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COVER NOTE

PRACTISE THE NEW NORMS

by **Ir. Prof. Dr Leong Wai Yie**

Chairman, Standing Committee on Information & Publications

To all IEMers,

IEM has hosted its first online AGM as well as talks, seminars, meetings and conferences. The Covid-19 pandemic has transformed the lives of humans everywhere and we have had to adapt to these "new norms".

No nation is exempted from these challenges as Covid-19 has resulted in a high rate of fatalities. Our health, safety and well-being are of primary importance during this time of crisis.

Examples of the "new normal" are the wearing of masks, washing hands frequently using soap, using hand sanitiser, maintaining physical distancing etc. All these are deemed effective in helping to curb the spread of Covid-19. Hopefully, everyone will regard the pandemic as an invaluable life lesson and make personal hygiene a priority, even after the pandemic subsides.

There is also a crucial need to transform businesses to suit the current circumstances. Around the world, economies are cautiously reopening. Businesses are keeping a close eye on the here and now but are also tentatively looking ahead to what's shaping up as a great reset. Conventional and traditional businesses must change their modus operandi to ensure they are on par with modern, high-tech companies. NGOs can co-organise courses to help businesses garner information with regards to ways to digitalise businesses and maximise awareness of consumer trends.

The Editorial Board wishes everyone "Stay Safe and Healthy". Let's continue to engineer our country to greater heights! ■



IEM OPERATIONS DURING MOVEMENT CONTROL ORDER: TALES UNTOLD

THE NEW NORMAL

The last few months had been an extremely challenging time for all of us as we experienced the unprecedented crisis of the COVID-19 pandemic which affected not only Malaysia but also the rest of the world. The pandemic dramatically changed the way we did things and like everyone else, IEM also had to adjust to the new normal.

In this article, I would like to share some of the backroom experiences and behind-the-scene stories of the Secretariat team, the backbone of IEM during this difficult period.

At the last Council meeting on Monday (16 March), the coronavirus was already a subject of great concern to everyone. In fact, some members had suggested that the meeting be cancelled. Earlier in the day, the Registrar of Societies (ROS) had issued a special directive that associations and societies would not be allowed to hold any "mass gathering" activity, including meetings and AGMs until 30 June.





by Ir. Mohd Khir Muhammad

Ir. Mohd Khir is a Vice President of IEM. He was the Honorary Secretary from 2018-2020.

A clear decision was made at the Council meeting that IEM should strictly comply with the directive with no exception. At the time, speculation was rife that the new government, fresh in the office after a fortnight of high drama in politics, would impose movement restriction to curb the spread of the virus.

As we usually did after each Council meeting, the President, Deputy President and I were having an "extended meeting" in D'Place, the new dining area in Wisma IEM, when the Prime Minister announced that a Movement Control Order (MCO) would be imposed from 18 March.

The next morning, the Secretariat worked frantically to put in place an action plan for its employees to work from home for the first time. The priority was for the team to continue providing efficient and uninterrupted service to support the office-bearers and members during this period. The Secretariat staff rushed to copy e-files and prepared to notify members of the office closure etc.

During the MCO, the web-portal and emails would be the main communication channels between the Secretariat and members. However, it was found that these were insufficient and that information was not reaching members fast enough. Some email addresses of members were also found to be no longer valid and so the announcement/information went into the Junk/SPAM folders. In such cases, members were advised to set IEM mails into the safe senders list. IEM then resorted to

other forms of communications that could disseminate useful information and latest updates to members fast: Telegram and Instagram.

It was also decided that during the MCO, all official meetings of IEM committees, technical divisions etc. would be conducted via tele-conferencing. In fact, the Excomm meeting on 6 April would probably go into IEM history books as the first official Excomm meeting conducted via tele-conferencing.

However, the choice of which platform to use for tele-conferencing proved rather difficult, mainly due to the many available options as well as reports of the lack of security of some of the platforms. IT specialists including Cybersecurity Malaysia were

consulted for independent advice on this and after serious consideration, we decided to adopt the commonly used Zoom Meeting platform. To ensure security, IEM subscribed to this platform for all meetings.

AD HOC COMMITTEE ON COVID-19

With the MCO coming into effect, one of the earliest actions taken was to form an ad hoc committee on COVID-19, comprising the President, Deputy President (President-Elect) and other senior office-bearers including the Vice Presidents.

The Terms of Reference (TOR) of the ad hoc committee included providing recommendations on what IEM could do to assist members during the MCO period as well as to support the government. Virtual meetings were held every Wednesday afternoon to discuss matters related to meeting the objectives specified in the TOR.

First, a quick survey was conducted among Corporate and Graduate Members to gather feedback on the impact of COVID-19 pandemic. For a rapid 3-day survey, I would say the response was acceptable, with some pretty good responses from members who highlighted the problems they faced and those who offered



suggestions on what the government could do to help the industry.

IEM then wrote to the Prime Minister, the Minister of Finance and the Minister of International Trade & Industry (MITI) to offer our assistance to the Government where relevant. We compiled all the feedback from members and submitted them to the government, together with suggestions on how IEM could help mitigate the impact of the pandemic, especially on our industry.

The government gave serious consideration to our reports and IEM was invited to attend meetings with the Economic Action Council thereafter, on issues related to the industry as well as the MITI task force on construction sectors.

