

School of
Engineering
APU



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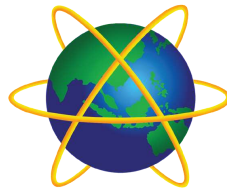
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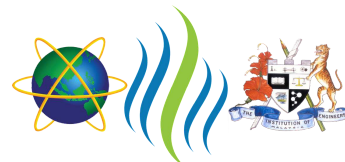
SCHOOL OF ENGINEERING

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EDITORIAL

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Personal Traits of Engineering Students

“Many engineering graduates from APU have landed themselves with successful careers; many of them are doing very well academically while at APU. So, what qualities or traits do they possess to be successful?”

**ASSOC PROF DR THANG
KA FEI
OCT 2019**

Many of you have enrolled to engineering studies due to active interest in science and technology. However, there are also many of you that have chosen engineering programmes due to parental persuasion, peer pressure or even the “feel-good” factor of being an engineering students! No matter what is the reason, you should enjoy every moment of the learning experience offered to you.

Many engineering graduates from APU have landed themselves with successful careers; many of them are doing very well academically while at APU. So, what qualities or traits do they possess to be successful? I have listed the following traits that an engineering student should possess:-

(1) Inquisitive Mindset

Being an inquisitive person, you are intellectually curious and are always eager for new knowledge. You will explore new knowledge via literature research or by simply asking questions based on the Five W’s

and one H, i.e. WHO, WHAT, WHERE, WHEN, WHY, and HOW. Being an inquisitive individual, you will obtain information from various stakeholders to seek for the knowledge. In the process, you will digest various conflicting information from stakeholders to get the information you need.

(2) Analytical Thinking

Information and data are aplenty in this age of time. Being someone with analytical thinking, you will attempt to understand a given problem by collecting data and information. You will make sense from the data collected via statistical methods, critically analyse the information gathered with an aim to obtain a meaningful summary. Furthermore, you will review possible solutions to the given problem and compare the effectiveness of various alternatives with systematic testing. Finally, you will analyse the test outcome and choose a most appropriate and well justified solution.

(3) Communication Skills

Being an engineering student, you should take every available opportunity to practise your communication skills, especially in English. Presentation sessions with lecturers are useful means of practice but participation in competition would be highly beneficial. There are competitions that allow you to share your views and thoughts on issues relevant to safety, health, social, cultural, legal and environmental aspects and relate them to engineering innovations; one such competition is Schneider Go Green. Being a good communicator can elevate your career to greater heights.



(4) Team-Working

The ability to work with your peers are important as it enables you to develop skills in leadership, delegation, time-management and even conflict-management. There are plenty of team-working opportunities such as in group assignment, group-design project or even in an informal tutorial discussion groups! If you are new to team-working and not sure how to start,

you can always start as a team-member executing tasks allocated to you by the team-leader. Once you are familiar, you can volunteer as a team-leader. Remember, a good engineer is a good team-worker and an excellent engineer is a great team-leader!

(5) Hands-On

You will not be calling yourself as an engineering student if you do not like to work with things! There are much to be learned transferring design and simulation work into practical implementation; these are only possible if you are willing to get your hands dirty by picking up necessary psychomotor skills in working with tools and instruments. Opportunities are present in the Engineering Design module as well as during the laboratory sessions for you to familiarise with the tools. Therefore, you should be actively participating in the laboratory sessions rather than just sit and observe. You will regret later on in your career when you find that your colleagues know far better than you.

In conclusion, the afore-mentioned personal traits are highly important for you as an engineering student for a successful engineering career. Plenty opportunities are provided by the School of Engineering to train and equipped yourselves with these traits. What we need from you is purely your pro-activeness in participating in the activities throughout your study. I wish your every success in your academic pursue and future success in your engineering career!



