JURUTERA

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IEM
The Institution of Engineers, Malaysia

MAY 2024

SPECIAL ISSUE

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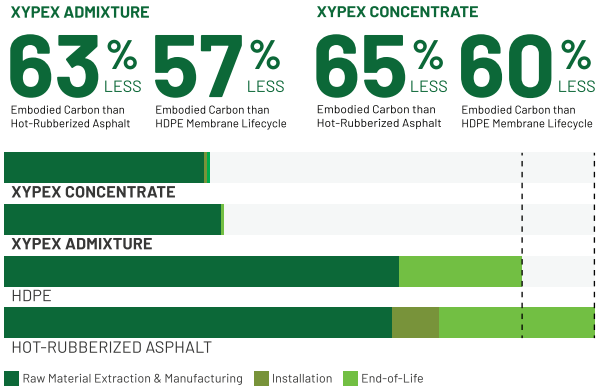

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46720 Petaling Jaya, Selangor Darul Ehsan.
Tel: 603-7890 0130 Fax: 603-7957 7678
E-mail: sec@iem.org.my Homepage: http://www.myiem.org.my

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In this month's issue of *JURUTERA:*

Upcoming Bulletin Issues
Theme 2024:

June: *WEroes: Explore, Evolve and Excel*
July: *Safety*

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CHAIRMAN
ROBERT MEBRUER

CEO/PUBLISHER
SHIRLEY THAM • *shirley@dimensionpublishing.com*

HEAD OF MARKETING & BUSINESS DEVELOPMENT
JOSEPH HOW • *joseph@dimensionpublishing.com*

PRODUCTION EDITOR
TAN BEE HONG • *bee@dimensionpublishing.com*

CONTRIBUTING WRITERS
PUTRI ZANINA • *putri@dimensionpublishing.com*
HANNA SHEIKH MOKHTAR • *hanna@dimensionpublishing.com*

SENIOR GRAPHIC DESIGNER
SOFIA HANIS • *sofia@dimensionpublishing.com*

GRAPHIC DESIGNER
NICOLE THENG • *nicole@dimensionpublishing.com*

ADVERTISING CONSULTANTS
THAM CHOON KIT • *ckit@dimensionpublishing.com*

ACCOUNTS CUM ADMIN EXECUTIVE
YEN YIN • *yenyin@dimensionpublishing.com*

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COVER *Note*

by Ir. Razak Yakob
Chief Editor

Of Water, Leadership and ESG

Salam and Hello All,

This edition holds a special place in my heart. It's a remarkable collaboration involving the Water Resources Technical Division (WRTD), the Young Engineers Section (YES), and the *JURUTERA* Bulletin Editorial Board - an exemplary display of engineering camaraderie. This partnership transcends mere technical requirements, generation gaps, or administrative boundaries. While traditionally focused on the IEM AGM, this month's issue extends beyond, exploring topics profoundly relevant to today's engineering landscape.

The transformation of the water sector resonates deeply with us all, both as engineers and Malaysians. It's a crucial conversation we're eager to engage in. Leadership, too, takes center stage, not just for our younger colleagues but for all of us. True leaders inspire vision and guide us toward organisational excellence - a role our new IEM President (fondly known to many as Prof. Jeff) steps into with our full support, poised to elevate our organisation to new heights.

I'm brimming with excitement. I also wish to express my heartfelt gratitude to our Editor, Ir. Razmahwata, and the entire editorial team. Their unwavering dedication and passion breathe life into *JURUTERA* every month. It hasn't been an easy journey, but their commitment is the driving force behind our publication's success. Serving as Chief Editor these past two years has been an honour, made possible by the support of the Secretariat and every IEM member. Thank you all. ■

EDITOR'S *Note*

by Ir. Razmahwata Mohamad Razalli
Principal Bulletin Editor

Bulletin Editorial Board

The Bulletin Editorial Board takes the lead in providing directions for the monthly publication of *JURUTERA*. Working with the various contributors, the board acts as the gatekeeper of the publication, maintaining a level of quality while quietly addressing any hiccup between the various parties of interest, be these outside personalities, publishers or the occasional duplicated word in sentences. The Editorial Board looks forward to continuing its mission of stewarding IEM's forward-facing publication and taking into the 20th Century. ■

Transformation to a Sustainable Water Future in Malaysia

Interviewee:
Charles Anthony Santiago
Chairman of Suruhanjaya Perkhidmatan Air Negara (SPAN)

Charles Anthony Santiago, Chairman of Suruhanjaya Perkhidmatan Air Negara (SPAN), talks about Water Sector Transformation 2040 and its plans to tackle high losses in non-revenue water, optimising water consumption, the impact of climate change on our water resources and why it is important to increase water tariff.

Q *Suruhanjaya Perkhidmatan Air Negara (SPAN) is a technical and economic regulatory body for the water supply and sewerage services in Peninsular Malaysia and Federal Territories of Putrajaya and Labuan. Can you explain how SPAN plans to lead the way on managing water services?*

SPAN is the regulator for water and sewerage services in Peninsular Malaysia and Federal Territories of Putrajaya and Labuan. It manages the licensees and operators (i.e. water operators and Indah Water Konsortium) through a mutually agreed business plan. Water related infrastructure and equipment such as pipes, valves etc., will need to go through SIRIM and SPAN's technical & equipment standard before they can be used by the operators.

In 2006/2007, the future of water management was discussed between the federal and state governments. The issue of "water asset-light" was raised because state governments did not have sufficient funds for water infrastructure development. So Pengurusan Asset Air Berhad (PAAB) was established in May 2006 to provide funds at affordable interest rates for water infrastructure development so that operators could carry out water development ideas and infrastructure work (such as planning studies, water treatment plants, non-revenue water works, etc). The operators would then repay the loan sum to PAAB through a long-term agreement. SPAN was established in 2008 to regulate the water services industry.

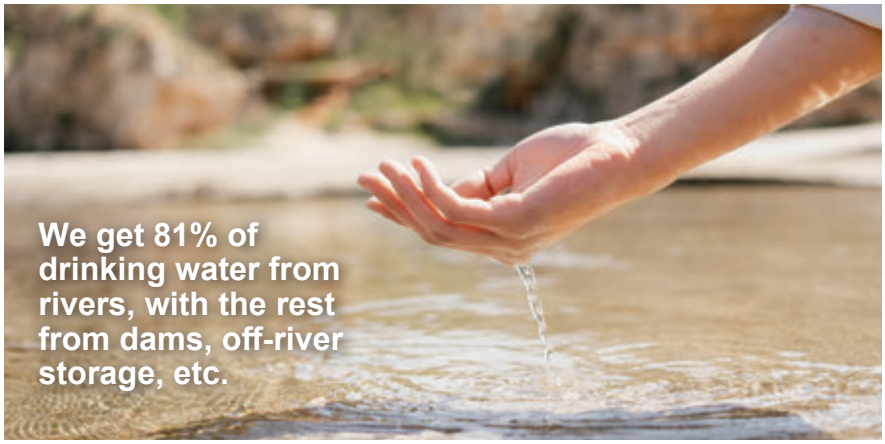
The water industry faces many challenges, especially recently, with issues such as climate change and the discerning citizens of the country demanding more accountability, transparency and governance on how water is managed. SPAN, together with the relevant water operators, will have to continuously evolve to manage the changing issues and challenges to ensure sustainable water resources and supply to the people.

Q *High non-revenue water (NRW) loss is an indicator of poorly managed water services. What strategies will SPAN employ to minimise non-revenue water loss? What are the goals and obstacles that SPAN faces in carrying out the plans to reduce non-revenue water loss?*

NRW is one of the biggest challenges we are facing. In the last five years (2018-2022), water losses totalled RM8 billion, with 2022 being the highest at RM2.1 billion. This is water that has already been treated but lost

through leakages, stolen through illegal tapping, poor recording, etc. If nothing is done, NRW losses will total RM10 billion in the next five years because NRW losses have been increasing. NRW losses were RM1.5 billion in 2021 and RM2.1 billion in 2022. The leaks will get worse if no remedial work is carried out; therefore we are looking at approximately RM18 billion in losses in the next 10 years.

If we do a quick calculation and estimate the cost of an average pipe replacement to be RM1 million per km, it will cost about RM39 billion to rehabilitate a total of 39,895 kms of pipes. But the RM39 billion can be reduced because not the entire 39,895 kms of pipes need to be replaced. Also, the cost for reducing NRW losses to below 18-19% will become prohibitive. The international best practice is to maintain NRW losses at 25%, so we can target to achieve about 20%. Going by that, the cost to manage NRW losses will be about RM30 billion.



Rivers have been providing 81% of water resources previously but recent studies show that the carrying capacity of rivers has dropped due to pollution (for instance, the carrying capacity of Sg. Muda, which provides water for Kedah, Perlis and Penang, has dropped by 7%).

Moreover, with recent changes in climate, we are challenged by the fact that water resources from rivers are on the decline and therefore, we will have no choice but to conserve water that has already been treated and reducing NRW losses is an important component here.

I often like to jolt people into awareness by telling them that we are headed for a climate emergency. This gets their attention because at present, most citizens feel we have an abundance of water, so there is no need to worry. Although that is true, not all the water that falls from the sky goes into rivers. Rainfall is seasonal and, if not stored, rainwater will run into the ground and the sea. What we need critically is the conservation and preservation of rivers (under the jurisdiction of Jabatan Pengairan & Saliran or Department of Irrigation & Drainage) as well as to ensure the sustainability of our rivers and water catchments.

Q *To encourage long-term sustainable water usage, optimising water consumption must be fostered. Can you describe SPAN's approach, plan of action and challenges in encouraging the optimisation of water consumption?*

There are two levels to optimising water consumption – households and industries. In terms of industries, the standard today is "consume and recycle" which will create a circular economy that will ensure sustainability of the water resources.

As for households, Malaysians use an average of 245 litres per capita per day at present but this is way higher than the UN benchmark of daily water consumption at 165 litres per capita per day; according to the World Health Organisation, a person needs 50-100 litres of water per day to ensure that most human basic needs are met).

Education on the importance of conserving water and public awareness must be raised, especially in schools. In the Klang Valley for example, there are about 1.5-2 million motor vehicles and car owners have the tendency to keep their cars super clean by washing the car daily. In Europe, there are laws against this. For washing cars, it is better to use rainwater rather than potable water which should be conserved for consumption.

Rainwater harvesting can also be carried out in commercial and industrial complexes to optimise the consumption of potable water. The government can look at providing tax incentives to households and industries which practise rainwater harvesting and optimising potable water consumption. Promoting and raising the awareness of installing and using water efficient taps and fixtures can also help reduce water consumption. The aim is

to conserve potable water for uses such as drinking, cooking, bathing etc and use other sources for non-potable water needs.

Q *The impact of climate change on our water resources has been the buzz of late. How will SPAN adapt to climate changes to ensure the efficiency of water services?*

One of the main victims of climate change, other than the energy sector, is the water sector. The current focus on climate change impact is on energy transition but we should also raise our focus on the impact of climate change on water resources. Studies show that most ESG initiatives are focused on energy while water conservation is at the bottom. Why? This is because energy is expensive but water, especially in Malaysia, is cheap. However, water is needed for everything, including the production of energy as powerplants need water to operate.

Therefore, to combat climate change, we should start with the conservation and preservation of our current water resources as I had mentioned earlier. As a developing country, we often carry out deforestation for development projects. Forests are crucial, not only for carbon capture but also for water catchment as rain is intercepted by trees, allowed to penetrate into the ground and then it is stored in catchment areas. Replacing forests with impervious urban areas will cause rainwater to be discharged as surface runoff which drains rapidly into rivers and the sea.

Deforestation also causes floods and an increase in water pollution. Therefore, education and the raising of awareness on this issue is very important especially in schools. In a recent commission meeting, SPAN brought up this issue and we are looking at working closely with the Ministry of Education to better promote the importance of climate change and water conservation to the public. Apart from SPAN, we also need a multi-agency approach to ensure that deforestation and development are being monitored, controlled and enforced in a sustainable manner to mitigate the worsening of the multiple water hazards mentioned above.

SPAN is also going to make available an App called LCOS (which will be free for two years) for our operators to help them monitor the consumption of energy of different processes within their treatment train and from there, be able to mitigate the issue more precisely.

We will also start looking for new sources of water such as water reclamation, new water storages etc. Reclaimed water can be used as non-potable water for commercial and industrial uses, construction, manufacturing, plantations etc. Currently these industries are using potable water but they may have to remove certain compounds found in drinking water but which are not required as well as put in additional nutrients/chemicals required for their specific purposes.

New water storage space can include off-river storages and reservoirs, rainwater harvesting tanks, underground water storage tanks, etc. Reduction of NRW losses and treating our water as a national security issue are major components in combating declining water resources due to climate change.

Q *SPAN has declared that domestic consumers in Peninsular Malaysia and the Federal Territory of Labuan will have to pay a higher water tariff starting 1 February 2024, at 22 cents per cubic meter on average. Can SPAN elucidate and discuss the requirements and difficulties associated with increasing and streamlining the water tariff?*

Nobody wants to pay more for anything; that's the bottom line and that's fair. Many people feel that water is a fundamental right and that it is the government's responsibility to provide it. However, we must also acknowledge that water is not free, so we should use it responsibly (*secara hemah* in Malay).

There are costs attached and the people have to pay. Even with the tariff increase, the cost of water is still subsidised because, on average, the production cost is RM0.172 per cubic metre but the government recognises that it cannot push the water tariff too high as this will affect the livelihood of the less privileged. Everybody wants water for free but that is not possible anymore although we have asked operators providing water to B40 groups to continue to provide for them with targeted subsidies.

I would like to motivate the discussion in this way: That we should look at the tariff increase as an investment in water. The water tariff comprises of 3 bands: CapEx, OpEx, Profit and, in some countries, Environment. We haven't touched Environment yet because this is planning for the future. It is an investment to ensure that water will be available to all Malaysians, 24/7.

There are communities, for instance in Langkawi, who are only provided with water for one hour daily and even then, what they get is only a trickle of water. This is a situation we want to avoid. Fundamentally, we can live without food but not without water. However, it is only when we pay for water that we will learn to respect the resource and use it more responsibly.

Q *Rapid technological advancement has transformed operations in many industries in many ways. How has SPAN exploited the growth spurt of IR4.0 to improve its services and operations?*

IoT is one IR4.0 technology that is very important to water operators as critical operational information is made available in real-time for online monitoring, management and decision making. States like Selangor, Penang and Johor are quite up to date with the adoption of technologies while others are lagging behind. There is still a lot of work to be done.

Adopting new technologies requires money and currently, most of our operators don't have the funds. This is why SPAN is currently subsidising the LCOS App for operators. As part of Water Sector Transformation 2040, we have to start looking more and more into the adoption of relevant technologies for managing water for the benefit of the people.

Q *Water Sector Transformation 2040 represents the future approach to water management in Malaysia, focusing on the dual goals of ensuring water sustainability and contributing to the country's GDP. How can SPAN actively contribute to the realisation of these objectives?*

Coming back to the work that we need to do with regards NRW losses, implementing new water storages and water reclamation works, these are activities with significant multiplier effects.

For example, when we spend RM10 billion on water pipe replacements and rehabilitation works to reduce NRW losses, we will also be creating jobs throughout the whole supply chain.

We must be careful about how we do it though. We should not allow one company to monopolise the job. We have to ensure that as many local businessmen and contractors as possible - and from different parts of the country - are able to be part of it. In doing so, they can develop new skillsets, new technologies etc. so that everybody benefits from it and massive changes arise from it.

The same applies to water reclamation. We will need new plants and use new technologies. With these, we will create new jobs for engineers, technicians etc. There is a long list of positive multiplier effects arising from it.

Therefore, I urge the government to prioritise water as a national security issue. An estimated RM10 billion per year over 3 years (total RM30 billion) has to be invested in the water sector to carry out the aforementioned works to ensure water sufficiency and to transform the sector for a more sustainable future for the country.

Clearly this is not sufficient, so we will also have to work closely with the private sector to raise funds, to immediately start the planning and infrastructure development works (which take time) to address this impending crisis. If nothing is done now, it will be too late and too costly when the crisis hits because the RM30 billion required today would have inflated to RM60 billion by then.

Q *Can you highlight significant achievements of SPAN since its inception and what ground-breaking feats it hopes to accomplish in the near future?*

I have been here for only a year and I will need to be humble about this. What we have achieved is the increase in water tariff. For example, the last increase in water tariff in Pahang was 42 years ago, in Terengganu it was 22 years ago and in Penang it was 15-16 years ago, so this was long overdue. It was good that the Prime Minister was supportive and had raised the issue with Majlis Air Negara. It received broad support from everybody so there was a consensus that water tariff had to be increased.

Why is this a good investment for the future? For example, the Pahang water operator owes TNB a whopping RM1 billion in electricity bills. But the problem is that the only source of income for the operator comes from Gebeng and Kuantan. Of the 72 water treatment plants in Pahang, 38 are located in FELDA schemes which don't offer any revenue and so must be covered by the profits from Gebeng and Kuantan. This is why increasing the long overdue water tariffs to ensure sustainability of the water industry is critical. Somehow it seems only the energy sector gets the tariff increase which is why it is important for us to push the water sector up to a point where the entire community/society acknowledges that this (water) is a priority. ■

Charles Anthony Santiago

Mr. Charles Anthony Santiago is the Chairman of the National Water Services Commission (SPAN) for the second term since March 2023. He spearheaded national reforms on water management and led the internal transformation of SPAN to be more effective in responding to the operator's demands including national water reforms and launched an anti-plastic pollution and rivers cleaning campaign. He is Chairman of the Association of Southeast Asian Nations (ASEAN) Parliamentarians for Human Rights (APHR). He also served as Member of Parliament and Chairman of the Human Rights & Constitutional Affairs Select Committee.

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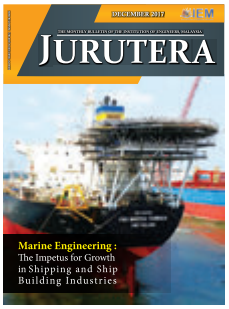

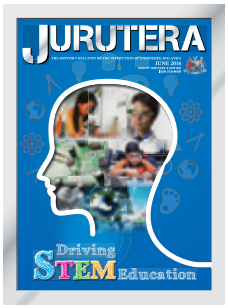

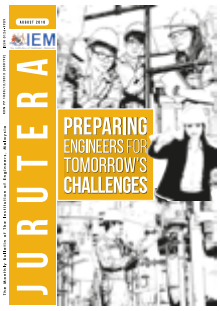

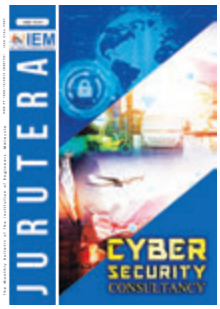

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IEM Celebrates Blue Sapphire Anniversary

The Institution of Engineers, Malaysia (IEM) started its Blue Sapphire Annual General Meeting on 20 April 2024 with clear morning skies.

Members attending the AGM physically at Malakoff Auditorium, Wisma IEM

The 65th AGM was conducted in full hybrid format to facilitate broader participation, particularly from members residing outside Klang Valley, to observe the presentation of reports on the Institution's activities during the previous session and the distribution of regular IEM awards. Members had the option to participate either physically or virtually. Quorum was met by 8.45 a.m., with over 200 members logging in online, surpassing the required minimum attendance of 100. Of the total 968 members who attended, there were 133 physical and 835 online participants. This marked a significant increase from last year's total of 834 participants (94 present in person and 740 online).

Getting ready to start the 65th AGM. From left: Ir. Ts. Prof. Dr David Chuah, Ir. Prof. Dr Jeffrey Chiang, Ir. Prof. Dr Norlida Buniyamin and Ir. Prof. Dr Zuhaina Zakaria

With only 133 members present physically, the AGM primarily utilised the Malakoff Auditorium. Having achieved quorum ahead of schedule, President Ir. Prof. Dr Norlida Buniyamin promptly called the AGM to order at 9:00 a.m.