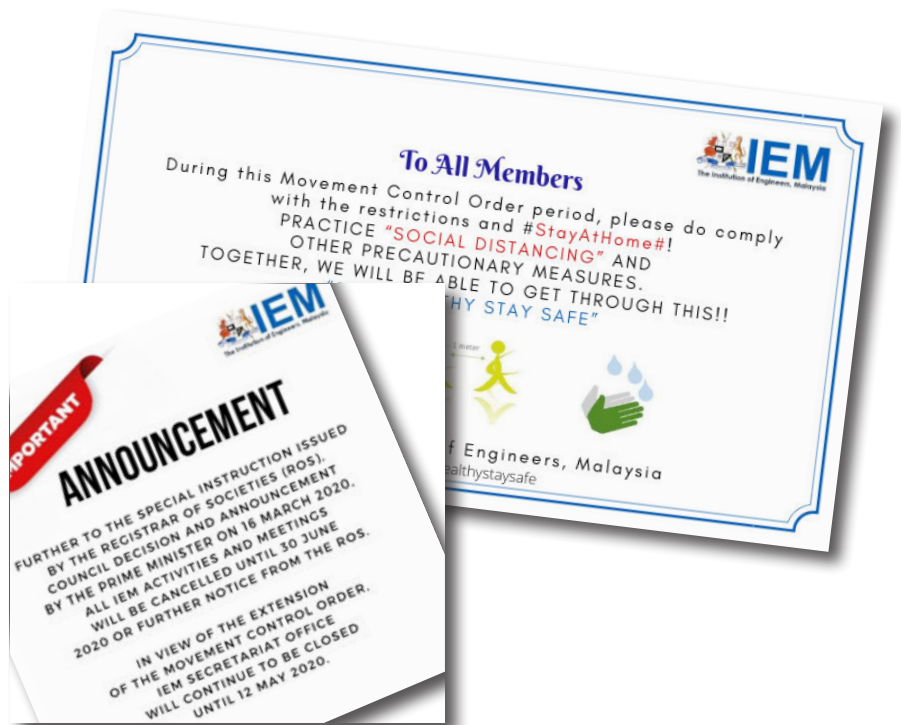
As the situation due to the pandemic was very dynamic and fluid, most of the time, urgent actions were required from IEM. Requests for information/feedback/meeting attendance came with very short notice, sometimes only a couple of hours.

Overall, the ad hoc committee, working from home with limited access to information from the IEM server and supported by the reliable and efficient senior Secretariat staff members, was generally doing well to meet the tight timelines. Dissemination of information on actions taken by IEM was in the form of e-circulars, e-announcement and e-newsletters.

The IEM *JURUTERA* bulletin for April and May could not be printed but to ensure members receive *JURUTERA* on time, IEM sent out *e-JURUTERA* by email blast and members had a new experience of reading it on their mobile phones.

RISE OF WEBINARS

As events and activities were not allowed until the end of June, a main concern of many members, especially Corporate Members, was whether they could fulfill the BEM



CPD requirements. Thanks to current technology and internet speed, Webinar, the online presentation held via internet in real-time, offered a temporary solution to overcome this problem.

IEM had subscribed to the GoToWebinar platform which enabled us to conduct online webinars for 100 participants per session but due to overwhelming response, we had to increase the capacity to 500 per session. Webinars also enabled IEM to provide additional service/benefit to members from branches.

SUPPORT FROM IEM SECRETARIAT TEAM

I would not be doing justice to the IEM Secretariat if I didn't mention how hard they had worked during this challenging time.

The Secretariat team continued to work efficiently and remained united as a team with a clear mission to provide the best service to our

members. Despite challenges such as not being able to retrieve files from the server, the lack of facilities for working from home and inadequate mobile data plans, they did their best to accomplish tasks where possible.

The IT department was probably one of the busiest departments as it arranged virtual meetings and webinars for the first time, ensured that information was disseminated quickly and looked into new ways to communicate with members.

Was there anything positive for IEM from the COVID-19 pandemic? Well, for one, it really changed the way we did things. Methods previously thought to be impossible were accomplished and it was obvious that IEM activities in future would depend a lot on Information Technology.

As such, IEM will have to give serious consideration to enhancing its IT infrastructure and systems as well as training and upskilling the staff members to meet this requirement. ■



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Ir. Ong holds a MBA from the University of Bath, UK and a BSc Hons degree in Mechanical Engineering. His professional qualifications include Practising Certificate

(Peng.PC), ASEAN Chartered Professional Engineer, ASEAN Engineer and certified Energy Management System (EnMS) Expert (Unido). Among his major milestones are his appointments as Alternate Chairman of the Main Drafting Committee of Energy Efficiency & Conservation Act (EECA) by the Ministry of Energy (2018) and Senior Energy Consultant for Malaysia by Carbon Trust of UK for its "Low Carbon Energy Programmes (LCEP)", funded by Foreign & Commonwealth Office of the UK Government (2019-2023). He also won various government and industry awards, including Pingat Jasa Kebaktian (PJK - Penang State, 2005) for his exemplary national service. He also holds leadership positions in various public and private institutions as well as memberships in many institutions relating to engineering services and technologies.

AUGMENTING IEM

Respected Past Presidents, Immediate Past President, Deputy President, Council Members and fellow engineers,

I stand before you this morning, with profound gratitude and great humility as I take over the presidency of The Institution of Engineers Malaysia (IEM) for the 2020/2022 sessions from my honourable predecessor. I wish to take this opportunity to express my sincere gratitude to the IEM Council for their support and I am honoured by the trust and confidence placed upon me. I shall strive to carry out this honourable responsibility with utmost care and diligence, emulating and continuing the good work of my predecessors.

In fact, each time we gather to inaugurate a President, we bear witness to the enduring strength of our Institution. We recall that it was the vision, dedication, sacrifice and the spirit of volunteerism that had bonded this Institution from a humble beginning with 60 members in 1959 to more than 50,000 members today. Recognising that engineers are not just nation builders but more so as prime movers of national development, the responsibility that rests on the shoulders of IEM Presidents is rather heavy and challenging.

MY FELLOW ENGINEERS, Ladies and Gentlemen,

The IEM Constitution and Bylaws are drafted in such a way that all Deputy Presidents would serve as Chairman of the Standing Committee on Finance before the chain of office of the President is handed over to him. Our founding fathers had the foresight that chairing the Finance Committee would enable the Incoming President to familiarise himself with the running of the Institution, especially where finance is concerned. I must say that the last two years chairing the Finance Committee had enabled me to look at the future growth of the Institution in a more structured way.