“In my opinion, it is far from being prevalent or even cracking the glass ceiling code. Not only in Malaysia, other countries too summons effective participation of women leaders at different levels of decision making in socio-economic or even political aspects as well the general well-being of people with equal opportunity”

Harvin Kaur, Lecturer, SoE

Cracking the Glass Ceiling code?

HARVIN KAUR
DEC 2019

Main factor for economic growth and for social and technological development is human resource. (Abu Bakar, 2007). Women’s involvement rates in labor force are ranked highest in the world just in Asia itself (Lathabhavan, 2017) and in Malaysia, the female labor force participation rose 0.4 percentage points to 54.7 percent in 2017 which includes all age groups. However, male labor force participation rate in Malaysia are still higher especially top management positions which comprises of 78.2% men and the rest women.

In my opinion, it is far from being prevalent or even cracking the glass ceiling code. Not only in Malaysia, other countries too summons effective participation of women leaders at different levels of decision making in socio-economic or even political aspects as well the general well-being of people with equal opportunity (Osborn et al., 2015). Glass ceiling, the metaphor, is an invisible barrier which impedes a woman of obtaining to managerial positions (Bolat et al., 2011). Specifically, it is an obstacle that is unattainable barrier that overshadow certain minorities and women from moving to the managerial positions of the corporate ladder which is known as “climbing up the ladder” in an organization. In the United Nations Development Programs (UNDP) Gender Inequality Index, Malaysia was ranked at 42 (Human Development Report, 2016). If that is what is shown, by logic the glass ceiling phenomenon should be low in Malaysia. However, researchers have found it to be more rampant (Subramaniam & Arugumam, 2013).

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Famous woman politician:
Ambiga Sreenevasan, Yeo Bee
Yin, Wan Azizah Ismail

It is a well-known fact that women more than men adjust their careers for family life. Juggling between a career and family life continues to always be the front-burner issue when speaking on glass ceiling. Are women jeopardizing their own careers at some level? In our society, if a woman deviates from the arbitrary role of a wife and a mother to advance her career, she is considered to be “less of a woman”. In fact, this is true in many Asian societies. Individual level of personality traits or even support from loved ones, not forgetting, the interpersonal level of cultivating relationships amongst colleagues and during networking sessions are the key factors in determining a success in career advancement (Lathabhavan, 2017). Women are unable to do that as it is considered their duty to look after the children at home which brings us to the main issue on gender stereotyping (Napasri and Yukongdi, 2015). Study after study shows that women do more work at home but they go unappreciated as our society expects them to. According to them, it is ‘part of the cocktail’ to able to work and to look after kids at home. In my opinion, until the contributions women make at work are seen as valuable as the contributions women make at home, the contributions that men make at home will never be considered as valuable as the contributions men make at work. Men and women too need to share responsibility to ensure the breaking of glass ceiling. This is too one of the key factors that probe women to be successful at work and at home and it creates a well-balanced relationship.

Gender inequality which leads to glass ceiling in certain organizations is always referred to a complex phenomenon which can be seen in organizational structures in Malaysia. There are many debates going on how the workplace discrimination can negatively affect women’s earnings and opportunities are the gender wage gap and contemplation on time that a woman takes to advance in her career. PricewaterhouseCoopers Malaysia has done a survey on the possibility of discrimination and harassment and how does bridging the gender gap progress slowly. Based on the survey, discrimination against women can be attributed to human resource policies. Furthermore, when questioned, the decision makers come up with sexist comments which affect the women’s mental and physical health. This further strengthens my opinion on it not being prevalent.

However, it takes two to clap. Are women too blamed for contributing to glass ceiling? There is nothing wrong with talking about glass ceiling as a barrier for growth in women at the workplace, but much thought must be put into this topic where it paints the well-known glass ceiling issue as if it is something women have no control over. In every other aspect, a woman has control and even in this particular issue, they do have the control as well, and in some ways, they too should be blamed for glass ceiling's continued existence. It is known that women do work as hard as men and therefore want to be paid equally. Demanding equality in a workplace is actually having injustice rather than breaking the glass.

