) In The Philippines

Dr Lee Sim Yee, MAHSA University's lecturer of Engineering and IT, was invited to be the plenary speaker for the 4th Philippine Women Engineers Summit (PWES4) organized by the Philippine Technological Council, Women Engineers Network (PTC-WEN) on August 22-24, 2019 at Royce Hotel & Casino, Clark Field Pampanga, the Philippines. The PTC-WEN is a national engineering organization of women engineers registered under the Philippine Technological Council (PTC) in the Philippines and as a committee under the ASEAN Federation of Engineering Organizations (AFEO). PTC-WEN aspires to bring together the most successful and talented women engineers across borders to advance and promote excellence in engineering for women engineers. The 4th Philippine Women Engineers Summit (PWES4) aims to provide a methodical evaluation and analysis of women engineers' roles and challenges in the different discipline in diverse cultures, economic statuses and technology levels among other considerations.

In conjunction of the 4th Philippine Women Engineers Summit (PWES4) with the theme of "Partnership for Women Engineering Excellence across Borders", Dr Lee Sim Yee presented a talk entitled "Equalling Excellent Engineering Practice for Woman Engineers". She stated that an engineer must have personality and be good at teamwork, have interpersonal skills, be precise and play close attention to detail, all of which are qualities which inherent in women. Apart from strong fundamental technical knowledge, engineers also need to be aware of current developments. Woman engineers are encouraged to get involved and explore more in the engineering world to improve partnership, public awareness and understanding of engineering towards a balanced global outlook.

Dr. Ma. Catalina E. Cabral, the Philippine Institute of Civil Engineers (PICE) Summit Chairman presided over the PWES4 opening ceremony, and PE Gail Mattson President of the International Network of Women Engineers and Scientists (INWES) delivered her message of support. Ten talks were presented by plenary speakers on the first and second day of the event.

The second day of PWES4 was the highlight of the event, which was the "Lakambining Inhinyera". "Lakambining Inhinyera" is the annual beauty pageant for professional women engineers in the Philippines to encourage and appreciate the involvement of Women Engineers. The closing ceremony of PWE was officiated by Mayor Carmelo Lazatin, Jr., from Angeles City. PWES4 ended with



### Dean of Engineering & IT, Winner of Youth Service Award 2019

MAHSA University's Dean of Engineering and IT, IR Prof Dr. Leong Wai Yie has emerged as the winner of the Youth Service Award 2019. This award is conferred by United Youth Movement of Malaysia to recognise the awardee's youth service, exemplifying the core values of service, which include dedication and commitment to Malaysian youths. The award also highlights the awardee's leadership skills and competencies, including the ability to be a role model to others. The invited Guest of Honour was Deputy Minister of Youth and Sports, YB Steven Sim Chee Keong.

There was a total of five winners. The other four awardees namely Andrew Tan Yih Full (TCSM Education Group Managing Director), Chong Keat Aun (Local Dialect Archaeology), Sean Lim Sin Kai (Info Resources Services Sdn Bhd) and Voong Thin Ee (Youth Education Lecturer).

Deputy Minister of Youth and Sports, YB Steven Sim mentioned in his speech that the government is expected to increase the number of young voters in the 2023 national elections by 4 million. Young people are the pillars of the nation, and we should give them the chance to express the direction and values of a new generation. The Ministry of Youth Sports no longer regards young people as problem figures, but rather problem-solvers hand in hand with the government. He praised the United Youth Movement of Malaysia for its efforts in the past to cultivate youth leaders. The Youth Service Award is important to recognize those who are willing to contribute to our youth and to inspire more young people to follow the example of the winners.

Prof Leong is currently the EXCOMM Member, Council Member of the Institution of Engineers Malaysia and the Immediate Chairperson of Women Engineers Section, Malaysia. The Board of Directors of International Network of Women Engineers and Scientists, Honorary Secretary of Women Engineers, The ASEAN Federation of Engineering Organisations (WEAFEO), the Chairlady of The Institution of Engineering and Technology (Malaysia Local Network) and Committee Member of World Federation of Engineering Organisation (Women in Engineering).