Over the past 61 years, thirty-four (34) extraordinary, distinguished and eminent engineers from different segments of the engineering fraternity have served as Presidents of IEM, all being groomed in the same way. I would like to thank our Immediate Past President, Mr. David Lai Kong Phooi, for his selfless service to the Institution throughout his two-year presidency. I would also like to thank other Past Presidents for their guidance and I shall continue to follow their legacy.

Having considered the future of IEM on this note, I have therefore framed the theme of my Presidential Address this morning as "Augmenting IEM". To augment is to make something greater by adding to it. My focus during this session is to continue the efforts of my predecessors by making IEM stronger, bigger and to strengthen our position to another level. With this in mind,

I have developed four (4) strategic goals. These are:

1. Accentuate The Branding of IEM
2. Position IEM as the Essential Technical Hub Nationally & Internationally
3. Increase Member Value and Engagement, and
4. Adopting the New Normal

These goals are intertwined and have significant impacts on the masses, government and industry besides capacity building and engaging our members both at headquarters and branches. They also help to improve the financial position of IEM.

Now, please allow me to elaborate on the first goal:

1) ACCENTUATE THE BRANDING OF IEM

IEM is 61 years old this year and is one of the oldest and largest professional bodies in the country. Over the years, my predecessors and their Councils had successfully made the IEM brand more visible and prominent to the government, the public and the industry and I would like to augment this brand.

To me, branding is about making an emotional connection. It is about "first in sight, first in mind". It is about the cognitive correlation between engineering and IEM and vice versa. It is also about a shared belief among the masses that equates engineering to IEM and this conscious or subconscious recognition is generated spontaneously. I would like to heighten the brand IEM to this level. To do this, I will need the support and involvement of all the IEM Branches and the active participation of IEM members. This goal has great potential and we would be able to achieve great outcome and impact when we work together as one and not as disparate entities.

Among my main focuses on accentuating the brand of IEM are, first of all:

a. Inaugural IEM Convention and Engineer 2021

With the need to further boost the IEM brand, I initiated the "IEM CONVENTION" last year. This will be our very own national convention which will be synonymous with IEM. This convention, with its signature conference and exhibition named "ENGINEER", will be the first event that will bring together all disciplines of engineering in one convention. As you are aware, IEM has, over the years, organised numerous symposiums, conferences and exhibitions on a smaller scale specific to each discipline championed by the Technical Divisions of IEM and we are proud to note that each of the events organised has been successful. However, these were all held independently for the individual disciplines.

The "ENGINEER" will position itself as "the IEM convention" that encompasses all the disciplines aimed at to showcase the latest technologies in Science, Technology, Engineering & Mathematics (STEM). This signature event was to have been launched in September 2020 but it was derailed by the onslaught of the COVID-19 pandemic. We have therefore

delayed the launching of ENGINEER to September 2021 and we hope to get the support of all IEM members and the industry for this event which will also become an income generator for IEM.

The event will promote the IEM brand throughout the country and internationally through scheduled publicity campaigns and promotional programmes. We have in fact, received confirmation of support for this Convention from nine (9) government agencies and professional bodies. With the country going into post Recovery MCO, we will again work hard to bring more supporters on board for ENGINEER 2021.

b. Engagements with Ministries, Local Authorities and Industry

Thanks again to my predecessors as well as IEM members at Headquarters and Branches, in recent years, IEM's name had been well promoted to the Ministries, Local Governments and the Industry. We do receive numerous requests for representatives to be appointed to serve in various Committees, whether at HQ level or at the Branch level.

I believe that collaborating with local governments will be the cornerstone of our efforts to promote IEM. Specifically, I believe that fostering respectful, cooperative relations with the government ensures that the position of our profession and our members will be well considered in Government policies and decision-making.

Continuing the achievements of IEM in recent years, I will also step up on efforts to demonstrate how the government and the Institution's goals are aligned. My focus would not only be at the Federal level but more importantly, also at State level. It is my fervent hope that our Branches are able to be engaged by the State governments to address concerns on various technical issues in engineering services at State level.

IEM made a lot of progress in this area, especially during the MCO where we were invited by the Economic Action Council chaired by the Prime Minister, MITI (Ministry of International Trade & Industry) and the Ministry of Finance to submit proposals or recommendations on various matters affecting the industry due to the COVID-19 pandemic. IEM had engaged with the government through various meetings to channel the feedback of IEM and IEM members which we had compiled from the results of members' surveys. As the Chair of the Ad Hoc Committee on COVID-19, I had meetings with my Committee on a weekly basis to discuss and brainstorm on ways to assist the engineering professionals and industry during the MCO. The Committee generated specific yet impactful recommendations to the government on economic recovery during the pandemic.

While we reach out to both Federal and State Government, I would also like to focus our outreach to the industry where IEM membership is relatively low. We need to share with the captains of industry that their employees with IEM membership will bring a difference to their corporations through enhanced technical knowledge,

ethical values, professionalism and networks. We will hold dialogues with industries such as those in semi-conductor manufacturing, aerospace, automotive, transportation, agriculture, energy and marine.

I plan to further enhance our team of representatives to outside organisations to be more effective in the delivery of the aspirations and strategic plans of IEM.

MY FELLOW ENGINEERS, Ladies and Gentlemen, my second goal is:

2) TO POSITION IEM AS THE ESSENTIAL TECHNICAL HUB, NATIONALLY & INTERNATIONALLY

As we all know, the rate of change in technology is immense. Technology is transforming our habits, and the routines of our work and our personal lives. Technology will continue to grow, accelerate and change business for the foreseeable future. The most successful companies are those which continuously learn, grow and adapt to the changing technology and, for that, IEM must position itself at the forefront in this world of fast-growing technology. As engineers, we cannot be left behind or be followers. We should be the initiators or leader as the abbreviated title of "Ingenieur" is derived from the Latin word "ingenium", which means ingenuity.

Borrowing from the wisdom of Theodore Von Karman – "Scientists study the world as it is; Engineers create the world that never has been". Therefore, we, being engineers need to be creative and diversify ourselves to stay relevant in the industry and my focus in this area will be:

a. Publication of IEM's own Guidelines, Best Practices, Manuals and Codes of Practice etc.