Even though Malaysia has made some good progress on providing certain managerial positions to women, some of the choices that other women made too has taken us two steps behind. In the Equal pay act, women are the primary or sole breadwinners in 40% of the households in the United States and equal pay is not just an issue of quality, it is an issue of quality of life. Poverty would be cut in half for all families with a working woman or even single mothers if equal pay is actually practiced rather than preached. After this act has been sanctioned 50 years ago, this debate is still ongoing as people do not walk the talk. This proves that we are far from cracking the glass.

Women population in Malaysia reckon on too much on the existence of glass ceiling and how it effects our society plus career women and these women tend to drain too much energy in believing that this barrier is in their way and it subsequently, it lowers their self-esteem. This interferes in their direction to strive at a workplace. Another reason is some women who complain about gender inequality are the same bunch that demand flexible work schedules to obtain work and family balance. However, a position as a General Manager of a multi-national corporation cannot be achieved if there is insufficient time put into it.

To sum up, corporate culture as well as society are both key contributors to not allowing breaking of the glass ceiling but it is equally important to assess how women can indirectly contribute to these stubborn workplace imbalance. I do agree that in some industries change is happening, however, in others, it is far from being prevalent. There is a need for change for women in a workplace, but the change must too start with the women themselves. Glass ceiling will continue to exist if the women who demand equality do not even treat themselves equally.

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APICTA 2019 WINNER

“Prevention is Better than Cure”

A Sensitive, Low Cost and Portable Detector to Prevent Cancer

**DR FREDDY TAN KHENG
SUAN
OCT 2019**

Our Engineering students from APU School of Engineering successfully emerged as the Winner for MSC Malaysia Asia Pacific ICT Alliance (APICTA) Awards 2019. The winning team comprises Mohamed Ahsan and Akshey Kumar who are both Year 3 Engineering students under supervision of Dr. Freddy Tan Kheng Suan.

The main aim & objective of the project is to prevent the risk of cancer by detecting harmful radiation in the environment. To achieve the purpose, a sensitive, low cost and portable IOT based ionizing radiation detector was designed and built to detect harmful radiations; radiations that causes cancer and is present everywhere. The detector was tested, and the results proved that it is highly sensitive and accurate to background radiation at different lengths



From left: Dr Freddy Tan, Muhammad Ahsan, Akshey Kumar, Prof Vinesh, Dr Thang

and positions. With this the user can be more cautious and alert themselves if there is any harmful radiation present in their surroundings.

The APICTA Awards is an international awards programme introduced by APICTA and PIKOM – the National ICT Association in

Malaysia to increase ICT awareness in the community and assist in bridging the digital divide. Also known as ‘the Oscars of the ICT industry’, the APICTA Awards have recognized institutions of higher learning, companies, schools and non-governmental organizations (NGOs) for their effort in promoting ICT





Tears of joy shed by the students upon the unexpected great achievement

application, services and education. We, APU & APIIT, have been regularly winning awards at the APICTA Malaysia as well as the International APICTA throughout the years, and this victory marks our 19th time on the stage of APICTA Malaysia as an award winner since 1999. Tears of joy shed by the students symbolized their gratitude to their mentor, who is our colleague, Dr. Freddy Tan Kheng Suan from the School of Engineering as well as the hard work and effort that have been put in to achieve success. Next month, the team will be representing Malaysia at the International APICTA Awards 2019, to compete with teams from Australia, Bangladesh, Brunei, China, Hong Kong (China), Indonesia, Japan, Macao (China), Myanmar, Pakistan, Singapore, Sri Lanka, Thailand, Taiwan (China) and Vietnam at the international arena. In addition, the same team will be travelling to Taiwan to present the project at the 24th the International ICT Innovative Services Awards (InnoServe Awards) 2019, which is also known as the most significant ICT Awards in Taiwan.