After a briefing by Honorary Secretary Ir. Prof. Dr Zuhaina Zakaria on the rules for conducting the AGM, given the dual attendance modes of online and physical, Prof. Dr Norlida presented her report on activities undertaken during the previous session. Throughout the session, the President, Vice Presidents, and Honorary Secretary had participated in various meetings with government agencies and departments to articulate IEM's stance on numerous current issues impacting the engineering sector. She also highlighted the latest IEM Corporate Social Responsibility (CSR) initiative in line with her last Presidential Address of Leaving No One Behind where the focus was on the Orang Asli children.

Then Prof. Dr Zuhaina presented her report on the Institution's activities during the preceeding session. The AGM learnt that, as of March 31, 2024, membership stood at 51,322, indicating a growth of 6%. The majority of the membership comprised Student Members, constituting approximately 60% of the total. In terms of member disciplines, Civil Engineering remained the predominant field, accounting for one-third of the total membership, followed by Mechanical and Electrical Engineering. Members raised concerns over the stagnation in membership numbers, prompting a request for the IEM Council to address the matter with due seriousness.

She further reported that for the session 2023/2024, IEM organised 190 technical talks, 49 technical visits, 72 courses and seminars, 6 conferences and symposiums as well as 3 competitions, indicating a highly active year for

the Institution. She also reported that the following staff members had been promoted:

Ms. Norshafiqah Sha'ari	Promoted to Assistant Manager
Ms. Mirdeeliani Amir	Promoted to Senior Executive

She announced that the following staff members had completed 10 years of service with IEM.

Ms. Roselein Lodo Samy
Ms. Ratnaidayah Zaini
Ms. Parimala Maruthamuthoo

Ms. Nurul Aida Mustafa also received a long service award for having completed 20 years of service with the Secretariat.

On the financial side, Honorary Treasurer Ir. Ts. Prof. Dr David Chuah Joon Huang reported that last year, IEM achieved a surplus of RM160,039.00 and that for the second year of the ENGINEER exhibition, the income generated had increased by 20.7%. In addition, income from IEM activities also increased by approximately 11%, recording an income of RM769,369.00.

The IEM Election Officer, YBhg. Dato' Paduka Ir. Prof. (Dr) Hj. Keizrul Abdullah, then announced the winners of the various positions in the Council for session 2024/2025 as listed below:

Deputy President	Ir. Yau Chau Fong
Vice Presidents	• Ir. Ts. Prof. Dr David Chuah Joon Huang • Dato' Ir. Wan Nazari Wan Jusoh • Ir. Dr Bernard Lim Kee Weng
Honorary Secretary	Ir. Ts. Prof. Dr Tan Chee Fai
Honorary Treasurer	Ir. Dr Siow Chun Lim
Council Member – Chemical Representative	Ir. Kim Kek Seong
Council Member – Ordinary Representative	• Ir. Dr Angelia Liew San Chuin • Ir. Prof. Dr Zuhaina Zakaria • Ir. Begum Irdawati Dowlad Rahuman • Ir. Chong Chee Yen • Dato' Ir. Nor Hisham Mohd Ghazalli • Ir. Khoo Chee Min • Ir. Abdul Razak Yakob • Ir. Dr Chan Swee Huat • Ir. Alex Looi Tink Huey • Ir. Sukhairul Nizam Abdul Razak

He added that the number of ballots received for this session was the highest recorded in the past decade, achieving a 20.75% turnout, although it still indicated that around 80% of eligible members had abstained from voting. On a positive note, he highlighted that IEM had realised significant cost savings since implementing the e-balloting module four years ago. The cost of the entire current process amounted to only about 10% of the previous cost of approximately RM30,000.00 when using postal ballots.

The recipients of the Tan Sri Ir. Hj Yusoff Ibrahim Final Year Project Competition awards were then invited to receive their prizes from the President. This was the seventh consecutive year of organising this competition, which had consistently garnered positive feedback from universities. This year, a total of 40 submissions were received and the winners were as listed below:

1st Place	
Tang Yien Yu	Curtin University Sarawak
2nd Place	
Muhammad Faris Shah Shabudin	University of Wollongong Malaysia
3rd Place	
Ho Kenyi	Curtin University Sarawak
Consolation Prizes	
Thean Zhen Hui	Universiti Tunku Abdul Rahman
Lee Joon Yew	UCSI University
Jasfeeqree Jasmih	Universiti Malaysia Sabah

Muhammad Faris Shah Shabudin also won the Special Prize which was introduced last year for Best Presenter. However, the three winners from Sabah and Sarawak could not be present to receive the prizes.

The following Members who had successfully transferred to the grade of Fellow in the last session were also presented with certificates and pins.

Ir. Dr Chong Chien Hwa	Chemical Engineering
Ir. Syed Fadzil Syed Mohamed	Mechanical Engineering
Ir. Prof. Dr Lau Hieng Ho	Civil Engineering
Datuk Ir. Azlan Robert Abdullah	Electrical Engineering
Dato' Ir. Janang Bungsu	Civil Engineering
Ir. Sean Wong Siong Ung	Civil Engineering
Ir. Dr Zarabizan Zakaria	Civil Engineering
Ir. Assoc. Prof. Dr Wong Yew Hoong	Material Engineering
Ir. Ang Kok Keng	Civil Engineering

For the Best Technical Paper category, the following recipients were presented with a medal and certificate:

Tan Sri Hj. Yusoff Ibrahim prize for Best Technical papers submitted by Corporate Members	
Civil Engineering Category	Ir. Ts. Prof. Dr Teo Fang Yenn Paper title: Ammonium Adsorption by Surface Sediments in the Loughor Estuary, UK
Electrical Engineering Category	Ir. Toh Leong Soon Paper title: Foundation Earthing System – Its Application and Electrical Safety Considerations
Raja Tan Sri Zainal Prize for Outstanding Technical paper on any subject contributed by Graduate Members	
Civil Engineering Category	Ts. Dr Nor Azlina Alias Paper title: Performance of Sandwiched Kenaf Fibre and Sugarcane and Sugarcane Husk in Treating Pavement Runoff

Thean Lip Thong Prize for Outstanding Technical Paper on any subject contributed by Student Members	
Civil Engineering Category	Ms. Aini Hidayati Shahrir Paper title: Trend Study on COVID-19 Pandemic Lockdown Impact on Rivers in Selangor, Malaysia

Prof. Dr Norlida handing over the chain of office to the new President, Ir. Prof. Dr Jeffrey Chiang Choong Luin

The new lineup. From left: Honorary Treasurer Ir. Dr Siow Chun Lim, Deputy President Ir. Yau Chau Fong, President Ir. Prof. Dr Jeffrey Chiang Choong Luin and Honorary Secretary Ir. Ts. Prof. Dr Tan Chee Fai

The recipient of the Young Engineer Award for 2024 was Ir. Assoc. Prof. Dr Wong Yew Hoong for the academia category. He was presented with a plaque and a cash prize of RM1,000.00.

Dr Wong, who holds a Ph.D from Universiti Sains Malaysia, is an Associate Professor with the Department of Mechanical Engineering, Faculty of Engineering, Universiti Malaya. He was also recipient of the Anugerah Tokoh Muda Kejuruteraan Negara 2023 from the Board of Engineers, Malaysia.

The IEM Woman Engineer 2024 award was presented to Ir. Ts. Assoc. Prof. Dr Syuhaida Ismail. She earned her Bachelor's degree in Civil Engineering from UTM and a Master's degree in Project Management from the University of Melbourne. She subsequently attained her PhD from UTM.

She is the Chair of Women Engineers Section and is serving as Director of Research at Maritime Institute of Malaysia. She has won numerous awards during her career, including the Johor State Trade Union Innovation Award (2022) by the Johor Department of Trade Union Affairs and Best Paper and Best Presenter Award (2022) at the International Research Colloquium on Engineering Management organised by University of Melbourne.

Tokens of appreciation were also presented to Council Members who had completed their terms of office.

Past President	Y.Bhg. Academician Tan Sri Datuk Ir. Prof. Em. (Dr) Ahmad Zaidee Laidin
Vice President	Ir. Mohd Khir Muhammad
Council Member – Chemical Representative	Ir. Assoc. Prof. Dr Chong Chien Hwa
Council Members - Ordinary Representative	• Ir. Dr Vigna Kumaran Ramachandaramurthy • Ir. Assoc. Prof. Dr Lee Tin Sin • Ir. Mah Way Sheng • Ir. Sreedaran Raman • Ir. Lee Cheng Pay • Ir. Dr Kannan M. Munisamy • Ir. Wong Chee Fui • Ir. Ts. Assoc. Prof. Dr Hum Yan Chai • Ir. Tiong Ngo Pu
Appointed Council Member	• YBhg. Dato' Ir. Prof. Dr Mohd Hamdi Abd Shukor • Ir. Lai Sze Ching • Ir. Gopal Narian Kutty
Women Engineer Section Representative	Ir. Noorfaizah Hamzah
Branch Representatives	• Ir. Thayala Rajah Selvaduray *(Southern)* • Ir. Ong Yee Pinn *(Melaka)* • Ir. Chong Boon Hui *(Miri)*

After the announcement of the new office bearers and the presentation of all awards and mementos, Prof. Dr Norlida extended her gratitude to all members, particularly acknowledging the support she had received from the Past Presidents, Council and Excomm during her two-year presidency. She also conveyed her appreciation to the Secretariat, led by the Honorary Secretary Ir. Prof. Dr Zuhaina Zakaria, for their unwavering cooperation.

After that came the highlight of the AGM, when Prof. Dr Norlida handed over of Chain of Office to the new President, Ir. Prof. Dr Jeffrey Chiang Choong Luin, who, in turn, presented her with a token of appreciation.

Prof. Dr Jeffrey Chiang then presented his Presidential Address, titled ESG as Catalyst for Engineering Evolution, which focused on the following key areas:

i. Keeping our own house (IEM volunteers and IEM Secretariat) in order.
ii. Keeping and serving IEM membership to the best of our ability.
iii. Keeping and fulfilling the mandate given to us to realise the Vision and Mission of the Institution.
iv. Keeping up with the times, technology and issues of the day.

The full text of the Presidential Address is also featured in this issue of the *JURUTERA*.

The 65th AGM was then adjourned at 11.50 a.m. with a note of thanks to the members who had attended. ■

IEM
The Institution of Engineers, Malaysia

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THE MONTHLY BULLETIN OF THE INSTITUTION OF ENGINEERS, MALAYSIA

JURUTERA

The monthly magazine, ***JURUTERA***, has a circulation of over 50,000 among certified members of IEM.

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64th *Presidential Address*

Ir. Prof. Dr Jeffrey Chiang Choong Luin
Session 2024/2026

ESG as Catalyst for Engineering Evolution

Immediate Past President, Ir. Prof. Dr Norlida Buniyamin, Deputy President, Ir. Yau Chau Fong, Vice-Presidents Ir. Dr Siti Hawa Hamzah, Ir. Fam Yew Hin, Ir. Chen Harn Shean, Ir. Ts. Prof. Dr David Chuah Joon Huang, Dato' Ir. Wan Nazari Wan Jusoh and Ir. Bernard Lim Kee Weng, respected IEM Past Presidents, Members of the Outgoing and & Incoming Excomm and Council, Datuk Datuk, Datin Datin and fellow IEM members,

A very good morning to all of you and thank you for your presence here at our 65th Annual General Meeting (AGM) on this day, 20 April 2024. Special acknowledgements to the still serving and outgoing Council Members for Session 2023/2024, not forgetting in particular still serving IEM Past Presidents, including Immediate Past President, Prof. Norlida.

Let me welcome and thank all IEM Fellows, Corporate Members, Graduate Members, Senior Members, Student Members, Associate Members, Incorporated Members and the new Grades of Members, being Engineering Technologists and Engineering Technicians.

I am very honoured to be standing here to deliver my Incoming Presidential Address 2024 although this is not my first time standing here during an AGM to deliver a speech or a report.

I have served the IEM Council in two key office-bearer positions requiring such efforts – i.e. as Honorary Secretary (Session 2008/2010 and Session 2012/2014) and as Honorary Treasurer (Session 2010/2012 and Session 2014/2016). My past roles have helped me to understand IEM and its operations, thus preparing me, I hope, to face the challenges in the next two years, albeit at a higher level.

My fellow IEM members,

My Presidential Address this morning shall touch on the following areas which I deem as key to the sustainability and success of The Institution of Engineers, Malaysia (IEM) in the years to come.

1. Keeping our own house (IEM volunteers and IEM Secretariat) in order.
2. Keeping and serving IEM membership to the best of our ability.
3. Keeping and fulfilling the mandate given to us to realise the Vision and Mission of the Institution.
4. Keeping up with the times, technology and issues of the day.

Besides keeping tabs on the four key areas mentioned above, the proposed theme for my Presidential Address 2024 is to carry out our tasks and work hand-in-hand with

the over-arching realisation of ESG (Environment, Social and & Governance) targets.

Hence the theme shall be ESG as Catalyst For Engineering Evolution which shall appear in three upcoming key mammoth events: IEM Annual Dinner and Awards Night (1 June 2024) at One World Hotel in Petaling Jaya, the IEM Convention and ENGINEER Exhibition 2024 (18-21 September 2024) at Kuala Lumpur Convention Centre and CAFEO42 (42 Conference of ASEAN Federation of Engineering Organisations) on 22-25 October 2024 at Sabah International Convention Centre (SICC) Kota Kinabalu, Sabah, hosted by our IEM Sabah Branch.

Malaysia (as represented by IEM) is the Chair of AFEO, so we will be hosting CAFEO42. For this, I would like to thank Sabah Branch for its willingness to organise and act as host for CAFEO42, with the full support of IEM HQ and all our Branches.

My fellow IEM members,

1. Keeping our own house (IEM volunteers and IEM Secretariat) in order.

It has been said that we should keep wise counsel to ourselves before we dish them out to others. IEM has been around for 65 years and we have 50K members (the bulk of which are students). This does not bode well for us.

Over the years, our Institution has relied on membership subscriptions as the main source of income annually (over 65%) as reported by our Honorary Treasurer in today's Financial Statement report. We have endeavoured to establish other income streams, such as paid events and activities, property rentals, insurance, credit card services to members, IEM merchandise sale and uploading of IEM talks to YouTube etc. At the same time, we are also mindful of the high expenditures incurred annually, of which the bulk is personnel emoluments (i.e. staff salaries, ex-gratias, etc). We have to think of ways to expand our income streams to generate more revenue to reduce dependency on subscriptions and to lower the cost of operations.

Some years ago, one of our Past President (back in 2010/11) made a resolution for IEM to hit 100K membership by 2020. On a positive spin, we are about half-way there but we have to realise too, that numbers do not tell the whole story; what we need are more membership numbers in Corporate and Graduate grades, which are more sustaining and not lopsided towards student memberships. Hence, our Membership Drive & Promotion must have the full support of all IEM volunteers and committees to carry out membership recruitment drives and, most importantly, to convert Student Members to Graduate Members and to undertake more professional interviews (PI) to boost corporate membership (from the current 12K to at least 25K).

As for issues with the Board of Engineers Malaysia (BEM), there are two matters, i.e. the launch of Outcome-Based Professional Assessment Examination (OB-PAE) by the Board and the draw-down of IEM representations from five to three, which I find quite perplexing. I have to admit that I have never served in the Main Committee of BEM, even when I was IEM Hon. Secretary, IEM Hon. Treasurer or at Vice-President and Deputy President levels. I do not wish to make any conclusion from this but it is perplexing. Anyway, we have other priorities to tackle for our members.

For now, I want to focus on the launch of the OB-PAE which comes with new ways to assess PAE candidates without them having to submit a Report of their Work Experience or a Technical Report of a significant project under their charge. On top of that, BEM is doing away with the compulsory written essay for Section A (Technical) – which is required only if a candidate does poorly in the interview – which is also changed into an oral presentation (30 mins) with Q&A by two examiners.

I believe the essay for Section B (Ethics) is still compulsory but I would not be surprised if this will be optional as well. It seems that BEM is trying to make it easier for graduate engineers to make their mark to PE (Tier 1). Maybe ensuring that more engineers attain the "Ir." title is its main goal, so as to boost the number of PEs in this country. I suppose the statisticians in the Government are not too happy with our low "PE number: Population" ratio which compares unfavourably to that of our neighbours and regional partners/competitors.

Anyway, my focus here is to ensure that we maintain our own standards of competency in the IEM Professional Interview with our Outcome-Based PI. I believe our Standing Committee on E&Q are doing its best in running the PI process – which by the way, is in accordance with the benchmark set by IEA and IPEA and agreed upon by Malaysia, to gauge the professional competency of qualified engineers in this country. I have no qualms about our IEM volunteers carrying out this PI assessment task. I believe the passing rate for our PI is about 75% to 80%, which is a bit on the high side, so IEM should not be accused of being too harsh and strict, as compared to the Professional Engineer with Practicing Certificate (PEPC) examination conducted under the Board, with its passing rate of 5% thereabout, but definitely less than 10%.

In order to overcome the likelihood of fewer applicants coming to IEM PI due to the "easier pathway" of BEM PAE, we shall endeavour to communicate better with our members and the community on the need to maintain standards of engineering practice in this country. Also, to make our application process more user-friendly with better streamlining and less tedious in submission is something IEM will undertake.

The other part about keeping our house in order is how we can make the IEM Secretariat more efficient and not go the path of many other cumbersome organisations, be they public, private or NGOs – with an increasing number of full-time staff to handle increasing numbers of committees, subcommittees, formation of TDs and SIGs etc., but without real and meaningful outputs. We may have to think of merging or even removing some TDs and SIGs to streamline operations. This can go a long

way to resolving the rising cost of human resources and operations.

At the same time, I would like to urge our volunteer members serving in the various committees and those holding office, to be more considerate in dealing with the Secretariat staff when attending and chairing meetings as well as working side by side in events and activities. To serving members who are corporate leaders or holding high positions at your workplaces, I suggest you all leave your top hats or get off the high horses when you are at IEM, interacting with other serving volunteer members and the hardworking secretariat staff.

Enough about us not throwing stones in our own glass house.

2. Keeping and serving IEM membership to the best of our ability.

Let us move into how we (IEM volunteers and Secretariat) can serve the needs and benefits of our own members. The problem that IEM had faced in the past few years or maybe even longer, was that IEM had been focusing on many outreach missions. To that end, during my term as IEM President, I would like to forge ahead in the following endeavours:

(i) Collaborating with and joining the efforts of external organisations (both public and private) in the hopes of championing the cause of practising engineers and to uphold nation building but not to the extent of foregoing our duty to listen to our members.

(ii) IEM has become so internationalised that we are now Secretariats of two regional engineering organisations (FEIAP and AFEO) and are very actively involved in IEA, IPEA, WFEO, APEC Engineers, just to name a few. I believe quite a number of our members are not even aware of all these and the real benefits of IEM being the host/secretariat especially in handling the many affairs of these adopted organisations; hence it is imperative that we communicate regularly and consistently with our members of the happenings at the upper echelons, decision makings at the highest level and recent developments in the regional professional arenas.

(iii) My personal vision and mission are to uphold IEM as the premier professional engineering institution in the country, to uphold the voice and ambitions of our members and to provide an outlet and avenue for them to channel their views, wishes and grievances and we, as their focal points, can reach out to the right Government agencies, etc. as part of the voluntary efforts of serving IEM office holders.

(iv) At the same time, we cannot relegate our Standing Committee on Welfare & Member Services to that of a stepchild in comparison to other supposedly higher profile Standing Committees such as Finance, Corporate Affairs, Professional Practice, Examination & Qualification, Activities, etc. This is because Welfare & Member Services is supposed to handle the proposals and adoption of benefits for our deserving members – especially those who are loyal and have been standing by IEM through thick and thin – by providing special benefits in the form of free membership to retired engineers, life insurance and healthcare benefits, corporate rates in hotels and holiday stays, professional indemnity insurance, credit cards and special banking access, special high end to mid-range car prices and many more. We shall constantly be on the lookout for more special promotions and benefits for our loyal members.