After sixty one years, I believe it is an opportune time to bring our own publications to another level. We have in IEM's structure, 18 Technical Divisions including the YES and the WES and the 5 Special Interest Groups comprising of experts in the respective fields. With IEM being the largest professional body of engineers in the country, we should be leading the engineering industry, guiding them with our profound knowledge through guidelines, manuals, best practices, industry benchmarks and even IEM standards.

One of my aspirations is for IEM to compile the immense knowledge of our talented members of all disciplines and to publish the expertise as handbooks of IEM for adoption by the engineering industry, not just in Malaysia but also internationally. IEM had published a Guide On Flood Abatement last year, from the talents of the Disaster Risk Reduction Advisory Board. A white paper on Electrical Installation Standards & Regulations in Buildings amongst ASEAN Countries which was presented at the International Electrotechnical Symposium last year was the accumulation of expertise from our Electrical Engineering Technical Division working with Energy Commission and Standards Malaysia.

With the pool of talents amongst our Technical Divisions and branches, I am confident that IEM can produce many more of these IEM brand guidelines, best practices,

handbooks and standards for use by the industry. This will bring IEM to another level which is rightfully where we should be – a referral point or resource centre for standards or technical expertise. It is my aim to realise this potential and to generate some revenue for IEM in the near future.

b. Members and Branches to support writing of standards.

Here again, I would like to stress that it is through the publication of IEM handbooks that we can build capacity of all subject matter experts from our members at headquarters and the 12 branches, including young engineers. It is hoped that IEM can aggregate and share these knowledges sustainably.

MY FELLOW ENGINEERS, Ladies and Gentlemen.

My third goal is:

3) INCREASE MEMBER VALUE AND ENGAGEMENT

Members form the nucleus of IEM and I can confidently say that IEM's success for the past 60 years has been made possible by our dedicated members who serve in the Council, various Committees and Technical Divisions both at the IEM Headquarters and Branches.

Besides members serving in IEM Committees and engaging in IEM's operations and administration, our general members also are also contributing to IEM in one way or another. In order to increase IEM's value, member engagement is very important and IEM needs to be member-centric in a majority, if not all, of our actions and decisions. We have, in the last session, through the efforts of the Honorary Secretary and Secretariat, initiated some form of engagement with members through the IEM Instagram and Telegram. Our intention was to enable news and information to reach members faster. This effort was accelerated, especially during the MCO, where we posted 9 circulars and numerous e-News for members' information via these two platforms.

We also have, in our portal, a feature where we can SMS-blast information to members but this method will be costly to IEM in view of our member size of 50,000.

Therefore, we hope members would join the IEM Telegram channel so that we can reach you more efficiently. Nevertheless, as we move into the era of Industry 4.0, engagement need to be further enhanced. Over the last six months, as the Chairman of the Finance Committee, I initiated discussions with an App developer to introduce an IEM Mobile Application.

a. Introducing an IEM Mobile App

The IEM Mobile App will be a personalised IEM app to instill a sense of belonging among members. The aim is to:

1. Foster cooperation among members
2. Disseminate information including channel for *e-Jurutera*
3. Enable interactive communication with multi-tiered sub-committee capability
4. Transform lifestyle with digital welfare services.

Apart from these 4 core ecosystems, I would also like this community App to include features such as creation of events for meetings, classes and to allow members to scan a QR code for attendance and to exchange business cards. The App should be able to integrate a survey and an election besides providing a digital market place for extending welfare services to our members across the nation. The possibilities can be extensive and digital advertising to generate income for IEM can materialise with this mobile App. The work on IEM Mobile App is well underway and we will endeavour to launch this mobile app within a year from now.

b. Organise Webinars Regularly

IEM had in the past organised numerous evening talks, technical visits, courses etc for the benefit and professional development of members. Nevertheless, with the announcement from ROS on 16 March this year, forbidding all societies to conduct meetings and activities involving gathering of large numbers of people until 30 June, IEM had to immediately restructure ourselves to look for ways to adapt to this restriction.

On 6 April 2020, the first IEM ExComm meeting since the implementation of the MCO, was conducted virtually via ZOOM. All 19 members of the ExComm attended this virtual meeting together with the IEM Secretariat. This was a historic moment, one which I am sure will go down in IEM history. On 18 April 2020, we initiated the first IEM webinar by the Engineering Competency Development Committee. Through subsequent ad hoc Committee meetings, more webinars were organised. IEM is thankful for the unwavering support of Technical Divisions and SIGs.

I am proud to inform that this initiative was a resounding success. As at 11 July, IEM had organised 70 webinars by various Technical Divisions on topics ranging from technical to legal etc. and cumulatively, they clocked 120 CPD hours. Of the 10,289 who attended the webinars, 96.9% were IEM members. We are encouraged to see some members from the 12 branches attending the webinars and that branch attendance constituted about 40% of all attendance. Interestingly, we even had members participating from overseas. To me, this is an awesome achievement as our activities did not only benefit our members from the Klang Valley, but it also benefitted other members from outside the Klang Valley. IEM will continue to organise webinars to support branches, including those which have lesser activities and hence lower provision of CPD hours in the past.

In the pipeline, I will also be implementing the recording of these talks or lectures and, with the consent of the speakers, these could be played back on another day for members who have missed it. We may even be able to post some of these recordings on our website for members to read and learn from. I am confident that with these efforts, members will be able to receive more services from IEM.

I would like to take this opportunity to inform all members that the IEM webinars were all completely set up and handled by our in-house IT team. IEM did not have to spend on engaging external service providers to organise

webinars and meetings for our members. On this note, I wish to thank the IEM Secretariat and the IT team which had worked very hard, day and night, to help IEM fulfill the need for virtual events within the constraints of their home facilities.