APU Teams Stand Proudly on the National Engineers Day Stage in Singapore

DR LAU CHEE YONG
AUG 2019

In conjunction with the National Engineers Day (NED) of Singapore, the Institution of Engineers, Singapore (IES) hosted the 5th installment of the Engineering Innovation Challenge (EIC) with the theme of designing and building a prototype of a portable and sensitive ionizing radiation detector that is capable of detecting background radiation. At the Challenge, we are proud to share that 3 of our teams from the School of Engineering walked away with Merit Prizes, bagging SGD1,000 each as well as a prototype fund of SGD500 per team.



Team 1: A Low-Cost IoT Based Background Radiation Monitoring System, Project Advisor: Assoc. Prof. Dr. Lai Nai Shyan. Team Member: Darren Chin Vui Ket & Thea Sze Sien. Team 2: Low-Cost and Portable Ionizing Radiation Detector. Project Advisor: Dr. Freddy Tan Kheng Suan. Team Members: Mohamed Mafaz Mohamed Ahsan, Lim Eng Wei & Akshey Kumar Magenthiran. Team 3: RadioAppTive - background radiation detector. Project Advisor: Dr. Lau Chee Yong. Team Members: Low Yong Zhi, Pong Wei Xiang & Chin Yoong Fung

The teams were the only Malaysian teams to be in the grand finals and to walk away with awards; their hard work and passion accompanied by the dedication of their mentors contributed to their successes. Kudos to our colleagues: Assoc. Prof. Dr. Lai Nai Shyan, Dr. Freddy Tan Kheng Suan & Dr. Lau Chee Yong from the School of Engineering for the dedicated effort!

ITEX 2019 WINNER

APU bags awards at the International Invention, Innovation and Technology Exhibition (ITEX) 2019

IR DR ALVIN YAP CHEE WEI
MAY 2019

ITEX 2019 saw over one thousand invention projects exhibited and compete for innovation. Asia Pacific University of Technology and Innovation sent 3 teams to the competition comprise of team leader Ir Dr Alvin Yap Chee Wei, Harvin Kaur Guchran Singh, and Nor Azlina binti Abdul Rahman with Yogeswaran Nathan. The teams have achieved excellent results in the 30th ITEX competition held at KLCC, with 2 golds and 1 bronze. The teams of Ir Dr Alvin Yap and Harvin have won gold medals whereas the team of Azlina won bronze medal. Congratulations to the research teams. The award shows that our student's work is recognized



APU teams received Gold Award in ITEX 2019

in the innovation industry. It is a pleasant achievement, and this has once again showed that our students possess qualities that are able to meet industry expectations. Do join us in congratulating the students for their success and thumbs up to their mentors for the guidance!



6th Time Gold Winner

DR LAU CHEE YONG
APR 2019

Yim Jun Ming wins IEM Gold Medal This Year – our 6th student since 2014

Our School of Engineering continues to stand tall and stay strong! At the Institution of



Engineers Malaysia (IEM) 60th Annual Dinner that was held recently, we are pleased to share that Yim Jun Ming, our final year student of the Bachelor of Engineering in Electrical & Electronic Engineering with Honours programme, attained the IEM Gold Medal award 2019. The award was to acknowledge Jun Ming's outstanding academic excellence in his final year of studies, particularly in his final year project, that was built on an environment monitoring system using Internet of Things (IoT). A moment of pride for APU was recorded at the event as well, when our own ELA robot, designed and built by the Asia Pacific Centre of Robotics Engineering (APCoRE), was used by the Minister of Primary Industries, YB Teresa Kok to officiate the event.

Jun Ming is the 6th Engineering student from APU to receive the IEM Gold Medal since 2014; our continuous success is a testament of our outstanding quality of teaching and learning at the School of Engineering. Kudos to our colleagues from the School for the success!