### Dean of Engineering & IT, Keynote Speaker for Research Festival, Taylor's University

MAHSA University's Ir Prof Dr Leong Wai Yie, Dean of the Faculty of Engineering and Built Environment, was invited as Keynote Speaker for the Research Festival organized by Talyor's University, from 25 to 29 November 2019.

The research festival is an annual programme that features the ingenuity and creativity of Taylor's Researchers by providing students with an avenue to showcase their scientific prowess and thirst for knowledge. In this three-day event, participants will exhibit and defend their research projects in Research Presentation and Video Competition. The Research Fair also provides a venue for both research professionals and students to interact with each other and exchange ideas.

The Taylor's Research Fair is a campus-wide celebration of research and creative activity. The Research Fair is a chance to celebrate faculty success, showcase our experts' work, and the engagement between students and professionals. The Research Fair, held every 2 years, offers something for everyone: Grant Holder's showcase, postgraduates' video competition and engagement sessions. Each session is tailored to Taylor's University research priorities and objectives.

Through the Research Fair, researchers who are recipients of internal or external research grants will get to showcase their research projects through either focused presentations or creating videos based on TedTalk style or other creative format. The comprehensive symposium programme encompasses research projects from multiple faculties and is organized in forums based on the UN Sustainable Development Goals.

Prof Leong shared her research achievements and projects during her keynote speech. She highlighted the importance of research to the economy, society, environment and culture, beyond the contribution to academic research. She was a winner of the Ten Outstanding Young Malaysian 2017, Top Research Scientists Malaysia 2017 and ASEAN Meritorious Service Award 2017. Prof Leong has been collaborating with researchers at Taylor's University. During the closing, Prof Leong also launched her new book on "EEG Signal Processing". in collaboration with researchers at Tavlors. witnessed by Associate Professor Dr Anthony Ho. Pro



## PROFESSIONAL TALK

### *Standards and Electrical Engineers*

**30th May 2019**

In line with the adoption of the Master Plan on ASEAN Connectivity 2025, the ASEAN Engineering Inspectorate (Electrical Installation) or AEI-EI has embarked on contributing towards mobility of engineers. With the objective of establishing an ASEAN baseline standard for the engineering profession leading towards the mobility of ASEAN engineers, the AEI-EI has coined the vision of harmonizing standards and codes for electrical installations of buildings in ASEAN. To realize the vision, the adoption of the common ASEAN electrical standards by the academic institutions is paramount. Hence, the National Working Group of AEI-EI organized this talk with the aim of creating and elevating the awareness of electro-technical standards amongst electrical engineering undergraduates in Malaysia. The talk provided a glimpse of standards in general continuing with highlighting several standards highly relevant to practising electrical engineers. Finally, an overview on current standardization initiatives in ASEAN was shared with the participants.

This talk presented by Ir. Dr. Siow Chun Lim, currently a Senior Lecturer at Multimedia University. He is also the current Secretary/Treasurer of the Electrical Engineering Technical Division (EETD) (2019-2020) as well as the Honorary Secretary/Treasurer of the National Working Group of ASEAN Engineering Inspectorate (Electrical Installation). Apart from that, he is also the IEC Young Professional 2017 representing the Institution of Engineers Malaysia (IEM).

This talk was attended by students and staff especially from Electrical and Electronical Engineering department. It gave a lot of insight to participants so that they can further explore new technologies and standards as well as further enhance their knowledge.



## INDUSTRIAL VISIT

### Proton's Manufacturing Plant, Shah Alam 11 July 2019

The purpose of this visit was to provide an early industrial exposure of the work environment especially in the areas of automotive manufacturing to undergraduates of MAHSA's Mechanical Engineering programme. Upon arrival at the plant, the group was warmly greeted by Proton's Corporate Communication representatives. They were then given a briefing session which included various topics such as the history of the Proton Manufacturing Plant, the achievements of Proton, the various Proton models, the manufacturing processes, and its newest technology and safety features which are now incorporated in Proton's range of vehicles. Apart from that, students were also briefed on the five main processes that are carried out in the making of a vehicle, which are Stamping, Body, Painting, Trim and Final Assembling.