MY FELLOW ENGINEERS, Ladies and Gentlemen,

4) ADOPTING TO THE NEW NORMAL

We are now living in unprecedented times of global pandemic due to COVID-19. It has led to one of history's most daunting global economic and health crisis. During this ongoing crisis, we at IEM recognise the challenges faced by the industry and our members. We have taken and will continue to take swift and proactive action for the benefit of our members. In a survey conducted in recent years by Refresh Leadership, only 33% of respondents said their businesses were prepared to respond to a crisis. Even more alarming is that 32% of respondents currently have NO crisis plan in place. Every corporate entity should make crisis planning a priority; and in doing so I will be forming a Risk Management Committee in IEM to oversee the Institution's risk management framework and policies.

a. Risk Management Committee to respond to crisis timely

The volatility of economic and business environments has become the quite a norm and we at IEM are not isolated from its unpredictability and adverse impact. IEM has to assess the risks and be ready to mitigate the risks. To do so structurally, a Risk Management Committee has to be established. Among all, 2 key issues are to be implemented. First, a Business Continuity Plan (BCP) and secondly, an Emergency Response Plan (ERP) comprising of Crisis Management Team are to be created.

For IEM to be BCP and ERP-ready during my term, I will lead the Risk Management Committee which will comprise of all Chairmen of Standing Committees and be supported by the Honorary Secretary and Secretariat to formulate policy, framework, processes and procedures. However, financial, technical and human resources are crucial for IEM to achieve this goal and I hope IEM will consider an appropriate budget for this.

During the last MCO, even though there wasn't a Risk Management Committee, there was a lot of behind-the-scene work done by the IEM leadership which was not publicised at the first instance to members.

I realise that timely updates to members is a necessity so that members will also be well informed and be prepared. We will put in place the necessary framework so that IEM can provide prompt updates to members should the need arise in the future but I sincerely hope we will not need to use this.

b. Increase the use of virtual trainings, seminars and meetings

IEM is currently focusing on coping with the operational challenges of the COVID-19 crisis. Having said that, with the new normal, IEM is going to leverage on the use of

technology. Responding to the need to work from home and to conduct meetings and trainings virtually, IEM has invested quite heavily on IT hardware, Zoom and GoTo webinar licences. The awesome results of which were elaborated on earlier. In future, to adapt with the new normal, IEM will increase its virtual trainings, seminars and meetings. This shift of norm from physical meetings, inevitably reduces carbon footprint since travelling is minimised. Having said this though, the benefits of physical meeting cannot be undermined as physical interaction and personal touch can help to cement fellowship and camaraderie among members. Thus, depending on the specific functions of a meeting, a choice between physical, hybrid and fully virtual will need to be weighed under the new normal. A balance of choices is needed.

To IEM members, I will endeavour to enhance and improve our IT services for the benefit of members.

c. Enhancement of IEM Job Gallery

One of the nasty casualties of the Covid-19 pandemic is unemployment and it is estimated that more than 1 million workers will be unemployed. Through the Ad Hoc Committee on COVID-19, we have initiated actions to enhance our Job Gallery. The intention is to facilitate employment opportunities for IEM members and to provide an avenue for members who are employers to recruit engineering staff matching their requirements.

Besides allowing IEM members to post vacancies or resumes, IEM also assists in matching the job vacancy with suitably qualified candidates. Members can send in their resumes to be posted in our resume bank while employers can post vacancy advertisements in the IEM Job Gallery.

To provide more opportunities for members, posting of vacancies will not be confined to IEM members although job seekers' access to the Job Gallery will be confined to members as this is a benefit for IEM members only.

We are still working hard to get more job postings and we seek your patience while we populate the Gallery and make it more attractive and effective.

d. A place for IEM members to meet and network

The general feedback from members is that IEM lacks a warm and cosy place for them to meet or even to just have a good meal. Taking cognisance of this, D'Place at IEM, located on the ground floor of Wisma IEM, was opened. This cosy-looking social gathering place was refurbished to allow members to relax and be comfortable to touch base with one another.

I hope members will make good use of D'Place to meet and network.

MY FELLOW ENGINEERS, Ladies and Gentlemen,

The ultimate financial goal which I have been focusing on and will continue to do so for the next two years, will be two-pronged, i.e. (1) to diversify our income streams and (2) to conserve our funds.

a. Diversify IEM's income streams

As I mentioned earlier, we need to be creative in generating income for IEM. Over the last two sessions, while chairing the Finance Committee, I had begun to lay the ground work for this. Besides the IEM Convention which is expected to bring in a healthy income for IEM, we have also initiated advertising opportunities through corporate videos being played on wide-screen TVs which will be prominently displayed at IEM and prior to the screening of the IEM webinars.

The objective is to not only generate more income for IEM, but also to expose IEM members to new technologies being developed in the industry as well as IEM members who are business proprietors to showcase their products and services to their fellow engineers at very low charges compared to other commercial agencies.

As mentioned earlier, I would like to have IEM produce and publish handbooks, codes of practices and guidelines to be used as reference materials by not only engineers but also others related to the engineering profession. These publications would also be another income stream to IEM. Many established engineering institutions worldwide have notable journals and publications which form a major portion of their income, thereby enabling them to be less dependent on members' subscriptions for sustainability. I will endeavour to move IEM along this line but of course not forgetting our roots as a professional learned society that is inclusive and non-biased.

b. Conserving IEM's funds

We are all aware that to ensure an organisation is financially sustainable, we not only need to be creative and diversified in our income streams but we also need to conserve our funds. At our current financial position, there is not a lot that we can do for members financially.

In fact, due to the MCO and COVID-19 pandemic affecting our activities, income generated by our events is only about 20% of our projected budget for 2020. As at May this year, annual subscription collected is only around 54%. In order to balance the income and the expenses, the Finance Committee has put in place a revised budget where we implement tight budgetary control on our expenses while maintaining our service to members as efficiently as we possibly can.

We ask for your indulgence in this difficult time while we strive to provide our services in other modes. As an example, Pos Malaysia had increased postage rates by nearly 100% since February this year. This would cause our postal expenses to send *JURUTERA* by post to members to double for this year. In an effort to mitigate this, we have created a



Soft Launch of IEM Convention and ENGINEER Exhibition on 12 December 2019 at KLCC

more user friendly *e-JURUTERA* which will enable members to read *JURUTERA* online without having to download the whole document. Members can nevertheless still opt to download the whole document for their record.