MEMORANDUM OF UNDERSTANDING

*MoU between APU and Universitas Islam Riau (UIR) – Islamic University of Riau
(5 years)*

**NUR AILIE SOFYAIANA
SERASA
SEP 2019**

Highlight:

The MoU constitutes an understanding to encourage scholarly and educational collaboration between the universities in relation to the opportunities for student and staff training and engineering collaborative activities, opportunities for collaboration in scholarly and educational exchanges as well as engineering development.



Among activities to be executed:

- International joint oilfield fieldwork – host by UIR to take place in Jakarta, Indonesia (tentative June 2020)
- International Geological fieldwork – host by APU to take place in KL, Malaysia (tentative January 2020)
- Student exchange – UIR to send Year 3 students to complete one semester with APU
- Guest lectures in Petroleum related topics
- Research collaboration – Smart Well Monitoring
- Conference collaboration



Exchange of souvenir and MoU



MIX 2019

Silver and Bronze bagged in Melaka International Innovation Expo 2019

SURESH GOBEE
SEP 2019

APCORE has won a silver and a bronze medal with project Engineering Lab Assistant (ELA) and Virtual Operated Robot Arm (VORA) respectively in MIX 2019. This event was organized by UTeM Holdings and held at Mudzaffar Hotel, Melaka for 3 days (4th-6th September 2019). MIX 2019 aimed to create a platform for sharing expertise, creative, innovative and commercial ideas. It also cultivated interest and encouraged people to develop



Student receiving award in MIX 2019

innovation ideas in line with current technological developments. This project competition was open to all innovators from industries, tertiary institutions and secondary schools to enhance their potentials of innovating and knowledge-sharing in the interests of building up an exciting future to the next generations. Kudos to the team.

Enhancing the bonding with industrial partner

Memorandum of Agreement signing between APU and Cytron Technologies Sdn Bhd

DR LAU CHEE YONG
SEP 2019



The collaboration between APU and Cytron Technologies is now the 4th year. And in this time, we further broaden our collaboration area to training program certification endorsement, where the program carried out by Cytron will be endorsed by APU. Furthermore, APU and Cytron will be conducting our home-grown Asia Pacific Robotic Camp to students who has completed their secondary school study, to be involved in a 3 day camp to learn about robotic knowledge and apply it in a mini competition. It is glad to see the collaboration and bonding between APU and Cytron is getting stronger. Hopefully all this effort can be paid off and we receive overwhelming response from the mass.

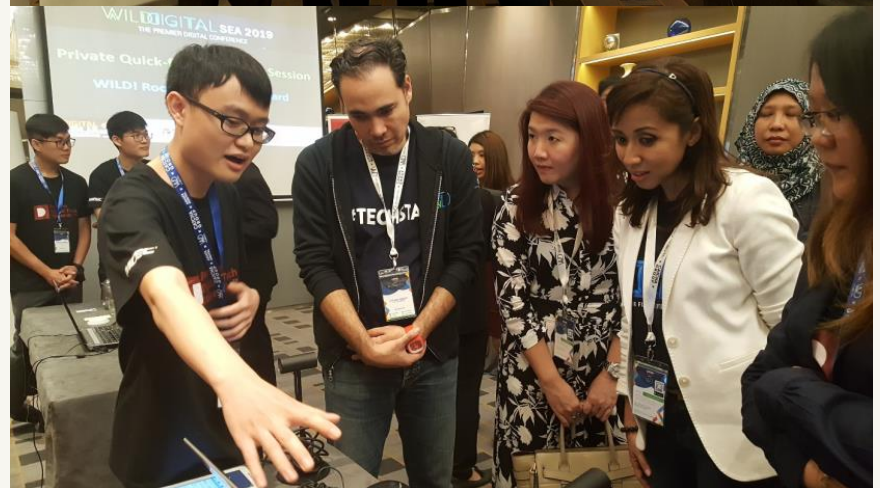
Continuing nurturing students in Robotic Research

APCORE

SURESH GOBEE
VICKNESWARI DURAIRAJAH
SEP 2019

The members of APCORE had got the opportunity to attend Wild Digital Conference SEA 2019 with the project Virtual Operated Robot Arm (VORA). This event was held on 4th July 2019 at Le Meridien Kuala Lumpur. There are 100 speakers from different corporates and startups giving talks about digitalization.