(v) Besides the above, education scholarships for members and their children will continue to be given to deserving recipients at special IEM events such as Family Day, Engineering Week, etc.

(vi) As for regular IEM activities, members will be charged at our self-organised seminars, courses, workshops and conferences at very reasonable rates compared to outside corporate/market rates. They will also have easy access to earning continuing professional development (CPD) hours for renewal of the professional practicing status – this is from the high achievable efforts of our Standing Committee on Activities.

There is so much more that we can do for our members. The above is just the tip of the iceberg, in my humble opinion. Let us, the volunteers, strive to work harder to seek out and offer them more benefits.

My fellow IEM members,

3. Keeping and fulfilling the mandate given to us to realise the Vision and Mission of the Institution.

Without doubt, IEM has Vision and Mission statements (as extracted from IEM webpage).

Vision

The Institution of Engineers, Malaysia aims to be the premier learned engineering society championing the adoption of ethics and professional best practices in all sectors of the industry.

Mission

IEM shall

- Promote sound professional engineering practice in support of the socio-economic development objectives of the nation.
- Service the needs and interests of its members and the public and uphold the social standing image of the engineering profession.
- Contribute towards nation building and strive to enhance society's consciousness of science and technology.

The Vision statement is fine. It states clearly where we would like IEM to be, especially in the minds and opinions of people relevant to our ideals.

As for the Mission statement, I suppose item 2 should be on top, in line with my stated opinion earlier about giving top priority to our members and keeping our own house in order as well as upholding the profile and image of engineers and engineering as a noble profession in the eye of the community and public.

The other two Mission statements have to do with IEM contributing either in a leadership role or in support of initiatives or actions to uphold/elevate issues of engineering for the benefit of nation building. These will have to be as joint collaborations with Government agencies (such as JKR, JPS, BEM, CIDB, MITI, MOSTI, KPKT), fellow professional bodies (such as PAM, ACEM, MBAM, REDHA, RISM, MIP), and universities/colleges (both public and private) that IEM has signed MOUs with. We will continue to collaborate with them to ensure that the quality of teaching and learning as well as relevance of engineering content and course delivery are maintained or enhanced, in co-operation with Engineering Accreditation Council (EAC).

To that end, I pledge that IEM shall work hand in hand with these organisations/institutions to serve the aspirations and needs of the community and the nation. We have to thank our Professional Practice, Corporate Affairs and Examinations and Qualifications Standing Committees for taking the lead in staking IEM's stand and interests in these issues.

We may have to tweak the Vision and Mission statements slightly in order to cover IEM's initiatives and current active and leading roles in holding Secretariats for Regional Co-operation/Collaboration in The Federation of Engineering Institutions of Asia and the Pacific (FEIAP) and ASEAN Federation of Engineering Organisation (AFEO). I firmly advocate for the continued pursuit of these endeavours as they do enhance the value of IEM membership significantly. These initiatives provide members with invaluable opportunities to broaden their horizons beyond domestic borders and to tap into international markets. Moreover, they serve as platforms to showcase Malaysia's capabilities, technological prowess, exemplary work ethics and adept management skills in steering multinational engineering projects.

On the whole, we are being served well by our Corporate Affairs and Professional Practice Standing Committees in assisting to achieve many of our aspirations as depicted in these Vision and Mission statements. Of course, to that end, we must also give credit and credence to other supporting Standing Committees such as Finance (for budgeting and cost control measures), Admission and Practical Training (for skills upgrading and training of engineers among our membership ranks) and Information and Publications (for communicating ideas, views and latest technological advancements and knowledge to members).

Let me move on to the fourth and last area for my focus area in my presidential address.

4. Keeping up with the times, technology and issues of the day.

In terms of IEM aspirations for our members, community and nation, we have to keep an eye on the latest developments and happenings, both locally and internationally.

I would like to highlight the following key aspects:

(a) The theme Environment, Social and Governance (ESG) for practice and adherence to, by IEM.
(b) Evolution of engineering practice in the direction of Artificial Intelligence (AI) and Industrial Revolution (in both IR4.0 and C4.0).
(c) Contributions by IEM Technical Divisions, Special Interest Groups and various Sections (Women Engineers and Young Engineers).
(d) Annual events such as IEM Convention and ENGINEER Exhibition.
(e) Position Papers, Guidelines and other IEM publications for review and adoption by Government agencies.

The theme ESG was adopted in view of the importance of continuing the previous presidency theme which focused on the sustainability of our institution and our profession in light of the worldwide Covid-19 pandemic we faced. For 2024, IEM shall embark on promoting the ideals of ESG which are preserving and protecting our environment, fostering the relationships and interlinks of engineering technology advancement with social aspect (as in economy, trade, politic, law and order and, last but not least, poverty) and ensuring that rules and regulations in conjunction with ethics apply fully and comprehensively in engineering practices so that we, the engineers, are held accountable to the public in works produced as well as not compromising on safety, health and welfare of all stakeholders.

My fellow IEM members,

IEM has published a number of Position Papers in all relevant areas of engineering affecting the public welfare and a number of these focused on IR4.0 and C4.0, which are at the stage of preparing White Papers for JKR and KRR for consideration. The many IEM Technical Divisions and Special Interest Groups will be expected to continue their contributions to draft and publish Malaysian Standards and Industrial Papers and Standards for the engineering industry and fraternity. These efforts are well appreciated as they collaborate with Standards Malaysia (under the auspices of MITI).

During his presidency term, Ir. Ong Ching Loon initiated the well-received and important annual event, IEM Convention and ENGINEER Exhibition which was held for the second year in 2023. This event will be continued as part of the IEM tradition during my presidency term. So, do anticipate the 2024 IEM Convention & ENGINEER Exhibition coming up in mid-September 2024, to be held again at KLCC. We are expecting a bigger and grander event this year, with more visitors and exhibitors from overseas, especially from China, Japan and South Korea. There will be more parallel activities, symposiums and the like by our various Technical Divisions, SIGs and Sections.

Let me emphasise again that the theme, ESG, will be prevalent throughout this convention and exhibition to highlight the commitment of IEM to champion the ESG issue as part of our nation's effort and commitment. The ESG theme will also take centrestage at the upcoming 65th IEM Annual Dinner & Awards Night on 1 June 2024 at One World Hotel. Please mark your diary so that you will not miss out on a very special evening of good food, entertainment, awards and lucky draws.

Last but not the least is the 42nd Conference of Association of Engineering Associations of ASEAN (CAFEO42), which will be hosted by IEM Sabah Branch at the new Sabah International Convention Centre (SICC). I visited SICC with the IEM delegation in mid-January 2024 and can assure you that it has facilities and amenities for international events like CAFEO42. We can expect over 1,500 delegates from our 10 ASEAN engineering partners as well as other international organisations.

By the way, Sabah is organising this event on behalf of IEM as Malaysia has been selected host for 2024 at the last CAFEO41 in Bali. IEM will also be the Chair of the ASEAN Federation of Engineering Organisations (AFEO) which is the owner and champion of CAFEO42. As mentioned, IEM had been hosting the Secretariat of AFEO for the last 30 odd years. So, I strongly urge IEM members (both in the peninsula as well as in Sabah and Sarawak) to make their way to Kota Kinabalu for this event on 22-25 October.

For the last item, which is related to keeping up with the times and issue of the day, let me refer to a news article in the New Straits Times on 21 February 2024, in which our then Madam President spoke on the need to address the issue of competitive starting salaries as being crucial for local engineers' career advancement. For your information, the content of that article was contributed mainly by the Chair of our Standing Committee on Information & Publications, Ir. Abdul Razak Yakob, with some tweaks here and there by a few Excomm members, including yours truly. Let me say that this issue is very important to us for sustaining our young engineers and our profession for the future. We, at IEM, shall prioritise this during my presidency term.

My fellow IEM members,

In conclusion, as always at the end of every presidential address, every IEM President including yours truly, humbly seeks the support of all IEM members to ride along with me for the journey ahead in 2024 and till the next AGM. We will work together for the benefit and betterment of our members, our community and our nation.

I thank you all from the bottom of my heart for your presence today to listen to my presidential address. Thank you all once again for your full support for me, our volunteers and the Secretariat. ■

NOTICE OF IEM (MELAKA BRANCH) OFFICE BEARERS 2024 / 2025

The Institution of Engineers, Malaysia (IEM) Melaka Branch had its 37th Annual General Meeting on 23rd March 2024 and we are pleased to introduce the new IEM Melaka Branch Office Bearers for session 2024 / 2025:

IEM Melaka Branch Executive Committee 2024 / 2025	
Chairman	Ir. Lim Su Hian
Vice Chairman	Ir. Sh. Ja'afar Sh. Ismail Ir. Lam Choon Kay
Honorary Secretary	Ir. Ho Choon Kwang, William
Honorary Treasurer	Ir. Sim Wooi Keat
Immediate Past Chairman	Ir. Ong Yee Pinn
Committee Members	Ir. Lam Ah Hang Ir. Harmidi Ali Ir. Sures Kumar Ganesan Ir. Hj. Abdul Rahman Mohamad Said
Advisor	Ir. Ooi Kah Huat
Auditor	Datuk Ir. Mohamed Salleh Yunos Ir. Vellan V. Perumal

NOTICE OF IEM (KELANTAN BRANCH) OFFICE BEARERS 2024 / 2025

The Institution of Engineers, Malaysia (IEM) Kelantan Branch had its 12th Annual General Meeting on 9th March 2024 and we are pleased to introduce the new IEM Kelantan Branch Office Bearers for session 2024/2025:

IEM Kelantan Branch Executive Committee 2024 / 2025	
Chairman	Ir. Ts. Hj. Abrizan Abdul Kadir
Vice Chairman	Ir. Hj. Nik Burhanuddin Nik Yusoff Ir. Roslim Ibrahim
Honorary Secretary	Ir. Che Sufian Che Hussin
Honorary Treasurer	Ir. Hj. Mohd Anuar Musardar Hj. Yusoff
Immediate Past Chairman	Ir. Hj. Nik Ab Hadi Hassan
Committee Members	Ir. Ts. Mohd Danial Zammeri Ir. Ts. Wan Muhammad Faisyal Mohd Noor Ir. Hj. Ahmad Zawawi Mohamed Ir. Ts. Zakaria Daud Ir. Hj. Mohamed Talmizi Mohd Yusoff Ir. Cheok Ka Hiang

ESG as Engineering Catalyst to Innovate, Integrate & Inspire

Newly-elected IEM President Ir. Prof. Dr Jeffrey Chiang offers deeper insights into his experiences and perspectives as well as his vision for the future of the institution.

Standing shoulder to shoulder with the IEM leadership for over two decades, Ir. Prof. Dr Jeffrey Chiang is set to drive further progress for the 65-year-old institution. He holds the baton to lead the IEM Council as its new President for 2024/2025. The former President, Ir. Prof. Dr Norlida Buniyamin, handed over the chain of command at the Annual General Meeting (AGM) of IEM on 20 April 2024.

In taking over the helm of the IEM Council, Ir. Prof. Dr Jeffrey is mindful of the need for continuity and stability along with the need to make changes for the betterment and advancement of the institution. However, he is not one to rock the boat drastically and unnecessarily, so he has chosen to build on the presidential theme of Sustainability as espoused by the former President.

Ir. Prof. Dr Jeffrey has opted for the theme, Environmental, Social & Governance (ESG) as he believes ESG can be the catalyst to push for innovation and integration in the engineering industry. In addition, ESG principles can serve to inspire engineers to comply with corporate strategies which focus on protecting the environment and propagating good social ethics and governance.

Elaborating on the ESG-centric theme, Ir. Prof. Dr Jeffrey says: "It makes sense for IEM to tag on to the continuing theme pegged on ESG. It is also aligned with my preferred direction. This is particularly important, especially for our members, our profession and our industry partners as well as the public at large. Environmental issues are always a concern in view of global and local climate change and global general population expansion. Social context is pertinent, since engineers have to work hand in hand with so many stakeholders in the industry and community. Lastly, governance is also an important element to ensure that engineers and IEM place high value on integrity and corporate governance to safeguard public safety and welfare."

He adds that all these factors will also be in line with the hopes and dreams to realise sustainable future development for the next generation of engineers.

He quotes a senior IEM member who had once said that "we have to make IEM relevant to our members and to the industry". This line, he says, has stuck in his mind, making him more intent on ensuring the relevance and sustainability of IEM.

Illustrious Journey

Recalling his journey of 24 years with IEM, Ir. Prof. Dr Jeffrey says he first started to volunteer his services in 2000 as a co-opted graduate member. Backed by academic qualifications in civil engineering, he joined the Civil & Structural Engineering Technical Division (CSETD) and became active in the organising of talks and paid seminars for the division. On occasions, he was also a speaker for such events. Four years later, in 2004, members elected Ir. Prof. Dr Jeffrey as Deputy Chair of CSETD. He went on to chair the division in 2006.

Rising from strength to strength, he climbed the leadership ladder when he won the IEM Council election in 2008 and became its Honorary Secretary and was subsequently elected as the Honorary Treasurer in 2010. "I switched back to being Honorary Secretary in 2012 and then again as Honorary Treasurer in 2014. In 2016, I was elected IEM Vice-President and was assigned to chair the Standing Committee of Activities for two years running, followed by another election win again as Vice President in 2018, this time as Chair of Standing Committee of Corporate Affairs, until 2020," he says, adding that he did not win any office bearer post after that, but continued on as elected Council member for 2020/2021. However, in 2021, he contested and won the post of Deputy President. It was his third attempt and his persistence paid off. He acted in that post for two years right up to the 2023/2024 session.

Immediate Plan of Actions

As the newly-minted President (from 20 April 2024), Ir. Prof. Dr Jeffrey not only delivered his presidential address during the IEM AGM but also chaired the post-AGM Council meeting at the end of the AGM.

He explains: "The first order of the meeting was to name the Vice-President to each of their portfolios as Standing Committee Chairs. Next, I directed the Council to nominate and elect eight council members to join the 11 elected office bearers (President, Deputy President, Hon. Secretary, Honorary Treasurer, and seven Vice-Presidents) in the new Executive Committee (Excomm) line-up. After that, I chaired the post-AGM Excomm meeting to nominate and elect/appoint the newly-elected Excomm members as Vice-Chairs to the seven (7) standing committees."

Continuing, he says that upon one month as President, he would have chaired the first official Excomm meeting in which new initiatives and policy matters would be discussed and agreed upon for implementation at various stages of his Presidency.

"In keeping with my Presidential Address at the AGM on 20 April 2024, I have listed four (4) key plans which will be instrumental to the action plans for this year and beyond. As the first initiative, I think the most important

way to start my Presidency is to instil hope and confidence as well as to elevate ambitions for members, volunteers and secretariat staff members. All must aim for higher levels of achievements," he says.

He stresses that there is much to do within a year and high on his priorities is to stay the course in the plans already in place especially in ensuring the success of big events such as the Annual Dinner, ENGINEER Convention and Exhibition, Conference of the ASEAN Federation of Engineering Organisations (CAFEO) and the ASEAN Federation of Engineering Organisations (AFEO) meetings. Ir. Prof. Dr Jeffrey is also Chairman of AFEO in 2024, in line with Malaysia's role as the Chair of AFEO.

"I want to touch base with our members at the Annual IEM Family Day and to start making inter-state visits to the various branches as well as to conduct online meetings with branch committees and others. For the first year, I will also look into ways to keep our own house (the IEM Secretariat) in order and to strengthen the working relationships within IEM itself which involve volunteers and secretariat staff members," he says.

Equally important to him is addressing pertinent issues that affect members, such as Predictive Index (PI) assessment and engineers' salaries, which need to be studied and deliberated on by the IEM Excomm and Council in order to formulate action plans.

"We will have one-year, two-year, five-year and maybe even 10-year action plans to take us into the future. Among other important actions is the need for me to lead the IEM Training Academy Sdn. Bhd. (IEMTA) as the Chairman of the Board of Directors and to take it into new directions to work hand in hand with the Secretariat and the technical divisions in IEM Activities Standing Committee," he says.

Lingering Issue of Salaries

Efforts to ensure IEM's long-term relevancy also depends largely on attracting young people to join the profession. However, this is now affected by a negative view of engineers' salaries. A low starting salary can ultimately affect the young people's interest in the profession.

"The issue of low salaries for engineers in Malaysia was raised by a senior IEM branch member when this was publicised in the media under the headline *JURUTERA* Miskin. So IEM took the initiative to conduct a quick online survey among its members to gauge their views and responses to the controversial view that local engineers are being underpaid in comparison to other professionals and to engineers working abroad," says Ir. Prof. Dr Jeffrey, adding that IEM handed the survey data conducted in 2022 to the Board of Engineers (BEM) which had requested the data in the preparation of their report to the Prime Minister's Office.

"To this day, for whatever reasons, the outcome of the BEM report has not been disclosed or revealed. In light of this issue remaining unresolved, IEM's next step will be to conduct a new round of survey among its members. I will suggest that IEM sets up its own Task Group to prepare an in-depth analytical and statistical study report of the views and consensus among practising engineers who are registered IEM members, on how to address the issue," he says.

Ramping Up IEM Membership

Another thing that IEM will continue to focus on is to strengthen its membership. Reduction and stagnancy in membership numbers have, from time to time, become a subject of concern. Ir. Prof. Dr Jeffrey says: "There is a tendency for some quarters to place great importance and relevance on numbers, i.e. the more numbers you have, the greater your strength. Hence, the phrase, 'strength in numbers'.

"It is important therefore, to ensure that we do have the strength in numbers and this will be one of the matters to be taken up by our Standing Committee on Applications & Practical Training (APT) in close collaboration with all other Standing Committees such as Activities, Welfare, Information & Publications, Professional Practices and so forth. Membership drives, publicity and promotion activities, talks, seminars and other ways to recruit more members will be part and parcel of the core areas of IEM.

"However, I must say that since 2000, the time that I have been active in IEM and in my various roles as an IEM office bearer, I have not seen any dip or drop in the efforts made to carry out membership drives. I had been appointed as speaker in many membership drives, especially in universities and colleges. It is our duty and the mandate given by members to all of us as elected office bearers to continue and multiply our efforts to promote IEM to all engineers in the country and to encourage them to join as members, from student grade right up to the grade of Fellow Members."

He adds that IEM must, at the same time, look closely at the quality and level of its membership at this point in time. The bulk of membership of more than 40,000 are student members (25,000), while the numbers of corporate members are fewer than 16,000.

"We must place greater emphasis on converting student members to graduate members and graduate members to corporate members. That should be our main focus and that is the manifesto for my Presidency; I hope to give a healthier report by the end of each year of my term of office," he says.

Developing Other Sources of Income

IEM's primary source of income is from membership fees although it is also developing other sources of income. In acknowledging the need for such alternative income sources, Ir. Prof. Dr Jeffrey says: "As Deputy President of IEM for the past two sessions (2022/2023 and 2023/2024), I would also chair the Standing Committee of Finance. There is also a Subcommittee of Finance which touches on how to generate more alternative income streams for IEM, apart from our traditional sources such as membership subscriptions (60%), rentals from owned properties (15%), paid events and activities (10%) as well as others (15%)."