Although IEM will not be sending the printed hard copy of *Jurutera* to members by post, but these hard copies will be sent in bulk to the offices of IEM Branches and Headquarters. Members could drop by to collect these when they are around the vicinity or when they come to IEM to attend our activities. This will enable us to save more than RM400,000 this year. We ask for your kind understanding during this time while we endeavour to look into more efficient and better ways to deliver our services to you.

CONCLUSION

MY FELLOW ENGINEERS, Ladies and Gentlemen,

I look forward to the full support of the Council and the ExComm which are prepared to spend their time, effort and energy to participate in this crucial task of "Augmenting IEM". Together, I believe we can go beyond our roles and transcend to a more robust professional institution with a multifaceted role in all aspects of Engineering as envisaged by the Founding Fathers of the Institution. I would also need the assistance of all IEM members to cooperate with us so as to make IEM brand, the "must-have" brand.

It is my ardent hope that together, we will make that happen. May our efforts towards this mission prevail.

Thank You.

Ir. Ong Ching Loon

IEM President
Session 2020/2021

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M104132	MOHD HAMDAN BIN KAMARUL BAHARAINI
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M17539	LIM BOON HAI
G94365	MOHD IZWAN @ EBOY BIN JUMAT
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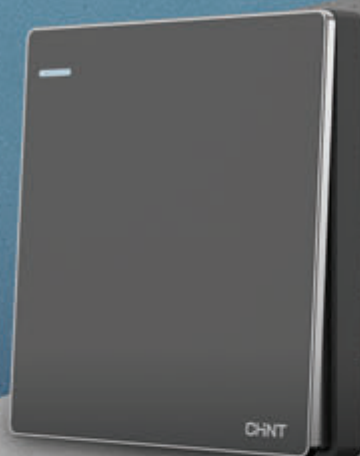
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SPECIFIED POSITION (Full Colour Ad)	1 INSERTION	3 INSERTIONS	6 INSERTIONS	9 INSERTIONS	12 INSERTIONS
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Inside Front Cover (IFC)	7,250	6,650	6,350	6,050	5,750
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Page 1	6,650	6,150	5,850	5,550	5,250
Facing Inside Back Cover (FIBC)	6,150	5,850	5,550	5,250	4,950
Facing Cover Note (FCN)	5,850	5,300	5,100	4,900	4,700
Facing Contents Page (FCP)	5,700	5,150	4,950	4,750	4,550
Centre Spread	11,200	9,500	9,000	8,500	8,000
ROP Full Page	4,900	4,500	4,300	4,100	3,900
ROP Half Page	2,900	2,650	2,550	2,450	2,350
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COVID-19 AND VENTILATION ENGINEERING



by Ir. Arul Hisham bin Abdul Rahim

Since the Movement Control Order was introduced on March 18, social media apps have been abuzz with comments by netizens on the Covid-19 virus and its effects on humans. What an irony that such a microscopic creature is able to create such a huge pandemonium on human life. Humans are exposed to all kinds of bacteria and viruses although only certain types of these are harmful to our health.

Generally, most of us spend about 1/3 of our time daily in the office. Have we ever wondered whether the air in our offices is really clean? Are we free from infection if the air in the office is exposed to various chemicals and pathogens? Have we ever noticed a bad smell when we enter a hotel room? Have we ever noticed stain marks on wall?

Ventilation is defined as the process of supplying fresh air or discharging stale air from a space with the aim of controlling the level of pollution, humidity and temperature of the space.

According to the Occupational Safety & Health Act 1994, it is the responsibility of employers and building owners to provide safe workplaces for occupants in air-conditioned buildings. The Industry Code of Practice on Indoor Air Quality (IAQ) 2010ⁱ, specifies exposure limits to chemical, biological contaminants and physical parameters such as temperature and humidity.

IMPORTANCE OF RELATIVE HUMIDITY

When the office air-conditioner is not operating properly, we will feel uncomfortable and irritated. We will also feel it if the air is too warm or too cold. An air-conditioner supplies not only cold air but also oxygen; it also filters out dust, dirt, odours and pathogens. The air should also have an appropriate relative humidity (RH) that is suitable for humans and yet, is able to control the reproduction of bacteria and fungus. The design of air-conditioners is based on Malaysian Standards 1525 where the specified

range of dry-bulb temperature is 23°-26° Celsius and the RH is 55-70%.

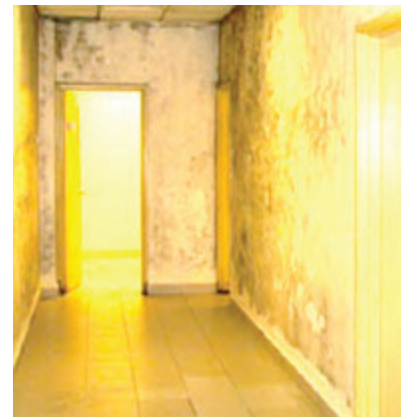
According to Dr Stephanie Taylor, a medical and architectural expert, "Ten years ago, we learnt that viruses studied as surrogates for Coronavirus, the family of SARS and Wuhan, were **INACTIVATED** on surfaces when the ambient relative humidity (RH) was 40-60%. Conversely, when RH was either below 40% or above 60%, the viruses remained virulent and infectious"ⁱⁱⁱ.

So one way to control the outbreak of infection is to control the humidity level! Proper control of air humidity is important to control the reproduction of micro-organism in the air.

Unfortunately, from my past audit experiences, there were many air-conditioned buildings where the performances of air-conditioners were found to be lacking. Quite often, black stains were seen in air funnels on the ceiling, an indication of fungus growth. A recent post-Covid development by the industry and ASHRAE was to petition WHO to produce an IAQ guideline on the minimum lower limit of RH^{iv}.