Besides, VORA team has the opportunity to participate in MDEC mentoring session. During the session, the team has demonstrated Virtual Reality (VR) control robot arm to YB Syed Saddiq (Minister of Youth & Sports), Patrick Grove (Co-Founder & CEO of Catcha Group) and Tengku Zatahah (Founder of #sayno2plastic campaign).



Group photo after the workshop

APCORE Workshop Series – Arduino & Boebot

On 23rd August 2019, APCORE has successfully organized a workshop on Arduino by using Boebot. This workshop was conducted by Suresh Gobee with the aim of promoting and improving students' skills in robotics. On that day, there were 15 participants who are students from Engineering and IT fields attended the workshop.

SIET 2019

International Conference on Sustainable Innovation in Engineering and Technology



The winner of session best presenter and best paper awards, presented by the Deputy Vice Chancellor Prof Vinesh

The 1st International Conference on Sustainable Innovation in Engineering and Technology (SIET 2019) was held on 24-25th September 2019 at Asia Pacific University of Technology & Innovation (APU), Kuala Lumpur, Malaysia. SIET 2019 Conference aims to bring together the leading researchers and industrial experts to present the latest findings, innovation and solution in engineering and technology for sustainable future. It also serves as a platform of research collaboration among the experts. SIET 2019 program featured keynotes, plenary session and technical paper presentations

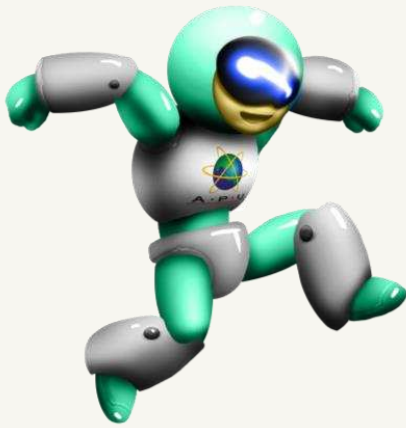
In this time, we received 60 successful research papers from various institution including Sunway University, University of Malaya, Universiti Teknologi Malaysia, University of Technical MARA, UCSI, UTAR etc. The scope includes: Sustainable Technology, Power System Analysis, Advance in Geosciences, Analogue and RFIC Design, Photonic and Optical Communication Network etc. We thank the organizing committee: Dr Freddy Tan, Ir Dr Dhakshyani, Ir Dr Alvin Yap, Dr Shankar, Dr Mahmood, and Dr Lau Chee Yong for making this conference a success.

DR FREDDY TAN KHENG SUAN SEP 2019

For keynote session, we were proud to have TS Azah Ahmad, the Senior Director of Strategic Planning Division, SEDA to talk about the current development of renewable energy and the future planning by Malaysia government. She shared her thought in how to boost the renewable technology from various aspects including academic, industry and authority. Also we were proud to have Mr Marks Edmondson from CMG Asia Pacific to give the second keynote speech. He shared his valuable opinion in Petroleum Engineering perspective in renewable energy and the current development in the related sector.



TS Azah Ahmad and Mr Mark Edmondson giving keynote speech



APRoC 2019

APCORE Annual Flagship Event Promoting Robotic Hands-On Knowledge

**DR LAU CHEE YONG
SEP 2019**

The annual flagship event by APCORE was concluded successfully on Sep 2019 under the effort of Dr Lau Chee Yong, Ms Vickneswari Durairajah, Mr Suresh Gobe and Ir Dr Dhakshyani.