To that end, he says, IEM is already seeing the fruits of its online YouTube videos, which are uploaded to gain viewership and to garner extra revenue through IEM

Ir. Prof. Dr Jeffrey Chiang

The President of IEM for the 2024/2025 session, Ir. Prof. Dr Jeffrey Chiang, has more than two decades of experience in IEM, having served previously as the Chairman of Standards Malaysia's Technical Committee (TC) for Concrete Structures Design (EC2), TC for Earthquake Design (EC8) and TC for Windload Design. He was the former Chairman of the Technical Division of Civil & Structural Engineering, Honorary Secretary, Honorary Treasurer, Vice-President who chaired Corporate Affairs & Activities and Deputy President (2022/2024). He is a Professor of Civil Engineering at the Faculty of Engineering & Built Environment in SEGi University KD Campus and has served as its Dean. He was also previously the Structural Engineer at ARUP Jururunding Sdn. Bhd., Senior Lecturer (SIT Klang Campus), Lecturer in Civil Engineering (Monash University Sunway Campus), Associate Professor (UTAR KL Campus) and Professor and Head of Civil Engineering (INTI International University Nilai Campus). He holds a Ph.D (Civil) and B. Eng. (Hons) from Wollongong NSW, Australia and a Dip. Building from Singapore Polytechnic.

products such as recorded training sessions and technical talks. In addition, IEM is uploading website information on its merchandise for sale to both members and non-members. Ir. Prof. Dr Jeffrey says these can be quite lucrative sources of income when properly managed and serviced.

IEM is also exploring initiatives to conduct online courses and webinars by attracting participants from ASEAN and other nearby regions. He is confident that this will be the start to building up IEM as a training hub for its ASEAN partners and that this initiative can be readily undertaken by the IEM Training Academy Sdn. Bhd.

"My last contribution as Chairman of the Finance Standing Committee was to organise a brainstorming session with committee members on financial issues and to discuss ways to resolve the current problems IEM was facing, such as lower subscriptions received and too many arrears every year. Further to that, Finance will also look into resolving the high cost of maintaining the Secretariat as well as covering travelling expenses incurred by office bearers for overseas trips to attend international meetings and overseas events," he says.

He says there has been an increase in commitments to attend annual dinners of sister institutions, with the ever-rising cost of purchasing dinner tables, commitments to send delegates to attend overseas events and functions, inter-state branch visits and travels, etc. Through the planned brainstorming sessions, Ir. Prof. Dr Jeffrey hopes to gain ideas and solutions from IEM members on how to overcome such long-standing problems and issues.

Collaborations with BEM

As the professional institution for the engineering sector, it is vital for IEM to collaborate with other entities such as Board of Engineers Malaysia (BEM), which is the regulator for the engineering fraternity. Ir. Prof. Dr Jeffrey says it is also important to know that IEM and BEM are two different sets of organisations.

Elaborating, he says: "Firstly, we have to define and distinguish between these two organisations. IEM is a non-profit organisation, a learned society and an institution of engineering for the gathering of engineers who are registered as members of various grades, for the purpose of exchanging ideas, knowledge, experience and information. Basically, IEM is a platform for informal gatherings and networking for all engineers who are members by subscription."

On the other hand, BEM is a Government agency and a sub-agency of the Public Works Department (Jabatan Kerja Raya or, in short, JKR) under the Works Ministry. BEM was set up for the purpose of registering all working and practising engineers in the country and to regulate the practice by registered engineers to ensure the safety and welfare of the public and community.

Ir. Prof. Dr Jeffrey calls for a closer relationship between IEM and BEM on matters concerning ethics and legal aspects concerning the engineering industry. "Supposedly, both organisations are coming from different directions and there have been calls for the two to complement each other for the betterment of all practising engineers. IEM and BEM have worked well together since 1972 when BEM was formed with the gazetted Engineers' Act 1967. By the way, IEM is the older institution, having been established in 1959," he says.

In the early years before BEM came into being, a number of early Presidents of IEM were Director-Generals of the tripartite Government agencies, namely JKR, JPS (Jabatan Pengaliran & Persaliran) and LLN (Lembaga Letrik Negara – a forerunner of TNB or Tenaga Negara Berhad).

"Just to make it very clear – IEM is a membership-based organisation, i.e. qualified engineers can join IEM as registered members through annual subscription. Membership with IEM is not compulsory; engineers make an informed choice to join as a full IEM member at whichever suitable grade," he clarifies.

On the other hand, even qualified engineers cannot join BEM as members, since the only way to be recognised by BEM is to be registered as a graduate or a professional engineer with the Board. Registration with BEM is mandatory or compulsory by law in order to not be caught working illegally in Malaysia as an engineer.

"I am all for IEM and BEM to forge a close, if not closer, working relationship for the benefit of engineers and other stakeholders in the broad engineering industry of the nation. I suppose one way would be to have regular contacts and dialogue sessions between the IEM Excomm and appointed BEM members. Of course, there will be an overlapping of members since 5 of the Board members of BEM are appointees from IEM, as per the provision

in the current Engineers' Act 1967, with a number of amendments since then."

He feels IEM should also have a close relationship and rapport with other professional bodies and trade organisations, including Pertubuhan Akitek Malaysia (PAM), Royal Institution of Surveyors of Malaysia (RISM) and Association of Consulting Engineers Malaysia (ACEM). He says IEM should have regular collaborations with these organisations as these will open up more networking avenues for its members.

"Even at engineering technologist and technician levels, relevant organisations such as Technological Association Malaysia (TAM) should be approached for closer rapport. This is even more so as IEM is now open for membership registration for engineering technologist and technician grades," he adds.

Ir. Prof. Dr Jeffrey Chiang (right) with Ir. Dr Siow Chun Lim (Vice-Chairman of InfoPub Standing Committee for 2023/2024)

Ir. Prof. Dr Jeffrey also touches on Artificial Intelligence (AI), Industrial Revolution 4.0, Construction 4.0, etc. which requires IEM to expand its scope of partnerships and collaborations with not only engineering-based entities, but also with IT-related trades, craft-based entities and relevant social and activist groups which champion the under-privileged sectors of the community. He says all these will help create greater awareness of the need to emphasise the importance of Science, Technology, Engineering & Mathematics (STEM) to the young and school-going children.

IEM Legacy

Ir. Prof. Dr Jeffrey's term as president will end in April 2026. Looking ahead, he says: "At that point in time, I envisage that IEM will have grown in the number of members (optimistically) and in stature, given the broad role that IEM has played in addressing many engineering-related issues which are of concern and interest to our members. I would like to say that IEM has become more independent and more forthright in giving its views upfront and without fear, to the media and the public when there are issues of general interest to our members, whether they are of national or international level interest. Mind you, IEM is the current Chair of AFEO which is affiliated and recognised as a learned and established organisation under the ASEAN Secretariat body based in Jakarta, Indonesia."

As for the long-term goal as envisioned in IEM's Vision & Mission, Ir. Prof. Dr Jeffrey says his Presidency will seek to enhance and take pro-active steps to achieve the over-arching vision and mission for IEM to be (and continue to be) the premier engineering institution in the country and the ASEAN region.

Concluding, he says: "I would like to see the future leadership of IEM taking the lead to continue this pathway to ensure IEM remains or enhances its relevancy to the industry and to all our members and stakeholders. I would also like to see its future Presidents to come from the younger generation of engineers." ■

NOTICE OF IEM (SARAWAK BRANCH) OFFICE BEARERS 2024/2025

The Institution of Engineers, Malaysia (IEM) Sarawak Branch had its 55th Annual General Meeting on 23rd March 2024 and we are pleased to introduce the new IEM Sarawak Branch Office Bearers for session 2024/2025:

IEM Sarawak Branch Executive Committee 2024/2025	
Chairman	Ir. Sim Hui Kheng, Stephanie
Vice Chairman	Ir. Dr Liew San Chuin, Angelia Ir. Wong Siong Boon
Honorary Secretary	Ir. Lim Kim Ong, Edison
Honorary Treasurer	Ir. Law Sie Ding, Jonathan
Immediate Past Chairman	Dato' Ir. Janang Anak Bungsu
Past Chairman	Ir. Haidel Heli
Committee Members	Ir. Bernard Chong Yin Shik Ir. Irwan Podin Ir. Bong Chong Sar, Albert Ir. Dr Kasumawati Lias Ir. Athira Abdullah Ir. Jarvis Ling Sing Kieng

Empowering Engineers for Tomorrow's Challenges

Ir. Yau Chau Fong, Managing Director of Duriane Professionals Sdn. Bhd., generously shares his insights and experiences, shedding light on his journey in the engineering profession and his impactful contributions to the Institution of Engineers Malaysia (IEM). He offers insights into his journey with IEM and emphasises on the profound impact of active engagement, mentorship and resilience on his career. He underscores the importance of fostering a culture of continuous learning, integrity and ethical practice, laying the foundation for aspiring engineers to thrive amidst evolving industry landscapes.

Ir. Gunasagaran Kristnan, a seasoned engineer and a prominent figure within the engineering community, talks about his insightful journey through the corridors of IEM. From humble beginnings as a young engineer to achieving professional success, Ir. Gunasagaran's story is testament to the transformative power of dedication, mentorship and active participation in professional organisations.

Interview Candidate I: Ir. Yau Chau Fong, Managing Director at Duriane Professionals Sdn. Bhd., Deputy President of IEM, Board Member of BEM

Interview Candidate II: Ir. Gunasagaran Kristnan, Principal Consultant of Perunding Permai KG and owner of KG Construction, winner of CIDB Fellowship Award 2023

Discovering IEM YES: Journey of Growth & Contribution

Ir. Yau's involvement with IEM began in 2001 when he joined the Graduate & Student Section, now known as the Young Engineers Section (YES). Despite initial reservations, his enthusiasm for the engineering community surged after he graduated from Universiti Malaya. From brainstorming sessions to pioneering initiatives like the InterVarsity Conference for Engineering Student Societies (ISES) and Engineering Games, Ir. Yau's journey with YES was marked by a fervent commitment to fostering camaraderie and skill development among budding engineers. His proactive approach, exemplified by an email volunteering for the G&S Section, propelled him into the heart of the organisation. Eventually, he became YES Chairman (2006/2008), spearheading initiatives like the National Summit (NATSUM) and the YES annual dinner, leaving a lasting impact on the section's evolution.

Reflecting on his journey, Ir. Yau imparts invaluable wisdom, encouraging aspiring engineers to seize every opportunity for growth and learning within professional organisations like YES. He says: "Lack of leadership, communication or planning skills shouldn't deter you. YES provides a platform to learn, make mistakes and grow. Always remember to be sincere, honest and do it with your heart."

Introduction to IEM: From Novice to Leader

Ir. Gunasagaran started in IEM as an ordinary member, guided by the late Ir. Chris Lim Choon Hai, a respected figure within the organisation. Despite his initial hesitations, he seized the opportunities presented by IEM, actively participating in YES activities alongside his role as a contract engineer for the government. Later, he assumed leadership roles, organising events centred on personal development, particularly public speaking workshops which highlighted areas for growth and emphasised the importance of community engagement in professional advancement. Ir. Gunasagaran soon ascended the committee ranks, ultimately serving as YES chairman (1987/1989) and fostering connections with senior engineers during the various social gatherings.

Realising there was an absence of mentorship within his small company, Ir. Gunasagaran sought guidance outside of the workplace and found a mentor during badminton sessions organised by YES. Under his mentor's tutelage, he gained invaluable professional knowledge, leading to the acquisition of his PE title. Encouraged by this, Ir. Gunasagaran ventured into entrepreneurship, establishing his own construction company and later expanding into consulting. Throughout his journey, IEM provided not only professional recognition but also avenues for personal growth, with Ir. Gunasagaran actively participating in events like the CAFEO conferences, promoting IEM and travelling the world. In essence, his experiences highlight the transformative impact of community involvement and mentorship in professional development, embodying the ethos of embracing challenges, seeking opportunities and fostering lifelong learning.

Navigating Career Milestones and Embracing Challenges

Ir. Yau's career journey is testament to his resilience and adaptability, marked by pivotal transitions and transformative experiences. Initially venturing into consultancy work at SSP (E&M) Sdn. Bhd. to pursue his passion for construction, he later explored entrepreneurship with mixed results, learning invaluable lessons from setbacks along the way. Undeterred by challenges, he embraced new opportunities in a contracting firm, where he refined his skills in project management and marketing. Throughout his journey, encounters with fellow young engineers from YES reignited his passion and underscored

the significance of mentorship and peer support in overcoming career hurdles. Reflecting on his experiences, Ir. Yau talks about the importance of continuous learning and perseverance. He says: “Success and key moments come from learning from setbacks, never giving up and constantly trying new things instead of just being stagnant.”

Ir. Gunasagaran’s career milestones are marked by his commitment to continuous learning and seizing opportunities. From organising events to venturing into entrepreneurship, his journey was characterised by a blend of personal and professional growth. Notably, his involvement with the Construction Industry Development Board (CIDB) paved the way for significant recognition and appreciation for his contributions to the industry.

“Every opportunity I encountered was a chance to learn and grow. Whether organising events or navigating entrepreneurship, I approached each opportunity with an open mind and a determination to excel,” he recalls.

Essential Skills for Engineering Success

Ir. Gunasagaran says continuous technical development and professional recognition in engineering careers are important, in particular obtaining the Professional Engineer (PE) title. “Upgrade yourself and attain the PE title,” he advises. “Professional recognition not only commands respect but also positions you as a credible authority within the industry.”

Drawing from his own experiences, he says the journey of upgrading oneself and attaining professional status is pivotal for earning respect and credibility within the industry. He advises aspiring engineers to focus on acquiring technical expertise and milestones rather than rushing through the process. Additionally, he stresses on the significance of the Ir. title, noting that it enhances one’s reputation and opens doors to opportunities. He says the path to sustained success and growth in the engineering field is through embracing opportunities, even in small projects, and learning from both successes and failures.

For Ir. Yau, sincerity, honesty and integrity are cornerstone values in engineering practice as deeply influenced by his mentor, Ir. Rocky Wong. These values, ingrained in his professional ethos, have not only shaped his conduct but also guided his contributions within IEM and beyond. He advocates for ethical engagement and genuine collaboration which play pivotal roles in building trust and credibility within the engineering community. Through his diverse experiences, he emphasises the significance of upholding these values in navigating the complexities of the engineering profession with integrity and honour, encouraging aspiring engineers to embrace sincerity and dedication for personal and professional growth.

Mentorship and Supporting the Next Generation

As a mentor, Ir. Gunasagaran is committed to nurturing the next generation of engineers. He actively engages with young engineers, imparting wisdom and encouraging them to embrace opportunities for growth. His involvement in various platforms, including talks and advisory roles, underscores his dedication to the development of the engineering community. “My mission is to support and inspire the next generation,” he says. “Through mentorship and guidance, we empower young engineers to navigate their own paths to success.”

For over two decades, Ir. Yau had remained steadfast in his commitment to mentoring and supporting the next generation of engineers, both within the industry and IEM. He envisions a future where young engineers are empowered to contribute actively and learn within professional organisations such as IEM, emphasising the importance of nurturing talent and fostering innovation. His vision extends beyond national borders, aiming to position Malaysia as a pioneer in and a regional hub for engineering excellence. Through his roles within IEM, the Board of Engineers Malaysia (BEM) and the International Electrotechnical Commission (IEC), he aspires to make significant contributions to advancing engineering, not only in Malaysia but also in ASEAN and beyond. Emphasising the value of mutual learning and

cooperation, he underscores the collective efforts needed to propel the engineering profession forward into the future.

Impact of YES on Career Progression

Ir. Yau talks about the significant impact that his involvement with YES has had on his career progression, describing it as a transformative journey of learning and personal development. He encourages young engineers to join YES as there are invaluable experiences to be gained and potential for forming lasting connections within the organisation. He affirms the importance of investing time in personal growth and seizing opportunities for development, urging aspiring engineers to embrace the journey with sincerity and dedication.

Significance of YES and IEM Membership

Reflecting on his own journey, Ir. Gunasagaran reiterates the importance of platforms like YES within IEM. He believes that joining IEM as a graduate member offers invaluable opportunities for professional growth, mentorship and skill development. He says it is through active participation and engagement that young engineers can overcome challenges, build leadership skills and establish lasting connections within the industry. “YES provides a platform for young engineers to learn, grow and connect,” he notes. “By joining IEM as graduate members, they gain access to a wealth of resources and opportunities for professional development.”

Parting Words: Embracing Patience

Imparting a piece of timeless advice to young engineers, Ir. Gunasagaran says patience is important, especially in today’s fast-paced world. He encourages them to embrace the journey, learn from challenges and strive for continuous improvement. Ir. Gunasagaran stresses on the significance of perseverance and steady progress despite the Gen Z generation’s inclination towards immediacy. He says success may not come overnight but with patience and persistence, one can achieve one’s goals. “Patience is key,” he says, urging young engineers to trust in their ability to overcome obstacles and make continuous progress towards their aspirations.

Vision for Future of IEM

As Deputy President of IEM, Ir. Yau talks about his vision for the organisation’s future, pledging support for President Ir. Prof. Dr Jeffrey Chiang Choong Luin’s Environmental, Social & Governance (ESG) initiatives. He envisions IEM as a regional leader in the engineering fraternity, fostering collaboration and innovation to tackle future challenges. Emphasising the importance of fulfilling the organisation’s motto, Ir. Yau is committed to supporting the President in strengthening IEM’s leadership role within the industry. He says: “We will support the role of the IEM President and look at how we can position IEM again as the leader in the industry.”

Conclusion

Ir. Gunasagaran’s journey, characterised by active engagement within IEM, illustrates the transformative

power of dedication and continuous learning. Starting as an ordinary member, he rose up the ranks, organising events focused on personal development and gaining invaluable insights. His involvement in IEM not only led to recognition and opportunities but also contributed significantly to the development of the engineering field in Malaysia. He says: “Every challenge is an opportunity for growth. Embrace it, learn from it and continue to strive for excellence”.

Stressing on the importance of technical proficiency and mentorship, he urges young engineers to embrace challenges and to seize opportunities for growth. As a mentor, he advocates patience and perseverance, recognising that every challenge presents an opportunity for learning and improvement. Ultimately, he envisions a vibrant engineering community in Malaysia, supported by IEM as a beacon of excellence and guidance for aspiring engineers.

As for Ir. Yau, his journey exemplifies the transformative power of resilience, integrity, mentorship and active engagement in navigating career success. Through his insights and experiences, he offers invaluable lessons for aspiring engineers, such as perseverance, continuous learning and ethical engagement in the engineering profession. His unwavering dedication to mentoring, advocacy and advancing engineering underscores his commitment to shaping a brighter future for engineers not only in Malaysia but also across ASEAN and beyond.

He says: “Embrace every challenge as an opportunity for growth, learn continuously and always uphold integrity. Together, let’s strive for excellence and innovation, shaping a future where engineering thrives and transforms societies for the better.” ■

Ir. Yau Chau Fong

Ir. Yau has a total of 22 years of working experience, primarily in large and reputable consultant firms. Ten years ago, he established his M&E consultancy practice, Duriane Professionals Sdn. Bhd. His expertise encompasses large-scale electrical system design for various types of buildings, plants and aviation industries as well as renewable energy plants and data centres. His experiences include design, implementation and contracting for electrical building services of various types of buildings, ranging from specialised buildings such as large-scale solar farms, infrastructure development and data centres to high-rise buildings, both locally and overseas.

He continues to play an active role in IEM, in which he has been involved since 2001. Currently, he chairs the IEM Activities Standing Committee and serves as the head commission for ASEAN Engineering Registrar as well as on various Technical Committees in SIRIM/DSM. He was Past Chairman of the Young Engineers Section and on IEM’s Excomm and Council as well as Past Chairman of the IEM Electrical Engineering Technical Division. The President of the UM Engineering Alumni Association also serves on an international level in TC64 and the IEC New Revenue Generation Committee.

Ir. Gunasagaran Kristnan

Ir. Gunasagaran Kristnan, a Civil Engineering graduate from The University of Michigan, has been an active member of IEM for over 36 years. He has held the esteemed status of Professional Engineer since 1990 and is recognised as a Fellow member of IEM, as well as an Honorary Fellow of the ASEAN Federation of Engineering Organisations (AFEO). Throughout his career, he has demonstrated leadership and expertise, serving as the Chairman for the Sub-Committee on Engineering Contracts under the Standing Committee on Professional Practice (PPC). He also contributes to various committees and working groups, including those focused on IBS training, civil engineering standards and construction permits. With his proficiency in civil construction, structural design and specialising in areas such as geotechnical engineering and transportation, he continues to play a significant role in advancing the field of engineering.