SUPPLY OF OXYGEN AND REMOVAL OF CO₂

The Department of Occupational Safety & Health (DOSH) Malaysia sets the requirement for air-conditioned spaces of carbon dioxide (CO₂) content as not exceeding 1,000



Fungus growth on walls
Source: Lew Harriman

ppm (parts per million) and carbon monoxide (CO) as not exceeding 10 ppm. If fresh air is not brought in, the CO₂ content will continue to rise through respiration while the oxygen concentration will slowly decrease. High CO₂ concentration in humans will induce dizziness, drowsiness and a lack of concentration.

The split-unit air-conditioning system, which is very popular for use in homes and offices, works by recirculating air in a confined space. Imagine this recycled air in the waiting room of a clinic without proper ventilation. There could be various pathogens which can infect both visitors and health workers!



Split-unit air-conditioner
Source: AHAR Consultants PLT

HOW CLEAN IS THE AIR WE BREATHE?

Foul odour is the result of a chemical reaction that occurs when there is fungus on moist surfaces. An air-conditioner which fails to adequately dehydrate the air stream (exceeding 65% relative humidity) will promote fungal and micro-organism reproduction. Black spots on the ceiling or walls are indicative of fungal colonies breeding. DOSH has set a total bacterial count of 500 cfu/m³ (coloni forming units per cubic metre) and a total fungal count at a maximum of 1000 cfu/m³ for office buildings.

Fungi need food to survive, food that comes from organic dust that sticks on to the surface or microscopic holes. Therefore, air must be well-filtered to ensure no dust passes through. The use of filters for air-conditioning systems depends on the use of space. For critical rooms, such as surgery or ICU, a HEPA (High Efficiency Particulate Air) filter is used. Split-unit air-conditioner filters will let in particles 33 times bigger than a HEPA filter will.

VENTILATION AIR MOVEMENT IN AIR-CONDITIONING SYSTEM

Recently, researchers from Guangdong, China, conducted a study on the transmission of Covid-19 through aerosol. They investigated the role of aerosol in the transmission of the Covid-19 virus in buildings and the effect of ventilation air movement within the environment.

The study confirmed that virus transmission happened not only through droplet transmission, but was also transmitted through aerosol. Air flow pattern and velocity of air stream also played an important role in the propagation of aerosol within a confined space.

The outdoor air ventilation rate is an important factor in controlling the room aerosol concentration. The average room concentration of aerosol is a function of ventilation rate and source strength. When the ventilation rate is low, the concentration of aerosol from exhaled air becomes highly concentrated.



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In the study above, the average air flow was found to be much less than that prescribed in ASHRAE's Standard 62.1, which resulted in a high infection risk for inhabitants. Another factor is occupancy density which also contributed to the infection rate.

LESSONS FROM COVID-19 PANDEMIC

The world has put much of its research funds into finding a vaccine. Though vital, this should be accompanied by research on how to improve non-drug interventions which are the only things that work so far. Other non-drug options, such as the built environment, ultra-violet irradiation, ventilation, air circulation and surface material should also be studied in greater detail.

Air-conditioning & ventilation is a complex and important science for the sustainability of life and it should not be taken for granted. Do check the air-conditioners in your office for any sign of negligence because there is a possibility that someday, another virus strain may emerge to cause another pandemic.

For professionals in the real estate industry, the performance of air-conditioning & ventilation systems depends on the cooperation between developers, ACMV engineers and contractors. The ventilation system will only work properly if it is well designed and the building

envelope is well built. For proper moisture control and cleanliness, buildings need to be air-tight to prevent uncontrolled air intrusion and dust from the outside.

Indoor air flow must also be understood. The use of computational fluids dynamics simulations can ensure that the airflow works as desired. Society should re-evaluate the importance of ventilation engineering in the context of our health well-being. ■

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- ^{iv} <https://40to60rh.com/>
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A registered electrical energy manager and GBI commissioning specialist, **Ir. Arul Hisham** of Ahar Consultants PLT, specialises in thermal storage system design, air-conditioning systems and energy efficiency.

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WHEN NEW ACADEMIC TEACHING STYLE IS THE NORM



by Ir. Prof. Dr Jeffrey Chiang

ADAPTING TO A NEW CONDITION

The nation and the world as we knew it before mid-March 2020, was caught in a turmoil and faced a pandemic crisis due to the widespread infection of Covid-19 virus in humans. Life took a very drastic turn when the Government first announced the Movement Control Order (MCO) from 18-30 March 2020. The MCO duration had since been extended four times.

To mitigate the risk of Covid-19 virus infections, academics, including lecturers, university administrators and students were stopped from entering university premises. Classes, experimental laboratory works and other academic research pursuits came to a halt, with the MCO restrictions imposed on all those working, teaching and studying in universities.

On hindsight, even before the MCO was announced, the SEGi University management did have the foresight to explore the possibility of online teaching in case there was a national lockdown. All its lecturers were required to attend a training session on the use of the Panopto Online virtual platform on 17 March 2020, a last-minute arrangement. Unfortunately my laptop computer malfunctioned and I could not attend the training session.

When classes were held online during the MCO, many lecturers, including myself, chose to use the Zoom meeting platform instead, as it was more user-friendly and free via internet access.

It was truly an eye-opening experience for academics like myself who had not envisaged the need to use online teaching tools. Indeed, the prospect of mastering distance learning techniques was an alien thought for most of us. I guess even the students themselves were bewildered at having to sit at home to learn, instead of attending physical classes in campus.

Anyway, universities around the world were switching to online classes from March 2020. It is most likely that this will be the mode of operation for all universities till the end of the year, if the pandemic is not resolved any time soon.

LIFE AS A VIRTUAL LECTURER

How has it been to be a virtual lecturer since March 2020? I have been homebound since the start of the MCO, except for two occasions when Conditional MCO was announced from 4 May 2020 and I had to go to the campus office to settle some students' assignments and other necessary paperwork.

On a regular basis, I arranged for Zoom meetings with my students on Thursday afternoons to teach classes (on Structure 1) for architectural students. On Wednesdays, I had other Zoom meetings for consultation purposes for Final Year Project civil engineering students, followed by consultation with Integrated Design Project students.