The group was then taken to Proton's Showroom which displayed various Proton models – from the legendary Proton Saga to the most recent Proton X70. There were also the modified and R3 (Racing, Rally, Research) versions on display, such as the Proton Preve' R3 and Proton Satria Neo R3 which have won many motorsport racing competitions. Students had the chance to experience the latest technology features in X70 including its smart Voice Command feature, which is an adopted system of the Geely's Global Key User Interface (GKUI).

The trip ended with a closing speech from Proton's representative and



Proton's Showroom which displayed various Proton



## TECHINICAL VISIT

### SOLAR POWER PLANT

#### AIM:

With the rapid increase in energy production and consumption, the committee members of IET MAHSA On-campus decided to organize this industrial visit to bolt industry solar power plant to have a look at what solar power & energy is all about, the process by which sun rays is harnessed and converted into electrical energy.

Bolt industries is running one of the largest solar roof plant with almost a total of 20,000 solar panels. It aims to show the students that aside from the general ways of generating electricity through power plants, solar energy (solar panels) can be used also.

#### Student key points gained:

"This visit showed us one of the biggest solar rooftop plant in Malaysia"

"Solar energy could be the next big step in power and electricity generation"

"This Visit exposed us to how the solar energy conversion works through the solar plant"

"This visit shows us the procedure of how power is being produced"

#### THE PROCESS:

Upon The arrival at the site, due to the peculiarity of the location we had to do some security check-ins to gain entrance into the facility while that was on going we had a short briefing session on what to do and how the visit was going to take place, we were divided into 2 groups, on the site were firstly taken to the meter room and shown where the power generated from the panel goes to before the final distribution, In the meter room there where different meters with each having its own function and also there was a Step up transformer which generates AC

After that we were taken to the rooftop, the solar panel are used to harness solar rays which generates DC (direct current) power and it is then sent into the inverter which converts from DC to AC, The Solar panels are connected in series, the connection of a group of panels is called strings and the strings are then connected in parallel into the inverter.

The photon energy (solar radiation) is absorbed by the solar panels (photovoltaic cells) and is directed to the inverter, the electrical energy sent to the inverter as DC electricity and is then converted to AC electricity, the converted AC electricity is then sent to a meter where it will offset the electricity from the utility company or stored in an optional battery pack,

From the meter the electricity is then sent into the residence to power lights, appliances and many other electronic devices, but in the case of bolt industry the power generated from the meter is just for sale to utility Companies and startups who are in need of it.



## STUDENT ACTIVITIES

### IET Faraday Challenge 2019

MAHSA University Engineering students, Abdulwahab Araeh, Tahirrif Sebastian, Afnan Abdulkarem, Baraah Alodini and Peter Adejumo, were invited to coach the participants at the IET Primary Faraday Challenge 2019. The IET Faraday challenge 2019 was held on 14th September at the Malaysia's Institute Technology Exhibition Centre (MITEC) in conjunction with the My-Digital-Fair makers Exhibition. There was a total of about 36 Schools in attendance with children aged 8-11 years and each school comprising of six team members.

#### THE AIM:

The major aim for the Primary Faraday Challenge is to encourage students to consider how engineers work together in the aerospace industry through teamwork. It allows students to experience the knowledge, understandings and skills engineers use in their work and the ways in which their strengths can be used to accomplish an effective result.