As the Principal of Perunding Permai KG Consultant and KG Construction, he has a wealth of experience in civil construction, encompassing building, factory, retaining wall systems and structural design works. He is certified as an IBS trainer and MyCESSM2 trainer by CIDB, further enhancing his capabilities in construction management and measurement standards. His expertise extends to specialised areas such as civil engineering contracts, adjudication, arbitration and IBS implementation. His involvement in professional organisations and his dedication to advancing industry standards highlight his commitment to the continuous development and excellence of civil engineering practices in Malaysia.

Prepared by:

Lim Yiren
Vice Chairman I, Young Engineers Section (2023/2024), The Institution of Engineers, Malaysia

Building Information Modelling in 2024

The Malaysia Public Works Department (JKR) Strategic Plan 2021-2025 has established a target to push the adoption rate of Building Information Modelling (BIM) to 80% by 2025[1].

As we march into May 2024, where are we right now? People often see BIM as software used for modelling. It is a misconception that excessively narrows down what BIM can bring to the entire construction sector worldwide. BIM is denoted as building information modelling, where it ties the building (entity) with the information (data) and model (geometry).

Projects usually have requirements on the level of development (LOD) which guides all the stakeholders on the requirement of the project deliverables and the LOD is signified by Level of Geometry (LOG) and Level of Information (LOI). In the early stages of BIM, people emphasised the shell where it focused on detailing and the aesthetic of the buildings. Slowly its functionality evolved and started involving spatial management to coordinate all related services in a single entity. Today, industry players have begun to employ BIM to facilitate their daily operations and maintenance by inputting and extracting the data attributes stored within their model's asset.

LOD can be categorised into LOD 100, LOD 200, LOD 300, LOD350, LOD 400 and LOD 500[2]. In the current stage of BIM development, industry players have found ways to put the LOI in front of the LOG and establish a unique structure to record and store the data attributes and link multiple entities on a single platform to ease post-construction management. The LOG in a project deliverable will be capped at LOD 350/LOD 400 which is sufficient to facilitate construction; at the same time, it will not overexploit the limited resources available in a project.

However, this perception is mainly for factory or warehouse projects while other types of projects, including residential, commercial and mixed developments, rarely highlight how the asset data can help in their daily operations such as computing rental, monitoring energy consumption and other functions where BIM can help if the owner is willing to invest in this ecosystem.

BIM in Malaysia

Since 2019, the BIM industry had risen rapidly and COVID-19 accelerated its process while stakeholders began to realise the importance of online collaborations[5]. With BIM, users can utilise the platform to build, identify issues and create design options, plan schedules and cost estimations. In fact, one can go through the entire construction process virtually using the software without any severe time and cost impact facing design changes that commonly occur otherwise. It also pushes the industry towards the integration of emerging technology with the conventional construction method. Consider that Virtual Reality (VR) and Augmented Reality (AR) are add-ons to the BIM environment that can be used for "site inspection" through the cloud models or contrasting the as-built on-site, respectively.

Following the NBS BIM Levels definition, there are 4 stages to term the development of BIM adoption in the construction industry of a country[6]. It signifies the collaboration process where all the geometry and data attributes are stored and transferred through a "single source of truth". While all the stakeholders participate on the same platform, sharing the equivalent and most current information as well as working in a centralised model, it facilitates better decision-making and reduces errors and rework while promoting efficiency in project execution.

The BIM implementation rate in Malaysia remains between Level 1 and Level 2 and involves collaborative working in a common data environment (CDE) using its own 3D CAD models. However, it still comprises a

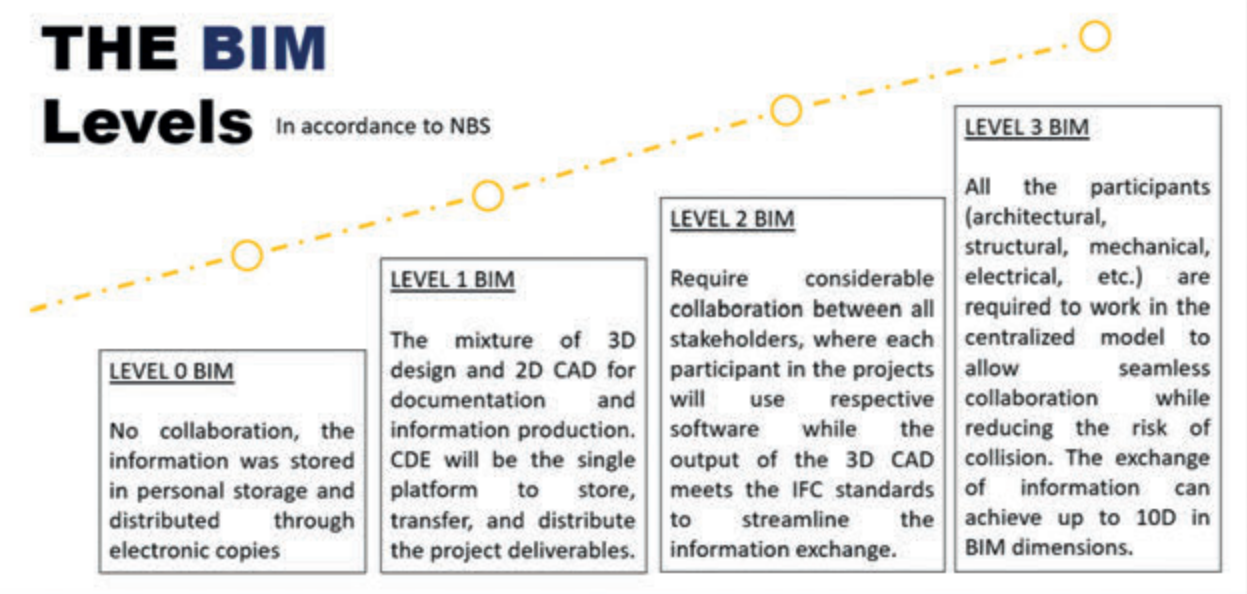

Figure 1: The BIM levels[6]

mixture of 3D CAD for concept work but 2D electrical copies are used for documentation and exchange of information.

Problems Faced in Malaysia

Despite proven success stories from actual construction cases, the adoption rate of BIM in local projects is significantly less. Unless there are requirements from the project owner, the design engineers/contractors are not likely to implement BIM in the project throughout the entire project life-cycle. Since 2019, the government has been driving BIM forward by requiring BIM usage in projects worth more than RM100 million and targeting at least a 10% adoption rate increase annually for projects worth more than RM10 million[3].

The high cost of software and hardware has stopped small firms or contractors from investing in BIM. Not only are the costs tough for them but there is also the matter of training existing employees in a new skill. The adoption of BIM can be described using the Dunning-Kruger effect, where a company has performed well with using conventional methods; so, incurring cost, time and man-hours to adopt new technology may result in the company facing high operation and overhead costs[4].

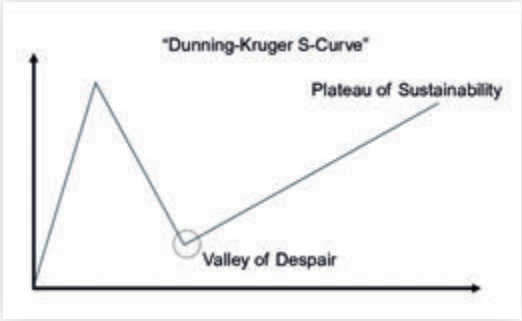

Figure 2: Dunning-Kruger Effect

Furthermore, even in projects where BIM is a requirement by the owner, its potential is not fully employed. As mentioned earlier, it should not be just a tool that presents only the exterior shell of the model without the skeleton and every detail that makes the system work. In this competitive industry, players often ignore the resources, including time and budget, that need to be contributed to BIM by providing buffers and manpower to build up the model before the work is done onsite. Without the model and coordination to be made on-site, BIM will not be able to tackle the construction problem effectively to achieve the project optimisation as promised.

Last but not least, other than the project-based problem statements, we should put an eye on the interoperability and standardisation of BIM in the entire industry. BIM was introduced years ago and collaborates with different design software. Structure - Tekla Structure, MEP - Autodesk Revit and Process Utility - Plant 3D are examples that show the industrial practice of using different software to design and to collaborate with other services. However, the output format of the respective software may be different and this creates issues when it comes to the federation of models from different services for model coordination. Although the IFC model can be carried on different platforms, partial geometry or the attached data attributes may be lost in the process. This will further lead to additional efforts required for cross-checking and reworking so as to complete the model geometry and data attributes.

Efforts Required to Push BIM Forward

Consultants: They are key to integrating BIM early in the life-cycle of a building. Consultants can use BIM for the conceptual design, enhancing the building's space and inputting the design parameters to optimise the project outcomes by having early-stage planning and design. Several options in the market provide cloud-based software for conceptual design and modelling by appending project parameters and the pre-set design requirements.

Besides, the consultant's efforts include standardising BIM practices and collaborating closely with other stakeholders to ensure seamless integration throughout the project life-cycle. Having the client's requirements

and regulatory standards established in the CDE will allow contractors to acquire better visualisation and understanding of the design requirement of a project to exert the extra mile to optimise design cost, shorten the schedule and come across various design options without having an impact on the resources.

Contractors can leverage BIM for better project management, ensuring that project are delivered on time and within the budget. Issues such as interference between different construction elements or incorrect size of equipment are common causes of delays in the project timeline and increased costs due to adjustment and additional procurement. With the facilitation of BIM, every package owner can refer to a centralised and necessitated coordination between services to ensure that all the input information are tallied, including the geometry of the tools, routing of the MEP services and specification of equipment.

The contractor – as the heart of the project coordinating subcontractors, connecting architects and engineers as well as achieving the client's expectations – plays a critical role in educating the importance of BIM in project execution. Looking back on the transition from the conventional method to a new process where BIM is involved, the installation of the site needs to be discussed and mapped in the model before it impacts the site progress and leads to rework cost after it is installed on-site; this process needs to be enforced by the main contractor to ensure everyone is on the same page. After the model is finalised and sent to the site, the installation period can be reduced as most of the problems would have been identified and solved through the process.

BIM can also facilitate occupational safety and health practices by coordinating the move-in-move-out path and determining the risk of the prescribed procedure against the site situation that is mapped in the model.

Manufacturers & Suppliers: They are crucial to integrating BIM throughout the construction industry. As BIM expands to include post-construction activities like facility management and sustainability tracking, manufacturers need to create virtual versions of their products. These should have precise shapes, detailed specs and necessary certifications to fit seamlessly into BIM models.

This will ensure that all project phases, from initial construction to demolition, benefit from accurate and comprehensive data, facilitating a smoother, more efficient life-cycle management of buildings. ■

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Prepared by:

Chuah Pei Lim

Honorary Secretary/Treasurer of Young Engineers Section (2023/2024), IEM

Sewerage Catchment Plan Using GIS Application for Decision Support with Integrated River Basin Management Approach

Currently, the planning and development of sewerage infrastructure in Peninsular Malaysia and the Federal Territory of Labuan is carried out by Government agencies and private developers based on individual projects scattered within the respective administrative boundaries. This approach does not encourage sustainable strategic planning for sewerage development with water resource preservation and pollution control in mind and so, it is fragmented and inefficient for implementation.

In line with the provisions of the Water Services Industry Act 2006 (WSIA), Act 654 and the Water Services Industry (Planning Design & Construction of Sewerage System & Septic Tanks) 2013, the Sewerage Catchment Plan (SCP) framework has been proposed to address the shortcomings.

The purpose of the SCP using GIS application for decision support with integrated river basin management approach, will serve as a general proposal for holistic, overarching, macro-outlining sewerage catchment, to be used to align and guide the sewerage infrastructure development in the country. This arrangement will ensure that all sewerage infrastructure development by facility licensee, developers, local authorities, relevant government planning and implementation agencies are coordinated systematically to provide a new sewerage system and measures for the improvement of any existing sewerage system in a holistic, integrated and sustainable approach.

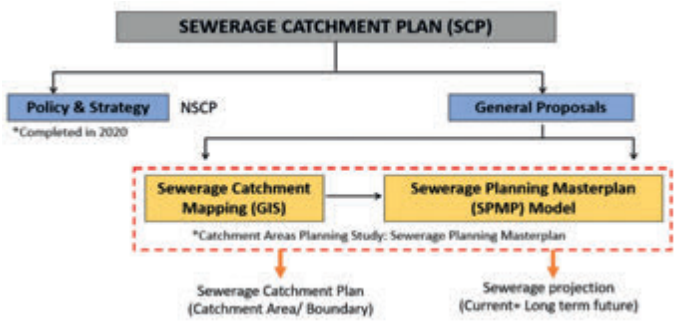

Figure 1: Overall Sewerage Catchment Plan Framework to achieve Holistic and Sustainable Sewerage Infrastructure Development

The overall SCP Framework consists of the planning policy and strategy directions (known as National Sewerage Catchment Plan, NSCP) as well as general proposals to promote sustainable sewerage and sanitation services for medium- and long-term development (Figure 1).

In October 2021, SPAN appointed Ranhill Consulting Sdn. Bhd. to enhance the Sewerage Catchment Plan project in Malaysia upon completion of the NSCP study in 2020. In line with the nation's Water Sector Transformation 2040 aspiration and the latest development of the water engineering industry, the overarching approach of the SCP Framework focuses on the following international best practice and approaches:

1. The SCP for Malaysia shall use Geographical Information System (GIS) to collate, process and carry out data-driven analysis in an integrated approach to identify high sewerage loading and impact areas, its associated casual factors, locations, vulnerability of the receiving receptors, magnitude of current and future projected risks and from there, formulate a systematic and integrated approach to mitigate problems in a holistic and sustainable up to year 2040.
2. The SCP shall be formulated based on the NSCP policies and strategies and the Integrated River Management (IRBM) approach instead of the conventional approached based on administrative boundaries. This is to ensure that the impacts and inter-relations between various activities (including sewerage needs projection, land use changes, impacts and consequences on the water resource, environmental and community health as well as resources recovery) are taken into consideration in a holistic manner. The proposed SCP shall be aligned to follow the objectives of IRBM listed below:
   a. Ensure clean water (good water quality) and pollution control within the riverine systems for its intended use.
   b. Ensure sufficient water (protection and preservation) for the various water uses within the catchment.
   c. Conserve and enhance the environment in harmony with urban development.
   d. Minimise flood risk in the river basin.
   e. Resource recovery.

A technical committee, which includes key government agencies such as Kementerian Sumber Asli, Alam Sekitar & Perubahan Iklim (NRECC), Jabatan Pengairan & Saliran (JPS), Jabatan Perkhidmatan Pembetungan (JPP), Indah Water Konsortium (IWK), Jabatan Alam Sekitar (JAS) and PlanMalaysia, was formed to assist in the project as it progresses to ensure that the formulated SCP is in line with the project objectives and the nation's integrated and sustainable sewerage development goals.

Figure 2: Overall Framework and Model of the formulated Sewerage Catchment Plan

Ranhill Consulting, together with SPAN and the technical committee, formulated the framework for the Sewerage Catchment Plan as summarised below (Figure 2). The formulated SCP, using GIS application for decision support with integrated river basin management, consists of 3 main components.

Component 1: Data on types of sewerage assets, their location, their loading and volume and their cumulative sewerage impacts that are induced onto the receptors.

Component 2: Vulnerability of the receptors. Sewerage loading will impact the water resources and environment, the community and climate change sustainability. Vulnerability scores are given to each receptor based on sub criteria such as the current water quality index of the river, the water uses of the different stretches of the rivers such as groundwater abstractions, irrigation water uptake, recreational and tourism activities within the rivers especially those requiring human body contact, potable water consumption, proximity to the community and many more.

Component 3: Sewerage Catchment Risk & Formulation of Mitigation Strategies. The assimilation of sewerage impacts (Component 1) versus vulnerability of the receptors (Component 2) yields the risk of a particular primary, secondary or tertiary basin. Based on the risk of the basin and sub-basins, proposed mitigation and improvement strategies are formulated to address the risks in the selected SCP models, which are then run to assess (quantitatively) the effectiveness of the proposed mitigation in mitigating the risks for current and future (2030 and 2040) conditions. The SCP models are iteratively assessed until the best planning solution.

Ranhill Consulting collected a multitude of conventional hardcopy or digital softcopy data for Peninsular Malaysia and Labuan with the assistance of SPAN and the technical committee members. The data was processed and digitised into a centralised GIS geodatabase. Figure 3 shows the multitude of data that has been digitised into GIS for the selected SCP models iterative analysis.

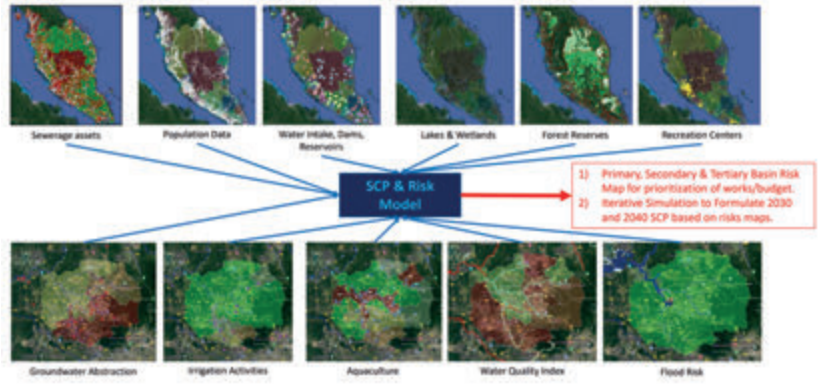

Figure 3: Multitude of data collected, processed and digitised into a Centralised GIS Geodatabase for Peninsular Malaysia and Labuan

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Figure 4: Completed and published SPAN SCP Framework Report

The sewerage impact ratings consisting of the main vulnerability and sub vulnerability impact scores, risk evaluation matrix, etc. were programmed into GIS, excel and VBA scripts. Analysis of the sewerage impacts, vulnerability of the receptors and the resulting sewerage catchment risks were carried out in a semi-automated manner. The concept/outline of the impact ratings, evaluation scoring and algorithm to calculate sewerage catchment risks were available in the SCP Framework report that was published in SPAN public domain (Figure 4).

The project scope covers Peninsular Malaysia and Labuan. The general SCP model generates sewerage loading projection, sewerage impacts, various receptor vulnerabilities and the sewerage catchment risks at the primary catchment level (according to the JPS main river basins), secondary catchment (sub-catchments delineated based on main tributaries to the main river basins) and the tertiary catchment level (a sub-catchment division based on tertiary river tributaries).

The Sewerage Catchment Risk Assessment Map was finally generated by the GIS application for the secondary catchment level based on IRBM boundaries for Peninsular Malaysia and Labuan. Under the scope of the study, three secondary basins with high sewerage catchment risks were then selected for detailed SCP models analysis up to the tertiary catchment level. Using the GIS data and IRBM decision support approach mentioned above, the project team was able to develop the sewerage catchment map based on risk priorities. The map will help decision makers to plan and prioritise critical catchment or sub-catchment to carry out sewerage infrastructure development:

1. Sewerage catchment map with projected sewerage needs/demand for year 2030 and 2040 (Figure 5).
2. Secondary sewerage catchment risks ranking for Peninsular Malaysia and Labuan (Figure 6).
3. Detailed tabulated data and visual GIS map up to the tertiary basin level showing the sewerage loading and impacts for various sewerage asset types (Figure 7). This helps decision makers to obtain information accurately and effectively about the loadings and impacts of the different sewerage assets onto the receiving sub-catchments.
4. Selected SCP model (Sg. Sembah) in tabular and visual GIS map up to the tertiary catchment level (Figure 7) for various projected scenarios, with and without proposed sewerage catchment plan strategies applied. This information is critical for planners and decision makers to test out the proposed SCP strategies iteratively until the desired balanced outcome is achieved and formalised as the SCP general proposals for the study catchments moving forward.