This year, we again conduct both secondary school and university level competition. We partnered with Cyttron



Technologies Sdn Bhd to conduct

secondary school competition which involved immediate Arduino programming to solve the game tasks. It has a theory test prior to the field challenge too. For university, participants were required to build a robot from scratch to undergo 3 different map utilizing line following and obstacle overcoming. Both of the competition test the resourcefulness of students in handling different situations.



Picture Gallery for APRoC 2019

School of Engineering contribute to the environment

“Maiden Beach Cleaning Experiences, Understanding Corporate Social Responsibilities”

**HARVIN KAUR
AILIE SOFYIANA SERASA
OCT 2019**

When it comes to environmental sustainability and effective usage of natural resources, conservation is the key. As part of their Sustainable Development module, 22 students of the Petroleum Engineering programme conducted a beach cleaning activity at Port Dickson under the guidance of our colleagues from the School of Engineering – Ms. Harvin Kaur, Ms. Ailie Serasa and Assoc. Prof. Dr. Thang Ka Fei.

The activity was initiated by Green Ocean Movement, an NGO that is devoted to protecting the oceans from pollution. Through the activity, students were exposed to the devastating effects of plastic and waste towards our ocean; at the same time, we observed an increasing awareness of waste management, in order to dedicate love and care for the environment.



Engineering students led by Assoc Prof Dr Thang Ka Fei, Miss Ailie Sofyiana Serasa, and Miss Harvin Kaur

Apart from relating the activity with classroom theories, we are pleased to see that our students gained immense experience and valuable practical skills, which lead to enhancement of knowledge and personal development. Many first-timers have expressed their interest to participate in similar activities in the future. Thus we look forward to

seeing more beach cleaning activities being organized! Kudos to the School of Engineering for initiating this meaningful effort; they have perfectly demonstrated that apart from academic knowledge, the academia also plays an important role in shaping mindsets and developing great personalities.



Students making effort cleaning the beach

Fun and laughter moment for SoE

“The annual Team-Building kicked off in Avani Sepang”



**DR LAI NAI SHYAN
SUBHASHINI
OCT 2019**

It is indeed a difficult task for the organizer to gather so many people from SoE and put them in a beach-side villa, Dr Lai and Miss Subhashini again made it this year. We had a wonderful 2 days 1 night experience at Avani Sepang, it consist of fun mini games and a beach cleaning session. During the first night, it was an appreciation moment from our DVC Prof Vinesh to every staff of SoE who presented.

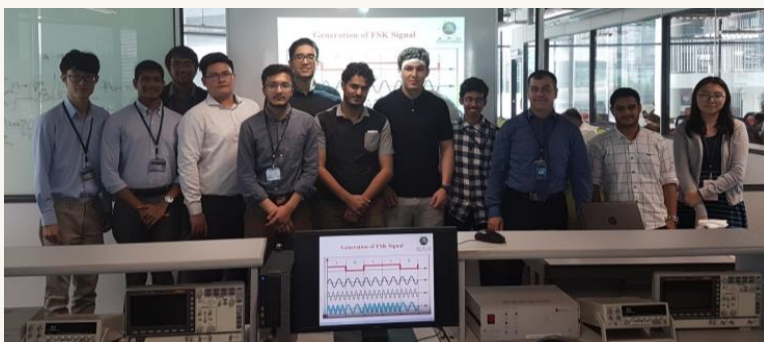
The heart-touching moment which made our beloved TS Yvette finally lost it
Beach cleaning activities on the second day morning



**DR RAED MOHAMMED
APR 2019**

***Workshop Series to bring
Digital Modulation to the
masses***

Digital Modulation provides more information capacity, high data security, quicker system availability with great quality communication. Hence, digital modulation techniques have a greater demand, for their capacity to convey larger amounts of data than analog modulation techniques. The workshop helps the students to know about many types of digital modulation techniques and also their combinations, depending upon the



need, such as Amplitude Shift Keying, Frequency Shift Keying and Phase Shift Keying. This event was conducted on 24th April 2019 at Communication Lab, APU by Dr Raed Muhammed Taher Abdulla.