#### THE CHALLENGE:

The challenge to be faced during this year's event was for the students to work as a team to design an aeroplane as part of a greater product design, and then construct a transporter to move it to the next stage of development. This is a concept that engineers use to build prototypes to test out their ideas first. The challenge encourages the development of students' problem-solving, team-working and communication skills. The transporter is to include at least one electrical component (e.g. motor, bulb, buzzer etc.) but the aeroplane does not necessarily have to include any circuits as it will be completed at a later stage of the production process. The prototype aeroplane to be made by the students must be able to fly a distance of about 5 meters and the prototype transporter must be able to carry it for at least 3 metres in a straight line in the direction of the next place where it will be taken out. Each team will need to take into consideration the safety, ease of use and flexibility of use of the prototypes, also they have to be resourceful, strong and willing to adjust their ideas as this is also a part of being an engineer, finding out what does not work before finding out what works.

During the competition the students will have access to the Faraday shop and a budget of Faraday money, which is used to make purchases from the shop. They need to plan what resources to buy and manage and record their budget. At times they may need to make decisions about affordability and effective use and should be encouraged to identify alternative, possibly cheaper, approaches to their final designs. At the end of the challenge students will be asked to present their prototypes by firstly demonstrating how the aeroplane will be carried by the transporter and then flying their aeroplane as far as possible.

The world as we know it is rapidly changing and it is best we equip the young for the changes that



## STUDENT ACHIEVEMENTS

Faculty of Engineering and IT, MAHSA University, Bandar Saujana Putra, Diploma Mechanical Engineering student **Vellavan A/L Arunasalam**, won two medals in **39th MAKAF National Senior Karate Open Championship, 2019** held in Stadium MPSJ, Serdang Jaya, Selangor during 20th to 24th March, 2019.

He had been selected in the National Squad and also in Sea Games, Philippines, during December, 2019.

He Won the following medals in the competition

- (1) **Male Individual Kumite- 84 Kg division**  
(Bronze medal)
- (2) **Male Team Kumite**  
(Bronze medal)





## PUBLICATIONS

The new calendar brings some good news of the research projects lecturers and students put forth in 2019.

**2 Books, 5 Book Chapter, 32 Research Journals** have been accepted for publications in 2019



### Book

1. **Wai Yie Leong**, Chee Fai Tan, Industrial Revolution 4.0, IET UK Publishing, AUG 2019
2. **Wai Yie Leong**, EEG Signal Processing: Feature extraction, selection and classification methods (Healthcare Technologies), ISBN-13: 978-1785613708, Publisher: The Institution of Engineering and Technology (May 27, 2019)

### Book Chapter

1. Lewis TEE and **Wai Yie Leong** (2019). Chapter 1: EEG Extraction for Meditation in EEG Signal Processing, IET UK Publishing, UK. [ISBN-13: 978-1785613708 ]
2. **Wai Yie Leong** (2019). Chapter 3: Feature Extraction and Optimisation Method for Sleep Apnea EEG Signal Detection in EEG Signal Processing, IET UK Publishing, UK. [ISBN: 978-1-78561-370-8].
3. Chuen Rue Ng and **Wai Yie Leong** (2019). Chapter 5: Handedness Detection System in EEG Signal Processing, IET UK Publishing, UK. [ISBN: 978-1-78561-370-8].
4. Pooi Chi Quah and **Wai Yie Leong** (2019). Chapter 6: Parkinson's Disease Feature Extraction in EEG Signal Processing, IET UK Publishing, UK. [ISBN: 978-1-78561-370-8].
5. Ren Sin Tung and **Wai Yie Leong** (2019). Chapter 12: Obstructive Sleep Apnea Syndrome (OSAS) Data in EEG Signal Processing, IET UK Publishing, UK. [ISBN: 978-1-78561-370-8].