In March 2023, the SCP project, using GIS data-driven decision support and IRBM approach, was completed by Ranhill Consulting and SPAN. The completed SCP Framework now provides the sewerage and water resources industry with a guide on how future sewerage infrastructure can be planned in a more holistic manner to ensure sustainable development of the sewerage and water resources sector. This newly completed SCP framework offers the following key advantages which are not possible with previous conventional methods.

1. Extract critical sewerage and other relevant information such as population, sewerage loading and impacts, activities and receptors within the river basin in a digital manner which is more accurate, faster and enables

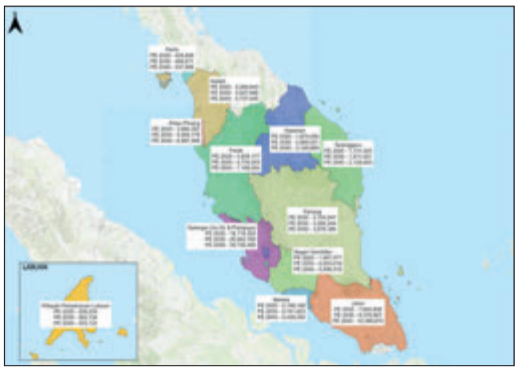

Figure 5: Sewerage needs/ demand projection by State

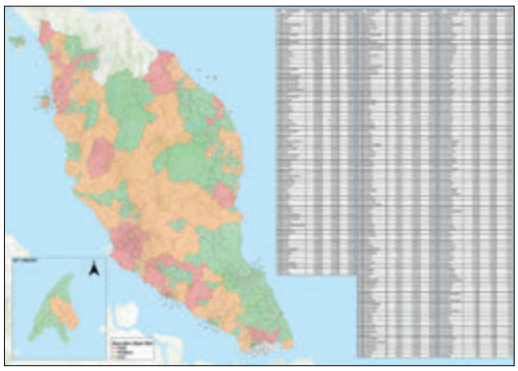

Figure 6: Secondary Sewerage Catchment Risk Map by priority (high, medium and low risk) for Peninsular Malaysia and Labuan

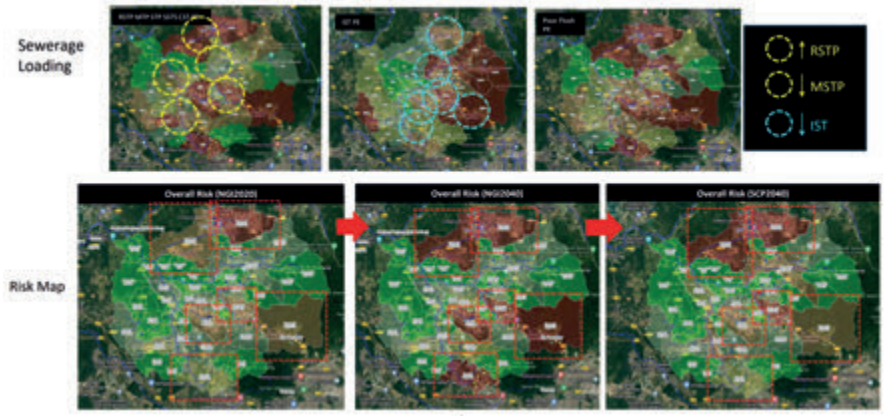

Figure 7: Visual maps showing loading for various sewerage assets in detail for Sg. Sembah (Existing 2020 Condition, Future 2040 without Government Intervention, 2040 with Sewerage Catchment Planning)

the holistic review and decision making of the multiple and inter-related aspects of the sewerage development and impacts on water resources, the environment, the community and climate change sustainability.

2. Holistically and accurately identify high risks areas based on digital data-drive GIS SCP model to better prioritise sewerage development works and fundings.
3. Plan and implement sewerage infrastructure development works from an IRBM perspective instead of previous piecemeal, ad-hoc approach which was based on less coordinated administrative boundary approach.
4. Allow proposed SCP strategies to be iteratively tested and optimised to achieve the balanced results before they are formalised and rolled out.
5. The formulated SCP forms the overarching planning and development guiding principles for Peninsular Malaysia and Labuan for Government implementation agencies and private developers for detailed sewerage development plan and associated works.

With the successful completion of this enhanced SCP using GIS application for decision support with IRBM approach, SPAN aspires to carry out future stages to further expand the coverage and enhance the capabilities of the SCP project. The completed SCP Framework in Malaysia covers the whole of the peninsula up to secondary basin level and only three SCP models downscaled to tertiary catchments. The formulated SCP Framework shall be carried on by rolling out by stages to cover more tertiary basins in the future, especially for high-risk high-priority catchments in the peninsula and Labuan.

Continuous review and enhancement of the current SCP framework and model shall be carried out especially when new information and data are made available. Moving forward, the current SCP models, which are semi-automated GIS desktop applications, can be progressively transformed into a fully automated, cloud-based decision support system which will further elevate the benefits of this enhanced SCP approach by allowing critical data, information and findings of the SCP to be shared in real-time with relevant governing agencies, planners, developers, engineers and the public, enabling greater integration of all sectors towards a more sustainable water resources and sewerage development for the country. ■

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Prepared by:

Ir. Cheok Hou Seng

Head of Upstream Water Resources & Digital Engineering at Ranhill Consulting Sdn. Bhd. and Vice Chairman of IEM Water Resources Technical Division (2023/2024).

Ir. Lee Chin Shyan

Director of Resource & Catchment Planning Division, Water & Sewerage Regulatory Department of SPAN.

Ir. Dr Abdul Aziz Abas

Chief Operating Officer at Ranhill Consulting Sdn. Bhd. with more than 30 years of experience in the civil engineering industry with emphasis on water resources and Infrastructural works.

Gs. Nurhikmah Azhar

Lead GIS specialist at Ranhill Consulting Sdn. Bhd., with more than 13 years' experience in GIS and remote sensing for water resources and water quality projects.

DEEPEST CONDOLENCES

On behalf of
The Institution of Engineers, Malaysia (IEM),
we would like to express our deepest condolence to the bereaved family of

Ir. Frankie Chong Kwet Hin (M 04071).

We at IEM, honour his contribution to the Project Management Technical Division (PMTD) of IEM for Session 2008-2011.

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On behalf of
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Empowering Tomorrow's Engineers

Young Engineers Section

The Institution of Engineers, Malaysia Young Engineers Section (IEM YES) is a subdivision within IEM that focuses on the cultivation, promotion and exposure of young engineers in the professional engineering industry. IEM YES traces its origin back to Ir. Cheah Kok Cheong, who founded the Graduate & Student Section (G&S) of IEM in 1970. Over the years, G&S has evolved from its initial form into the dynamic Young Engineers Section of today, aligning with its forward-looking vision to remain at the forefront of nurturing and empowering the next generation of engineers.

The core commitment of IEM YES is to help graduate and student members achieve professional status. The vision revolves around providing continuous and progressive support for the professional development of all its members, thereby contributing significantly to the growth of the engineering community. Through a strategic approach, IEM YES aims to promote IEM to both members and non-members, fostering a platform that encourages interaction and fellowship among like-minded individuals.

IEM X ESUM YES Open Day 2023

IEM YES has always been actively contributing to the professional growth of its members, organising noteworthy events such as the IEM X ESUM YES Open Day, Engineering Run, Beach Clean Up, various STEM initiatives and the IEM YES National Summit. These events highlight IEM YES's dedication to provide a comprehensive and immersive experience for young engineers and underlines the importance of community engagement, environmental stewardship and the pursuit of excellence in STEM. They also facilitate networking opportunities with experienced professionals and align with IEM YES's mission to guide and inspire the engineers of tomorrow.

One flagship event is the IEM YES National Summit (NATSUM) which has a rich history that spans over a decade. This annual summit, organised by YES branches on a rotation basis, serves as a pivotal platform for knowledge sharing, networking and collaboration among young engineers in the country. NATSUM offers a range of activities which include technical site visits, exploration of local landmarks, team-building activities, networking sessions with industrial players and gala dinners which provide a great opportunity for social interaction among the participants.

NATSUM organising branches from 2016 to 2024

Year	NATSUM Organiser
2011	IEM YES Sarawak Branch
2012	IEM YES Southern Branch
2013	IEM YES HQ (Kuala Lumpur)
2014	IEM YES Sabah Branch
2015	IEM YES Perak Branch
2016	IEM YES Sarawak Branch
2017	IEM YES Miri Branch
2018	IEM YES Pahang Branch
2019	IEM YES Penang Branch
2021	IEM YES Southern Branch
2022	IEM YES Sabah Branch
2023	IEM YES Perak Branch
2024	IEM YES HQ (Kuala Lumpur)

During NATSUM, IEM Student Sections and YES branches engage in discussions related to engineering careers, professional development and challenges faced by both graduate engineers and students. These sessions also involve discussions on the selection of the upcoming host branch as well as strategic plans for membership drives, while inculcating a sense of unity and shared purpose among participants.

NATSUM has significantly impacted the host regions over the years, while enabling diverse and broad participation across Malaysia.

IEM YES NATSUM 2022 in Kota Kinabalu, Sabah

IEM YES NATSUM 2023 in Ipoh, Perak

Furthermore, IEM YES acts as the official channel of communication for young engineers from other national engineering organisations of ASEAN, under the umbrella of the ASEAN Federation of Engineering Organisation (AFEO), with the aim of fostering cooperation and goodwill among young engineers in the ASEAN region.

A significant flagship event for IEM YES under the aegis of AFEO, is the Young Engineers [Conference] of the ASEAN Federation of Engineering Organisation (YEAFEO), which takes place during the Conference of the ASEAN Federation of Engineering Organisations (CAFEO). During YEAFEO, country representatives participate in discussions which focus on shared professional pursuits and the challenges encountered in the social, economic and industrial environments of the ASEAN region. In addition, country representatives present reports of activities of their respective organisations, encouraging mutual learning, cross-border networking and collaborating among young engineers.

Past successful hosts of YEAFEO have all exhibited their commitment towards this goal and they come from the various ASEAN nations.

Hosts of CAFEO/YEAFEO from 2010 to 2023

Year	Hosts of YEAFEO
2010	Hanoi, Vietnam
2011	Brunei
2012	Phnom Penh, Cambodia
2013	Jakarta, Indonesia
2014	Yangon, Myanmar
2015	Penang, Malaysia
2016	Palawan, Philippines
2017	Bangkok, Thailand
2018	Singapore
2019	Jakarta, Indonesia
2020	Hanoi, Vietnam
2021	Brunei
2022	Phnom Penh, Cambodia
2023	Bali, Indonesia

This year, IEM YES HQ is excited to be the host for IEM YES NATSUM 2024 in August, with the theme, Innovate, Integrate, Inspire: Engineering Tomorrow Together!. Under this vision, IEM YES aims to create an environment where young engineers can innovate, integrate seamlessly and inspire one another. This empowerment enables our young engineers to collectively shape the future of engineering. We are eager to showcase to you the best that Kuala Lumpur has to offer.

Additionally, Kota Kinabalu, Sabah, will host the 42nd CAFEO on 22-24 October 2024, with promises of exciting themes and a diverse range of topics for those eager to broaden their knowledge base and perspectives.

CAFEO 2023 in Bali, Indonesia

Thus, we are inviting all young engineers to come and participate in these exciting events which are excellent opportunities for learning, networking and collaborating with other fellow engineers. Detailed information on these events will be made available and updated regularly on IEM YES social media platforms.

IEM YES will always stand as a beacon for young engineers who aspire to leave their mark on the dynamic world of engineering. ■

IEM YES Committee Session 2023/2024
with IEM Immediate Past President, Ir. Prof. Norlida

Prepared by:

Ong Ye Shian

MMIIC 2024

2ND MALAYSIA MARITIME INDUSTRY INTERNATIONAL CONFERENCE

SUSTAINABILITY IN MARITIME INDUSTRY
8-9 OCTOBER 2024
POLITEKNIK BAGAN DATUK
PERAK, MALAYSIA
WWW.MMIIC2024.COM

IEM
The Institution of Engineers, Malaysia

CALL FOR PAPERS

2ND MALAYSIA MARITIME INDUSTRY INTERNATIONAL CONFERENCE 2024

Sustainability in Maritime Engineering

The 2nd Malaysia Maritime Industry International Conference 2024 is back with the Sustainability in Maritime Industry theme. MMIIC 2024 invites submissions of academic papers which will be published in Scopus-indexed journals.

8-9 OCTOBER 2024 | **POLITEKNIK BAGAN DATUK PERAK, MALAYSIA**

TOPIC OF INTEREST

- Commercial Ship Technology
- Naval Ship Technology
- Submarine Technology
- Mechanical engineering
- Autonomous Vehicle Technology
- Shipbuilding and Sustainability, Maritime Safety
- Maritime Environment Protection
- Maritime Cyber Security and Artificial Intelligence

IMPORTANT DATE

- **Full paper submission**
  1 June 2024
- **Acceptance notification**
  1 August 2024
- **Camera ready**
  1 September 2024
- **Payment confirmation deadline**
  20 September 2024
- **Conference date & city tour**
  8 - 9 October 2024

REGISTRATION FEE		FOR SUBMISSION	QUERY ON PAPER SUBMISSION
Local Presenter	**RM600**	**https://mmiic2024.com/submit-your-papers/**	Ir. Ts. Prof. Dr. Mohd Rizal Arshad dr.rizal@gmail.com
International Presenter	**USD150**		

CO-ORGANISERS:

POLITEKNIK MALAYSIA BAGAN DATUK

KEMENTERIAN PENDIDIKAN TINGGI
JABATAN PENDIDIKAN POLITEKNIK DAN KOLEJ KOMUNITI

Organised by:

MARINE ENGINEERING AND NAVAL ARCHITECTURE TECHNICAL DIVISION, IEM

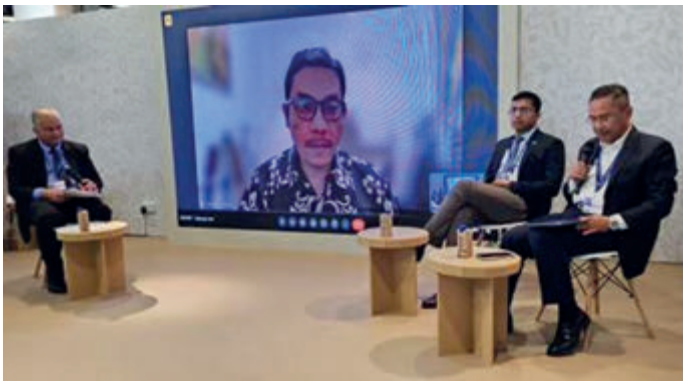
603-7890 0133 ezzaty@iem.org.my

Charting the Path Forward: Perspectives from SPAN at COP28's Forum on Water-Food-Energy Nexus for Just Transition & Climate Resilience

Water Resources Technical Division

In a world where every drop counts, water is the indispensable resource that supports life on our planet, not only for basic survival but also the complex ecosystems that sustain modern society. With global demands for water soaring to unprecedented levels, driven by population growth, urbanisation and economic development, the stakes have never been higher.

According to UN-Water (2023), 72% of freshwater withdrawals are utilised by agriculture, 16% by industries and 12% by municipalities, highlighting the diverse demands placed on this precious resource. As water scarcity intensifies, it threatens food security, energy production and ecosystem sustainability. The intricate relationship between water, food and energy requires proactive management strategies and innovative solutions to ensure its sustainability for future generations.



At the COP28 Forum on Water-Food-Energy Nexus for Just Transition & Climate Resilience in Dubai

Malaysia, represented by the Ministry of Natural Resources, Environment & Climate Change (NRECC) and the Malaysian Green Technology & Climate Change Corporation (MGTC), actively participated in COP28 in Dubai from November 30 to December 12, 2023, highlighting sustainable practices at its pavilion, themed Going Beyond: Green Growth, Resilient Community & Sustainable Planet. The National Water Services Commission (SPAN), under the leadership of its Chairman, Mr. Charles Santiago, presented on water excellence in Malaysia and contributed to discussions on the water-energy-food nexus, showcasing our commitment to sustainable development and climate action.

Dato' Ir. Mohd Azmi Ismail, also representing SPAN as one of its commissioners, provided valuable insights as a panellist during the Forum on Water-Food Energy Nexus Framework for Just Transition & Building Climate Resilience, further demonstrating SPAN's dedication to addressing critical issues in the water-energy-food nexus.

At the forum, he discussed key topics related to the relationships between water, energy and food systems, advocating for collaborative efforts, technological innovation and strategic investments to address their complex challenges comprehensively. Dato' Ir. Mohd Azmi emphasised the critical importance of integrating policies to effectively manage these interdependent resources, highlighting the growing emphasis on the water-energy-food nexus and the need to recognise their interconnectedness, particularly in the context of climate change impacts. Despite evident competition, synergies and trade-offs between sectors, current policies often overlook these interdependencies, necessitating the development of integrated policy frameworks to align goals, targets and accountability across governmental tiers and agencies.

Malaysia's Water Sector Transformation 2040 initiative, led by the Ministry of Natural Resources, Environment & Climate Change (NRECC) during that time, reflects efforts to incorporate the water-food-energy nexus into policymaking.

The forum shifted focus from discussing the connections between water, energy and food systems to emphasising the crucial importance of prioritising water security in policymaking across different sectors, prompted by concerns over how urbanisation, population growth and climate change could affect water resources. Dato' Ir. Mohd Azmi stressed the urgent need to tackle water security challenges amidst urbanisation, population growth and climate change, highlighting Malaysia's proactive steps in integrating water security measures into urban planning for sustainable development.

With Asia's urban population projected to rise to 2.5 billion or 55% of the total by 2030, leading to a 55% surge in water demand, Malaysia faces the dual challenge of boosting supply and promoting conservation and efficient usage to meet escalating water needs.

A report by the Economic Planning Unit and Academy Sains Malaysia (2022) highlights challenges in the water sector due to a lack of coordination and harmony in policy direction, planning and execution, stemming from

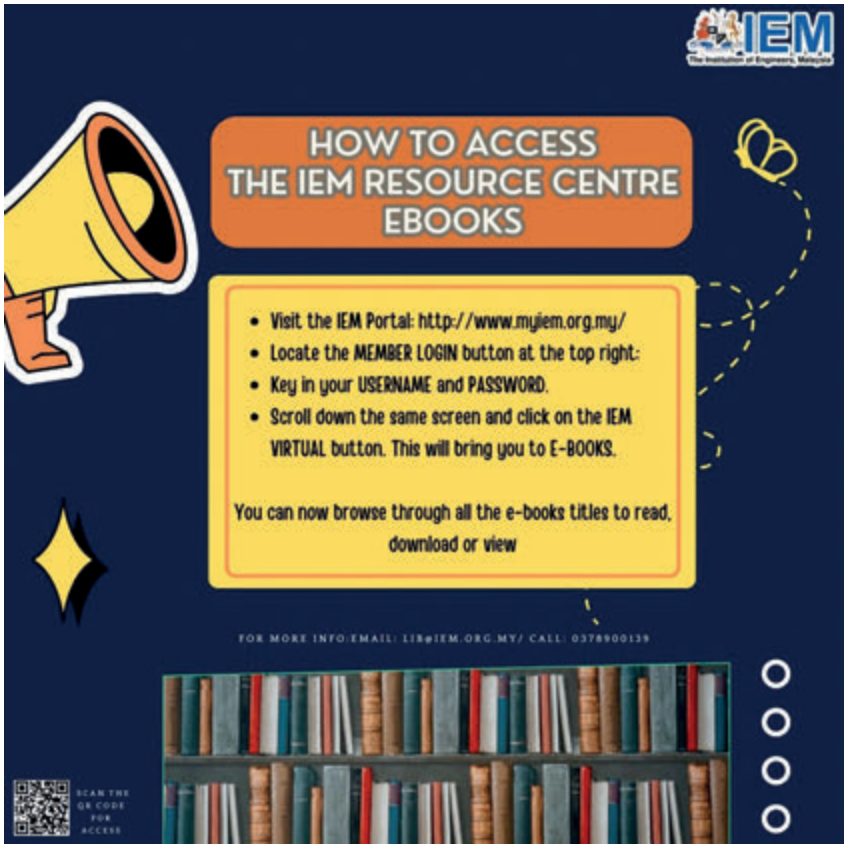
inconsistent institutional quality, with overlapping roles and fragmented collaboration among stakeholders. While historical fragmentation persists, recent organisational changes, such as the formation of the Ministry of Energy Transition & Water Transformation (PETRA), formerly the Ministry of Natural Resources, Environment & Climate Change (NRECC), show promise in addressing these challenges by consolidating water and energy management. It's crucial to emphasise policies integrating water, food and energy sectors for efficient management, particularly enhancing resilience to climate variability.

At the close of the forum, Dato' Ir. Mohd Azmi urged stakeholders to prioritise action against water security challenges, emphasising concerted efforts and commitment. While Malaysia's proactive integration of water security measures into development strategies is commendable, collaboration and integrated approaches are essential for sustainable management of water, energy and food resources, aligning with global approaches and building climate resilience for Malaysia and beyond.

SPAN's contributions, highlighted by its representative's participation and insightful perspectives at the forum, show immense potential in shaping policies related to climate resilience and justice, demonstrating proactive engagement and leadership in promoting sustainable solutions. Leveraging its role as a regulatory body, SPAN enriches discussions and contributes to actionable strategies for addressing pressing environmental challenges, committed to fostering sustainability and resilience within our water ecosystem through collaborative and innovative strategies. ■

Prepared by:

Dato' Ir. Mohd Azmi Ismail



Temuduga Profesional

Tarikh: 22 April 2024

Kepada Semua Ahli,

SENARAI CALON-CALON YANG LAYAK MENDUDUKI TEMUDUGA PROFESIONAL TAHUN 2024

Berikut adalah senarai calon yang layak untuk menduduki Temuduga Profesional bagi tahun 2024.

Mengikut Undang-Undang Kecil IEM, Seksyen 3.8, nama-nama seperti tersenarai berikut diterbitkan sebagai calon-calon yang layak untuk menjadi Ahli Institusi, dengan syarat bahawa mereka lulus Temuduga Profesional tahun 2024.

Sekiranya terdapat Ahli Korporat yang mempunyai bantahan terhadap mana-mana calon yang didapati tidak sesuai untuk menduduki Temuduga Profesional, surat bantahan boleh dikemukakan kepada Setiausaha Kehormat, IEM. Surat bantahan hendaklah dikemukakan sebulan dari tarikh penerbitan dikeluarkan.

Ir. Ts. Prof. Dr Tan Chee Fai
Setiausaha Kehormat, IEM

PERMOHONAN BARU

Nama	Kelayakan
KEJURUTERAAN AWAM	
SITI ESAH BINTI MOHAMED ANNUAR	BE HONS (UTHM) (CIVIL, 2014)
KEJURUTERAAN PEMBUATAN	
MOHD HAZRI BIN MOHD RUSLI	BE HONS (UiTM) (MECHANICAL, 2008) ME (UNIMAS) (UiTM) (ENGINEERING MANAGEMENT, 2011) PhD (UiTM) (2019)

PERMOHONAN MENJADI AHLI KORPORAT

Nama	Kelayakan
KEJURUTERAAN AWAM	
NG YIK JUN	M.ENG (LEEDS) (CIVIL AND STRUCTURE, 2013)
ALLEN CHU YIAP SEEN	BE HONS (MONASH) (CIVIL, 2019)
YU CHEAH HUNG	BE HONS (SHEFFIELD) (CIVIL & STRUCTURAL, 2000) PhD (SHEFFIELD) (2005)
LIM SIAU SOON	BE HONS (UTM) (CIVIL, 2005)
KEJURUTERAAN ELEKTRIKAL	
MOHD HAFIYYAN HARIZ BIN HAMIDON	BE HONS (UNIMAP) (ELECTRICAL SYSTEM ENGINEERING, 2017)

PERPINDAHAN AHLI

No. Ahli	Nama	Kelayakan
KEJURUTERAAN AWAM		
94686	CHUA ZHENG WEI, KENNETH RUSSELL	BE HONS (CURTIN) (CIVIL AND CONSTRUCTION, 2017)
35925	TAN PEAY SIEN	BE (UTM) (CIVIL, 2011)
56603	SIM BOON SEONG	BE HONS (NOTTINGHAM) (CIVIL, 2000)
74096	SOH YEE LING	BE (UTM) (CIVIL, 2016) ME (UPM) (WATER ENGINEERING, 2020)
119008	LYE JIN HONG	ME HONS (NOTTINGHAM) (CIVIL, 2019)
KEJURUTERAAN ELEKTRIKAL		
87000	LOW ZHENG HUI	BE HONS (UTAR) (ELECTRICAL AND ELECTRONIC, 2017)
115203	CHOO CHEE WEE	BE HONS (MMU) (ELECTRONICS MAJORING IN ROBOTICS & AUTOMATION, 2006) ME (UMS) (ELECTRICAL & ELECTRONICS, 2011) PhD (UMS) (2018)
106161	ANI DAYANA BINTI YUNUS	BE HONS (UniMAP) (ELECTRICAL ENERGY SYSTEMS, 2016)
KEJURUTERAAN ELEKTRONIK		
80646	IZZAH AMANI BINTI TARMIZI	BE HONS (UTP) (ELECTRICAL AND ELECTRONICS, 2009 MSc (USM) (ELECTRICAL AND ELECTRONICS, 2015)
100861	JEYRAJ A/L SELVARAJ	BE HONS (MULTIMEDIA UNI.) (ELECTRONICS, 2002) MSc (NOTTINGHAM) (POWER ELECTRONICS AND DRIVES, 2004) PhD (UM) (2009)
KEJURUTERAAN MEKANIKAL		
80557	VICENTE L. MORAN JR	BSc (MANITOBA) (MECHANICAL, 2006)

PERPINDAHAN MENJADI AHLI KORPORAT

No. Ahli	Nama	Kelayakan
KEJURUTERAAN AWAM		
55069	YAP ZHE YANG	BE HONS (UTHM) (CIVIL, 2016)
41319	GOH HIANG MIANG	BE HONS (UTM) (CIVIL, 2009)
124143	MUAID ABDULKAREEM ALNAZIR AHMED	BE HONS (SWINBURNE) (CIVIL, 2013) MSc (UTAR) (SCIENCE, 2017) PhD (UTAR) (2023)
26964	MOHD KHAIROLDEN BIN GHANI	BE HONS (UiTM) (CIVIL, 2006) MSc (UiTM) (CIVIL, 2007) PhD (UM) (2019)
72292	DING YONG JIE	BE HONS (UMP) (CIVIL, 2018)
37360	MOHD SHERIDAN BIN SAMSUL BAHARIN @ MOHD ROFAA	BE HONS (UTHM) (CIVIL, 2010)
121618	NG XING YHONG	BE HONS (UTM) (CIVIL, 2002)
KEJURUTERAAN MEKANIKAL		
61185	THAM KAM HON	BE HONS (BRADFORD) (MECHANICAL, 2002)
39953	SARAVANAGANES A/L NATARAJA	BE HONS (CURTIN) (MECHANICAL, 2009)
55120	GOH WEI LOON	BE HONS (UTHM) (MECHANICAL, 2016)
112201	CHAN JAY REN	BE HONS (TAYLORS) (MECHANICAL, 2016)
KEJURUTERAAN KIMIA		
125980	CHENG WAI LOONG	BE HONS (Loughborough) (CHEMICAL, 2004)
KEJURUTERAAN MEKATRONIK		
27450	CHAI PUI CHING	BE HONS (UNIMAP) (ROBOTICS & MECHATRONICS, 2008)
KEJURUTERAAN ELEKTRIKAL		
89722	ROZAIMI BIN GHAZALI	BE HONS (UTM) (ELECTRICAL - INSTRUMENTATION & CONTROL, 2008) PhD (UTM) (2013)
87637	TEH JIASHEN	BE HONS (UNITEN) (ELECTRICAL & ELECTRONICS, 2011) PhD (MANCHESTER) (2016)
121849	MOHD NORAMIN BIN AB AZIZ	BE ENGINEERING TECHNOLOGIST HONS (ELECTRICAL, 2012)
94693	MOHAMMAD SYAMIM BIN MOHAMMAD BASRI	BE HONS (UTM) (ELECTRICAL, 2016)
KEJURUTERAAN ELEKTRONIK		
66478	DINESH KUMAR MADHAVAN	BE HONS (MMU) (ELECTRONICS, 2015)

Pengumuman yang ke-186

SENARAI PENDERMA KEPADA WISMA DANA BANGUNAN IEM

Institusi mengucapkan terima kasih kepada semua yang telah memberikan sumbangan kepada tabung Bangunan Wisma IEM. Ahli-ahli IEM dan pembaca yang ingin memberikan sumbangan boleh berbuat demikian dengan memuat turun borang di laman web IEM *http://myiem.org.my* atau menghubungi secretariat di +603-7890 0130 / 136 untuk maklumat lanjut. Senarai penyumbang untuk bulan Mac 2024 adalah seperti jadual di bawah:

No.	No. Ahli	Nama
1	17564	Ir. Rajendran S/O P. Anthony
2	02820	Ir. Tan Lek Lek
3	11511	Mr. Mohamad Azmi Abdullah @ Mamat
4	17679	Ir. Choy Weng Wah

CONTINUATION FROM APRIL 2024 ISSUE

PERMINDAHAN AHLI KEPADA AHLI FELLOW

No. Ahli	Nama	Kelayakan
KEJURUTERAAN AWAM		
06448	YEOH LEAN HUAT	BE HONS (MALAYA) (CIVIL, 1984)
13383	NG VUN PING @ JEFFREY	BE HONS (NEW SOUTH WALES) (CIVIL, 1989)
19563	HII HWANG	BSc (KENTUCKY) (CIVIL, 1998)
KEJURUTERAAN MEKANIKAL		
21672	SYED FADZIL BIN SYED MOHAMED	BE HONS (PAISLEY, SCOTLAND) (MECHANICAL, 1992)

PEMINDAHAN KEPADA AHLI 'SENIOR'

No. Ahli	Nama	Kelayakan
KEJURUTERAAN AWAM		
64808	KHAIRUL HISHAM BIN ZAMARI	BE HONS (UPM) (CIVIL, 2002)
33023	MOHD NAJIB BIN MOHD YUSOP	BE HONS (UTM)(CIVIL, 2009) MSc (UNSW)(CIVIL ENRG. & ENVIRONMENTAL MANAGEMENT, 2013)
KEJURUTERAAN ELEKTRIKAL		
35519	LIM LIEN TZE	BE HONS (UTAR) (ELECTRICAL & ELECTRONICS, 2009) PhD (UPM)(PHOTONICS & FIBER OPTIC SYSTEM ENRG., 2016)

PEMINDAHAN AHLI KEPADA AHLI KORPORAT

No. Ahli	Nama	Kelayakan
KEJURUTERAAN AEROANGKASA		
59145	YOGESWARAN A/L SINNASAMY	BE HONS (UPM) (AEROSPACE, 2000) MSc (UPM) (COMPUTATIONAL METHODS IN ENGINEERING, 2012)
KEJURUTERAAN AWAM		
86329	CHAK WAIYIH	BE HONS (CURTIN) (CIVIL AND CONSTRUCTION, 2016)
106138	CHAN CHIA YAM, LENIS	BE HONS (UTP) (CIVIL, 2010)
23739	CHARLES BONG HIN JOO	BE HOOND (UNIMAS) (CIVIL, 2003) ME (UTM) (CIVIL-HYDRAULIC & HYDROLOGY, 2006) PhD (USM) (2014)
108449	DINESH KUMARAN A/L PALANIANDY	BE HONS (UTP) (CIVIL, 2012) MSc (UTP) (CIVIL, 2015)
108273	FAHRUZALI BIN RASHID	BE HONS (UiTM) (CIVIL, 2005)
63914	GEOFFERY RANGGU ANAK THOMAS	BE HONS (UTHM) (CIVIL, 2016)
116128	KHAIRUL NAJAH BINTI ISHAK	BE HONS (UiTM) (CIVIL, 2008)
10516	KOH TAK CHUN	BE HONS (UTM) (CIVIL, 1998)
31108	KU SAFIRAH BINTI KU SULAIMAN	BE HONS (UTM) (CIVIL, 2009) ME (UTM) (CIVIL-STRUCTURE, 2010)
44784	LAI CHIN LEONG	BE HONS (UTP) (CIVIL, 2011)
111863	LAI WEI LI	BE HONS (UPM) (CIVIL, 2014)
79217	LEE ZUNG SHYUAN, ROY	BE HONS (SWINBURNE) (CIVIL, 2016)
20551	LIEW JIEW FOOK	BE HONS (LIVERPOOL JOHN MOORES) (CIVIL, 1999)
27498	LOH WOEI NIAN	BE HONS (USM) (CIVIL, 2004)
17736	MAZIDAH BINTI MUKRI	BE HONS (UiTM) (CIVIL, 2000) MSc (UiTM) (CIVIL, 2004) PhD (UKM) (CIVIL & STRUCTURE, 2011)
31534	MOHAMAD KHAIRI BIN MOHAMAD AZMI	BE HONS (UTM) (CIVIL, 2011)
47251	MUHAMMAD AL SHAFIE BIN MOHAMMAD AZAN	BSc (DUISBERG ESSEN) (CIVIL, 2013) BE HONS (UKM) (CIVIL & STRUCTURAL, 2013) ME (UTM) (CIVIL, 2020)
115992	MUHAMMAD AMIRUL ASYRAF BIN ABDUL HADI	BE HONS (UTM) (CIVIL, 2019)
29121	NGU SENG HING	BSc (MICHIGAN TECHNOLOGICAL) (CIVIL, 1998)
13008	NOOR AZLAN BIN SALLEH	BE (UTM) (CIVIL, 1994)
89597	SEOW KOK THONG	BE HONS (UTAR) (CIVIL, 2014)
17314	SIVA KUMAR A/L RAJAPPAN	BE HONS (MALAYA) (CIVIL, 1994)
91033	SOH WEE SZUAN	ME HONS (NOTTINGHAM) (CIVIL, 2013)
102389	TAN CHIN KEE	BE HONS (MALAYA) (CIVIL, 2013)
89680	TANG JI HERNG	BE HONS (SOUTH AUSTRALIA) (CIVIL, 2013)
70585	WONG KOK KEN	BE HONS (UTAR) (CIVIL, 2014)
112311	WONG TIAN HUI	BE HONS (MONASH) (CIVIL, 2012)
113096	YONG CHIAN CHAI	BE HONS (CURTIN) (CIVIL & CONTRUCTION, 2017)
KEJURUTERAAN ELEKTRIKAL		
45296	AMIR HAMZAH BIN OTHMAN	BE HONS (UiTM) (ELECTRICAL, 2009)
49538	CHIN WENG KOK	BE HONS (UMS) (ELECTRICAL & ELECTRONICS, 2009) ME (MALAYA) (POWER SYSTEM, 2014)
24099	CHUNG GHI HENG	BE HONS (CURTIN) (ELECTRICAL, 2006)
117138	DON LAUGHT ANAK ALBERT JINGGA	BE HONS (CURTIN) (ELECTRICAL POWER, 2009)
45253	GOH KIAN HUI	BE HONS (SWINBURNE) (ELECTRICAL & ELECTRONIC, 2012)
34768	HAYADI BIN MUSTAFA	BE HONS (UTeM) (CONTROL, INSTRUMENTATION & AUTOMATION, 2009)
64532	LAKSHMANAN A/L GURUSAMY	ECE PART III (ENGINEERING COUNCIL UK) (1999) MSc (UKM) (MICROELECTRONIC, 2000) PhD (UKM) (ELECTRICAL, ELECTRONIC & SYSTEMS, 2009)
26406	LOW WENG KIN	BE HONS (UTM) (ELECTRICAL, 2002)
43775	MUKHZANIM HELMI BIN MOHAMAD	BE (KYUSHU INSTITUTE OF TECHNOLOHY) (ELECTRICAL, 2009)
39155	NUR EZRIN BINTI YAHYA	BSc (MISSOURI) (ELECTRICAL, 1999)
68365	PANG JIA SHIM	BE HONS (UTHM) (ELECTRICAL, 2017)
44956	SAIFUL MOHAMMAD IEZHAM BIN SUHAIMI	BE HONS (UTM) (ELECTRICAL, 2014) Mphil (UTM) (ELECTRICAL
116185	THIVHANANTHAN A/L THAMILSELVEN	BE HONS (UNITEN) (ELECTRICAL & ELECTRONICS, 2017)
88446	TOMMY SILVESTER	BE HONS (UMS) (ELECTRICAL & ELECTRONICS, 2013)
KEJURUTERAAN ELEKTRONIK		
102018	DAVID RAJ A/L S. KOLANDESAMY	BE HONS (THE NOTTINGHAM TRENT UNIVERSITY) (ELECTRICAL & ELECTRONIC, 1997)
48723	GOH ZAI PENG	BE HONS (UTHM) (ELECTRICAL, 2013) PhD (UPM) (2017)
KEJURUTERAAN GEOTECHNICAL		
104843	YOON CHAN YIP	ME HONS (NOTTINGHAM) (CIVIL, 2015) ME (UTM) (GEOTECHNICS, 2018)
KEJURUTERAAN KIMIA		
102373	CHOO BOON CHONG	BE HONS (UniMAP) (BIOPROCESS, 2017) ME (UPM) (PROCESS SAFETY AND LOSS PREVENTION, 2019)
86551	MOHD RADZI BIN RIDZUAN	BE HONS (MALAYA) (CHEMICAL, 2011)
29428	NOR ILIA ANISA BINTI ARIS	BE (UMP) (CHEMICAL, 2009)
22968	RAIS MOHD HAZRI BIN MADON	BE HONS (UiTM) (CHEMICAL, 2005)
KEJURUTERAAN KOMUNIKASI		
108209	LEE YENG SENG	BE HONS (UniMAP) (COMMUNICATION, 2012) PhD (UniMAP) (2016)
KEJURUTERAAN MEKANIKAL		
116165	AFIF BIN ARIFFIN	BE HONS (UPNM) (MECHANICAL, 2014)
50039	AHMAD FIRDAUS BIN AHMAD TARMIZI	BE HONS (UPNM) (MECHANICAL, 2012)
88778	AHMAD KADAFI	BE HONS (MMU) (MECHANICAL, 2007)
85883	AHMAD RUZAINI BIN REDZAUN	BE HONS (UNITEN) (MECHANICAL, 2008)
43922	BOBY SUGARA BIN MOHD TERANG	BE HONS (USM) (MECHANICAL, 2008)
89663	HAFIZ BIN AHMAD	BE HONS (IIUM) (MECHANICAL-AUTOMOTIVE, 2008)
64972	KAMSAH BIN OSMAN	BE HONS (UTHM) (MECHANICAL, 2014)
69385	KOH JIAN XIANG	ME HONS (NOTTINGHAM) (MECHANICAL, 2017)
100886	LEE CHEONG YOONG	ME HONS (NOTTINGHAM) (MECHANICAL, 2014)
117058	LEE CHING HENG	BE HONS (MALAYA) (MECHANICAL, 2015)
73541	LEE JIA YI	BE HONS (UTeM) (MECHANICAL, 2018)
78466	LEE LAI HOONG	BE HONS (UNITEN) (MECHANICAL, 2014)
77923	LEONG JANN THO JOEL	BE HONS (UNITEN) (MECHANICAL, 2015)
77923	LEONG JANN THO JOEL	BE HONS (UNITEN) (MECHANICAL, 2015)
107608	LIM KEWEI	BE HONS (MALAYA) (MECHANICAL, 2007)
107608	LIM KEWEI	BE HONS (MALAYA) (MECHANICAL, 2007)
24120	MOHAMMED AZWAN BIN MOHAMMED ADIB	BE HONS (NOTTINGHAM) (MECHANICAL, 2001)
37559	MOHD AMRI BIN MOHAMED KHAIRI	BE HONS (UTeM) (DESIGN & INNOVATION, 2009)
38047	NICHOLAS TEOH JOO KIANG	BE HONS (UTM) (MECHANICAL, 2005)
66359	OON YOON SOON	BE HONS (MMU) (MECHANICAL, 2013)
90037	TOH ZHI WEI	BE HONS (MMU) (MECHANICAL, 2012)
90056	WONG SHAW FONG	BE HONS (UKM) (MECHANICAL & MATERIALS, 2000) MSc (USM) (MECANICAL, 2007) PhD (UnIKL) (MANUFACTURING, 2019)
42076	WONG YIK HOE	BE HONS (UCSI) (MECHANICAL, 2013)
115921	YEONG MING ZHAO	BE HONS (UNITEN) (MECHANICAL, 2014)
KEJURUTERAAN PEMBUATAN		
50906	NUR AMALINA BINTI MUHAMMAD	BE HONS (USM) (MANUFACTURING, 2012) MSc (USM) (MANUFACTURING TECHNOLOGY, 2014) PhD (USM) (MANUFACTURING TECHNOLOGY, 2019)
KEJURUTERAAN PETROLEUM		
113142	NUR NAQIUDDIN BIN MDD NORDIN	BE HONS (NEW SOUTH WALES) (PETROLEUM, 2019) Mphil (UTM) (MECHANCAL, 2022)