### Journal

1. **Tan Koon Tatt**, Norhamidi Muhamad, Che Hassan Che Haron and Abu Bakar Sulong, (2019). Influences of

- Temperature and Pressure to the Green Defects. International Journal of Mechanical Engineering and Technology 10: 1, pp 186– 192.
2. Kamalakannan,R., Sudhakara Pandian, R and **Sivakumar,P** (2019) ,“A simulated annealing for the cell formation problem with ratio level data”, Int. J. Enterprise Network Management.Vol.10 (1),pp. 78-90.
  3. **Basir, M. S. S. M.**, Abdullah, A. R., & Saad, N. M. (2019). A comparative study on spectrogram and S-Transform for batteries parameters estimation. Jurnal Teknologi, 81:2, pp: 113-122.
  4. **Mohamad Bin Ayob, Khairul Saleh Baharudin**, Siti Nurliyana Binti Mohd Shafee’a & Anuar Kasa (2019). Analysis of Slope Stability with Wire Mesh and Nailing as Slope Protection System Using Finite Element Method. IJET, Vol 8, No 1.12, pp:1-5
  5. **Nurul 'Ain Amirrudin**, Lim Zhen Mao (2019). Path Planning Robot using Proximity Sensor. IJET, Vol 8, No 1.12, pp:6-10
  6. **Nur Azliza Ahmad**, Nik Nur Zuliyana Mohd Rajdi, Sivakumar Paramasivam, Sheih Muhammad Buhari (2019). Simulation of Self- Rechargeable Electric Vehicle. IJET, Vol 8, No 1.12, pp:11-14
  7. **W.Y.Leong**, K.W. Choo, Z.N.Nik (2019). Investigating Earthquake Resistance School Building In Peninsular Malaysia. IJET, Vol 8, No 1.12, pp:15-21.
  8. **Nik Nur Zuliyana Mohd Rajdi**, Naechitra Jothi (2019). Intelligent Wheelchair Control Prototype using Voice Recognition System for Disable Patients. IJET, Vol 8, No 1.12, pp:22-28
  9. **S.Y. Lee**, H. Ahmad (2019). Elastic Properties of Woven Fabric CFRP Composites. IJET, Vol 8, No 1.12, pp:29-35.
  10. **Siti Madihah Mazalan, Khairul Huda Yusof, Nur Rashidah Ahmad Rashidi**, Nasrul Humaimi Mahmood, Mohd Azhar Abdul Razak (2019). Blood cells counting using modified Circular Hough Transform. IJET, Vol 8, No 1.12, pp:36-41.
  11. **Nik Nur Zuliyana Mohd Rajdi** , Ahmad Mujahid Ubaidillah B Zakaria,Mohamed Harris Bin Abdul Ghani (2019). Glove-Gesture Sensor Motion for Deaf-Mute People Equip with Global Positioning System (GPS) Tracking. IJET, Vol 8, No 1.12, pp:42-46.
  12. **Shin To Amiri**, Ali Dehghanbanadaki, **Mohamad Ayob** (2019). Some Selected Experimental Study on The Geotechnical Characteristics of Malaysian Laterite Soil Mixed with Sodium Carbonate (Na<sub>2</sub>co<sub>3</sub>). IJET, Vol 8, No 1.12, pp:47-50.
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  15. **M. Idris**, A.H Hussain (2019). Deploying Mobile Trend In Higher Education Institutions In Malaysia. IJET, Vol 8, No 1.12, pp:59-62.
  16. **Sivakumar, Tan Koon Tatt & Kasirajan** (2019). Study on the effect of nano silver on microstructure, and mechanical properties of aluminium 6061 cast alloy using stir casting technique. IJET, Vol 8, No 1.12, pp:63-67.

17. **Khairul Saleh Baharudin, Mohamad Bin Ayob, Aiman Mohammed Ali Al-Shami & Rosnani Ahmad** (2019). Safety Assessment of Pre-fabricated Timber Roof Truss. IJET, Vol 8, No 1.12, pp:68-74.
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23. K.W.Choo, R.Zakaria, A. Adnan, **W.Y.Leong**, Various Techniques on Retrofitting for Earthquake Hazard Mitigation, International Journal of Engineering & Technology, IJET, 2019.
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## **FACULTY OF ENGINEERING & BUILT ENVIRONMENT**

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