PEMINDAHAN KEPADA AHLI (MELALUI PEPERIKSAAN PENILAIAN PROFESIONAL)

No. Ahli	Nama	Kelayakan
KEJURUTERAAN AWAM		
71693	CHOO CHUNG SIUNG	BE HONS (SWINBURNE) (CIVIL, 2010) PhD (SWINBURNE) (2015)
19811	GOH LYN DEE	BE HONS (UTM) (CIVIL, 2002) ME (UTM) (CIVIL-STRUCTURE, 2004) PhD (UTM) (CIVIL, 2015)
65798	MUHAMMAD HAZMI BIN ILIAS	BE HONS (UiTM) (CIVIL, 2014)
29214	SITI SALWA BINTI OTHMAN	BE HONS (UKM) (CIVIL & ENVIRONMENTAL, 2005) ME (UTM) (STRUCTURE, 2018)
KEJURUTERAAN ELECTRONIC		
46860	LIM KENG BOON	BE HONS (UKM) (MICROELECTRONICAL, 2009)
KEJURUTERAAN ELEKTRIKAL		
104224	ERWIN A/L EDWARD	BE HONS (UNITEN) (ELECTRICAL POWER, 2014)
112619	LIM YEN YAO	BE HONS (UTAR) (ELECTICAL & ELECTRONIC, 2019)
105775	MOHD HILMI BIN ABD MOKHTI	BE HONS (UniKL) (ELECTRICAL, 2013)
111123	YAP JIN PHANG	BE HONS (UTAR) (ELECTICAL & ELECTRONIC, 2009)
KEJURUTERAAN ELEKTRONIK		
22054	BUKHARI BIN MANSHOOR	BE HONS (UiTM) (MECHANICAL, 2004) ME (UTM) (MECHANICAL, 2006) PhD (SHEFFIELD) (2012)
KEJURUTERAAN KIMIA		
44579	HII CHING LIK	BE HONS (UMIST) (CHEMICAL, 1996) MSc (UPM) (FOOD PROCESSING AND ENGINEERING, 2004) PhD (NOTTINGHAM) (2010)
29421	TAN INN SHI	BE (UMP) (CHEMICAL, 2010) PhD (USM) (2015)
KEJURUTERAAN MEKANIKAL		
70408	LEE HSIEN HOONG	BE HONS (UCSI) (MECHATRONIC, 2012)
89636	LEE KIT YEE, SARA	BE HONS (UNITEN) (MECHANICAL, 2010) MESc (MALAYA) (2012) PhD (MALAYA) (2019)
28855	UCOK RAHENRA BIN HASMAR	BE HONS (MALAYA) (MECHANICAL, 2006)
93973	YAP YIAN HEE	BE HONS (SHEEIELD HALLAM) (MECHANICAL & MANUFACTURING SYSTEMS, 2006)

Keahlian

86148	YEU YEE LEE	BE HONS (CURTIN) (MECHANICAL, 2009)

KEJURUTERAAN SUMBER MINERAL

18300	SYED FUAD BIN SAIYID HASHIM	BE HONS (USM) (MINERAL RESOURCES, 1996) MSc (USM) (MINERAL RESOURCES, 1999) PhD (QUEENSLAND) (MINING, MINERALS & MATERIALS, 2004)

PERMOHONAN MENJADI AHLI KORPORAT

No. Ahli	Nama	Kelayakan
KEJURUTERAAN AWAM		
121432	CHOW CHOONG MENG	BSc HONS (OKLAHOMA STATE) (CIVIL, 1998)
121145	CHU YEE SHENG	ME HONS (NOTTINGHAM) (CIVIL, 2014)
121141	GANESAN A/L K. BALAKRISHNAM	BE HONS (UTM) (CIVIL, 2003)
121149	MUHAMMAD KHAIRI AZRI BIN ROSLAN	BE HONS (UTM) (CIVIL, 2011) ME (UTM) (STRUCTURE, 2018)
121436	RODZIAH BINTI MOHAMAD	BE HONS (UTM) (CIVIL, 1992) MSc (CURTIN) (PROJECT MANAGEMENT, 2014)
121438	SITI RAFIDAH BINTI MHD NASIR	BE HONS (UTM) (CIVIL, 2008)
121139	SYAHRIL BIN JULAIHI	BE HONS (UNIMAS) (CIVIL, 2005)
121435	TIONG MEI KUEI @ ALEX TIONG MEE KUEI	BE HONS (UNIMAS) (CIVIL, 2000)
122364	WAN MOHD ASHRUL BIN WAN ABD RAHMAN	BE WITH HIGH DISTINCTION (CARLETON) (CIVIL, 2010)
KEJURUTERAAN ELEKTRIKAL		
122365	ABDUL MARMADRULNISHAM BIN OMAR	BE HONS (UiTM) (ELECTRICAL, 2017)
121143	AHMAD FARID BIN MD AZMI	BE HONS (UTM) (ELECTRICAL, 2011)
121148	AHMADUL HADI MUHAMMAD BIN IBRAHIM	BE HONS (UNITEN) (ELECTRICAL POWER, 2007)
121144	DANIEL KUMAR DAVID CHINNIAH	BE HONS (MMU) (ELECTRICAL, 2010)
122366	FOON CHUN YIN	BE HONS (UNITEN) (ELECTRICAL POWER, 2019
121437	KONG SHIAW HUI	BE HONS (PLYMOUTH) (ELECTRICAL & ELECTRONIC, 2005) ME (MALAYA) (POWER SYSTEM, 2018)
121431	MOHAMAD ADHA BIN MOHAMAD IDIN	BE HONS (UiTM) (ELECTRICAL, 2004) MSc (USM) (ELECTRONIC SYSTEMS DESIGN, 2009)
121430	MOHAMAD HANIF BIN MOHAMAD RAZALI	BE HONS (UiTM) (ELECTRICAL, 2016)
122363	MOHAMMAD ZIKRI BIN ZAINAL ARIFFIN	ME HONS (SOUTHAMPTON) (ELECTRICAL, 2015)
121147	MOHD HAFIZ BIN MOHD SEHAT	BE HONS (UTHM) (ELECTRICAL, 2009)
121429	MOHD SATARI BIN MOHAMAD	BE HONS (UNITEN) (ELECTRICAL POWER, 2018)
121427	MOHD SUPIAN BIN YAHYA	BE HONS (UiTM) (ELECTRICAL, 1999)
121733	MOHD YAZWAN BIN KASIS YASIR	BE HONS (USM) (ELECTRICAL AND ELECTRONICS, 2015)
121150	MUHAMMAD HARINN HIZHADI BIN MUKHTAR	ME HONS (SOUTHAMPTON) (ELECTRICAL, 2015)
121734	SUZLAN BIN YUSUF	BE HONS (UTeM) (ELECTRICAL - CONTROL, INSTRUMENTATION & AUTOMATION, 2014)
121433	TENGKU MOHD AZHAR BIN TENGKU AHMAD	BE HONS (UiTM) (ELECTRICAL, 2003)
KEJURUTERAAN ELEKTRONIK		
121727	HAZIEZOL HELMI BIN MOHD YUSOF	BE HONS (UTeM) (ELECTRONIC - INDUSTRIAL ELECTRONICS, 2005) ME (MALAYA) (INDUSTRIAL ELECTRONIC AND CONTROL, 2013) PhD (MALAYA) (2020)
121142	REENA SRI SELVARAJAN	BE HONS (UniMAP) (BIOMEDICAL, 2015) PhD (UKM) (MICROENGINEERING & NANOELECTRONICS, 2020)
121146	RUDZIDATUL AKMAM BINTI DZIYAUDDIN	BE HONS (USM) (ELECTRICAL & ELECTRONIC, 2000)
121434	ZUL AZHARI BIN MOHAMED JUAH	BE HONS (STRATHCLYDE) (ELECTRONIC AND ELECTRICAL, 1997)
KEJURUTERAAN KIMIA		
121730	CHUA HING LEONG	BE HONS (UTM) (CHEMICAL, 2001)
122362	LIM YEN FEI	BE HONS (UTM) (CHEMICAL, 2006)
KEJURUTERAAN MARIN		
121729	AHMAD TARMIZI BIN BAHARUN	BE HONS (UTM) (MECHANICAL-MARINE TECHNOLOGY, 2010)
KEJURUTERAAN MEKANIKAL		
121728	EDDY SHAZAMIE BIN BAHAROM	BE HOINS (UTM) (MECHANICAL, 2008)
121726	LEE CHUAN YANG	BE HONS (UTAR) (MECHANICAL, 2013)
121732	MERIA MARSITA BINTI MD AZMAN	BE HONS (UTHM) (MECHANICAL, 2006)
121428	MOHD FAIZAIRI BIN MOHD NOR	BE HONS (TRI-STATE) (MECHANICAL, 1998) MESc (LEEDS) (MECHANICAL, 2001)
KEJURUTERAAN MEKATRONIK		
121731	HAFIZUL AZIZI BIN ISMAIL @ AZIZ	BE HONS (IIUM) (MECHATRONICS, 2006) ME (UTM) (ELECTRICAL - MECHATRONICS & AUTOMATIC CONTROL, 2010) PhD (CARDIFF) (2017)

PERMOHONAN MENJADI AHLI (MELALUI PEPERIKSAAN PENILAIAN PROFESIONAL)

No. Ahli	Nama	Kelayakan
KEJURUTERAAN ELEKTRIKAL		
121725	LIM ZHE XIAN	BE HONS (RMIT) (ELECTRICAL & ELECTRONIC, 2017)
122367	NORDIN BIN RAMLI	BE (KEIO) (ELECTRICAL, 1999) ME (THE UNIVERSITY OF ELECTRO-COMMUNICATIONS) ELECTRONIC, 2005) PhD (THE UNIVERSITY OF ELECTRO-COMMUNICATIONS) (2008)
KEJURUTERAAN KIMIA		
121140	ZAINAB BINTI KAYAT	BSc (MANCHESTER) (CHEMICAL, 1983)
KEJURUTERAAN MEKANIKAL		
121439	NIK AZMIRA BINTI NIK AZMI	BE HONS (UTHM) (MECHANICAL, 2004)
121440	THARMASEELAN A/L THANABALASINGAM	BE HONS (MALAYA) (MECHANICAL, 1988)

PEMINDAHAN KEPADA AHLI 'SENIOR'

No. Ahli	Nama	Kelayakan
KEJURUTERAAN ELEKTRIKAL		
43517	SURAJ SHASTRI A/L NADARAJAN	BE HONS (UNITEN) (ELECTRICAL, 2008)
KEJURUTERAAN SUMBER MINERAL		
29989	MOHD AMIR HAFIZ BIN HASMIN	BE HONS (USM)(MINERAL RESOURCES, 2009)

PERMOHONAN KEPADA AHLI 'SENIOR GRADUATE'

No. Ahli	Nama	Kelayakan
KEJURUTERAAN AWAM		
0	EFA YUSLIN HUSSINE	BE HONS (UiTM)(CIVIL, 2007)
0	HASMADI BIN HAMID	BE HONS (UTM)(CIVIL, 2003)
0	HASROL BIN ROSLI	BE HONS (UTM)(CIVIL, 2003)
0	HISYAM BIN AHAMAD HANAFIAH	BE HONS (UTM)(CIVIL, 2011)
64808	KHAIRUL HISHAM BIN ZAMARI	BE HONS (UPM) (CIVIL, 2002)
0	LOUIS ANAK JONATHAN PHILIP	BE HONS (UNIMAS) (CIVIL, 2001)
121136	MAHATHIR BIN JOKENI	BE HONS (UiTM)(CIVIL, 2001)
0	MOHAMMAD NABIL FIKRI BIN RAZALI	BE HONS (UTP)(CIVIL, 2009) MSc (UTP)(CIVIL, 2012)
0	MOHD RASDAN BIN ABDUL RAHIM	BE HONS (UTM)(CIVIL, 2007)
0	NG XING YHONG	BE HONS (UTM)(CIVIL, 2002)
0	NORAINI BINTI RAMJI	BE HONS (UiTM)(CIVIL, 2007)
0	OOI SIEW YIN	BE HONS (UNITEN)(CIVIL, 2014)
0	PAVETHIRA KUMAR A/L MANOKARAN	BE HONS (MALAYA)(CIVIL, 2013)
0	SAIFFUDIN BIN SAFIEE	BE HONS (UTM)(CIVIL, 2013)
121133	SARAVANAN SANTHIRAN	BE HONS (UNSW)(CIVIL, 2005)
0	SITI NUR AUDAUWIYAH BTE ABZILA	BE HONS (KLIUC)(CIVIL, 2012)
121138	STANLEY PETER JAUA	BE HONS (UMS)(CIVIL, 2010)
KEJURUTERAAN ELEKTRIKAL		
0	ALDIL YATI BINTI YUSOF	BE HONS (UTM) (BIO-MEDICAL, 2009) CONVERSION PROGRAMME (UTM)(2020)
0	CHE AZMY BIN CHE RAZALI	BE HONS (UniMAP) (ELECTRICAL SYSTEM, 2008)
0	KAM SIANG SEE	BE HONS (UTHM) (ELECTRICAL, 2007)
0	KAMAHRAJ A/L RAJINTERA	BE HONS (UTM) (ELECTRICAL, 1999)
121128	MOHD AZIZI BIN ABDUL RAHMAN	BE HONS (UNI. OF LIVERPOOL) (ELECTRICAL, 2005) MSc (UPM)(CONTROL & AUTOMATION, 2009) PhD (SHIBAURA INS. OF TECH.)(FUCTIONAL CONTROL SYSTEMS, 2013)
121131	MOHD AZRI BIN AZMAN ROSLAN PETRA	BE HONS (UTHM) (ELECTRICAL, 2009)
0	MOHD NORFAEZ BIN MOHAMAD FOUZEI	BE HONS (UNITEN) (ELECTRICAL & ELECTRONICS, 2015)
0	MOHD UZAIR BIN MOHD FUAD	BE HONS (UTP)(ELECTRICAL & ELECTRONICS, 2009)
121127	MUHAMMAD TAQIYUDIN BIN MOHD NOOR	BE HONS (UTHM) (ELECTRICAL, 2009)
0	R.TAMIL SELVAM A/L RACHANDRA	BE HONS (UTM) (ELECTRICAL-INSTRUMENTATION & CONTROL & , 2012)
KEJURUTERAAN ELEKTRONIK		
0	CHIN WEE LIM	BE HONS (MMU) (ELECTRONICS-TELECOMMUNICATIONS, 2007)
0	JEEVAN KANESALINGAM	BE HONS (MMU) (ELECTRONIC, 2001) ME (MMU) (MICROELECTRONICS, 2017)
0	MUNIRAH BINTI MUSTAFA	BE HONS (USM) (ELECTRONIC, 2008)
KEJURUTERAAN KIMIA		
0	DANNY PANG WEI PING	BSc (NATIONAL CHENG KUNG UNI.)(CHEMICAL, 2009) MSc (NATIONAL TSING HUA UNI.)(2011)
121224	MAWARNI FAZLIANA BINTI MOHAMAD	BE HONS (UTM) (CHEMICAL-GAS, 2009) ME (UTM)(GAS, 2012)
121129	NG BEE LAN	BE HONS (UKM) (CHEMICAL, 2011)
121130	ZULFAN ADI PUTRA	BSc (INST. TECH. BANDUNG) (CHEMICAL, 2005) MSc (UTP) (CHEMICAL, 2008) PhD (EINDHOVEN UNI. OF TECH.) (2010)
KEJURUTERAAN MEKANIKAL		
0	HAYDAR BIN BUREDAH	BE HONS (MMU) (MECHANICAL-MARINE TECH., 2007)
0	HO YOONG CHOW	BE HONS (UNIMAS) (MECHANICAL & MANUFACTURING SYSTEM, 2002)
121137	HOW QIN YANG	BE HONS (MALAYA) (COMPUTER AIDED DESIGN & MANUFACTURE, 2009) MSc (NUS)(MECHANICAL, 2020)
121132	KUAN CHEE WEI	BE HONS (USM) (MECHANICAL, 2008)
121135	ONG WENG HUAT	BE HONS (MMU) (MECHANICAL, 2010)
0	SEKHARAN A/L GOPAL	BE HONS (UTM) (MECHANICAL, 2004)
0	SHAHNAZ NORWAWI	BSc (PURDUE UNI.) (MECHANICAL, 1999)
121134	SUHAIMI BIN SHAZALI	BE HONS (UTP) (MECHANICAL, 2009)
KEJURUTERAAN PETROLEUM		
0	SUKHDEV SINGH A/L GILCHARAN SINGH	BE HONS (UTM) (PETROLEUM, 2010)

PERMINDAHAN KEPADA AHLI SISWAZAH

No. Ahli	Nama	Kelayakan
KEJURUTERAAN KIMIA		
96132	LIM KAI LUN	BE HONS (UTAR) (CHEMICAL, 2020)
45762	TAN PENG CHEE	BE HONS (USM) (CHEMICAL, 2014) PhD (USM) (CHEMICAL, 2019)
73155	FIONA LING WANG MING	BE HONS (UMP) (CHEMICAL ENG., 2015) PhD (UMP) (ENG., 2022)
29905	YEE KIAN FEI	BE HONS (USM) (CHEMICAL, 2008) MSc (USM) (CHEMICAL, 2011) PhD (USM) (CHEMICAL, 2016)
KEJURUTERAAN AWAM		
113672	DAYANG NUR HUWAIDA BINTI ABANG SULAIMAN	BE HONS (UNIMAS) (CIVIL, 2022)
113590	PAMELLA UBUNG IMANG	BE HONS (UNIMAS) (CIVIL, 2022)
111640	ISAAC TIU SHAN YUAN	BE HONS (UTAR) (CIVIL, 2022)
104407	ONG TEE LI	BE HONS (UTAR) (CIVIL, 2023)
107710	LING HUI YEAN	BE HONS (UTAR SG. LONG) (CIVIL, 2023)
107420	NG JIN JIE	BE HONS (SWINBURNE UNI. of TECH.) (CIVIL, 2022)

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Selangor Darul Ehsan, Malaysia.

+603 7493 1049
+603 7493 1047
info@dimensionpublishing.com

Joseph How : +6011 1234 8181
Shirley Tham : +6016 283 3013