So, this novice in the use of the Zoom meeting platform for online classes is now quite well versed in the process; it's just all part of a normal day now to have face-to-face onscreen time with my students. This unconventional situation has now become the norm in teaching and we are having to learn fast through regular dialogue with or learning from other faculty staff via email and WhatsApp communication. Our faculty members are a co-operative bunch of people who are keen and enthusiastic about learning new things... and this attitude spills over to the students too.

Figures 1 and 2 show my usage of whiteboard tools in Zoom meetings with students, where computerised sketches were done for better illustrations to students in online classes.



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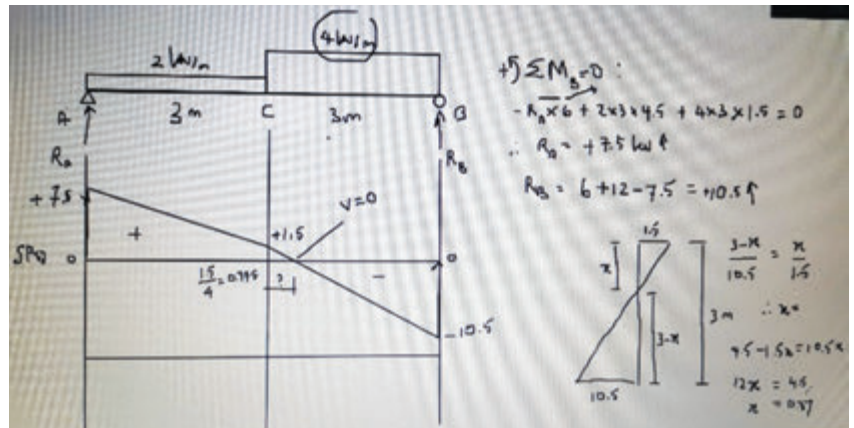


Figure 1: Sketching SFD and BMD in beams

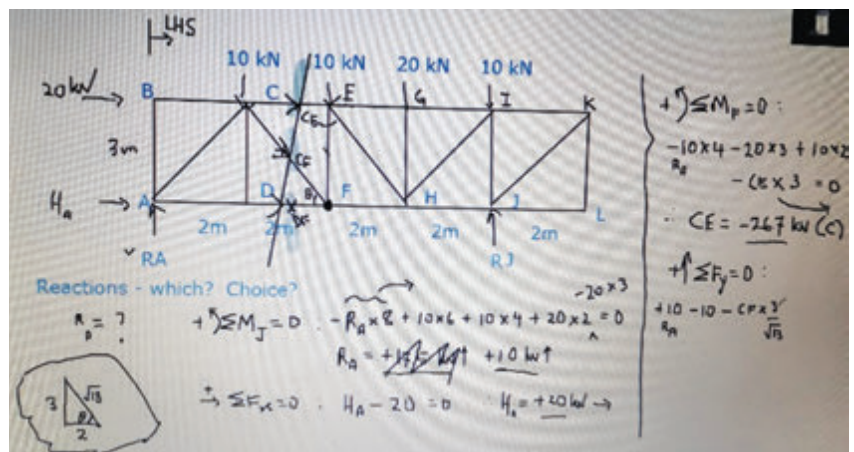


Figure 2: Analysis in truss structures

Besides learning to share Powerpoint presentation slides in online classes, lecturers can also record the online class session on the Zoom platform. The videos can then be uploaded to the university's Blackboard Learning Management System (BB LMS) and students allowed to view and download the recorded videos after the class ends. The use of Blackboard as a teaching tool is also required by lecturers so as to allow students access to all teaching materials to be uploaded at the beginning of the semester. All coursework and assessments are also done online using the Blackboard tools.

The students had their final examinations on 12-22 May 2020, conducted online via the BB LMS. The final papers were set and uploaded to be made available to students on a particular date and time. Students were given a pre-determined time duration of about 4 hours to complete the paper, scan and submit by uploading to the Blackboard. I finished the examination for my students on 15 May 2020 and I downloaded their papers and marked them accordingly.

Overall, it has been an exhilarating experience to learn new things and to adapt to new situations; we pray that life will be peaceful ahead and healthy for everyone, even though we may not go back to the way we were before. ■

Author's Biodata

Ir. Prof. Dr Jeffrey Chiang, is Professor of Civil Engineering at SGEI University and a past Vice-President of IEM.



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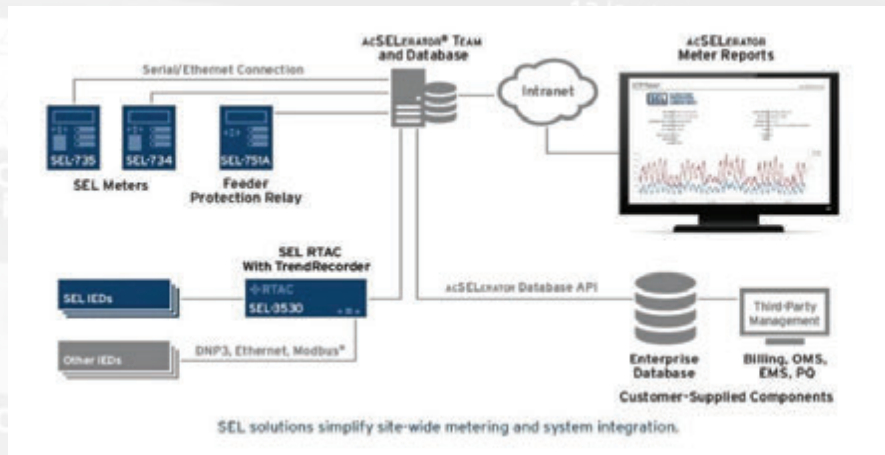
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HANGING HIGH ON THE WALL



Dr Habibah @ Norehan Haron

DR HABIBAH, a committee member of Women Engineers Section, IEM, is a senior lecturer at Engineering Department, Razak Faculty of Technology and Informatics, Universiti Teknologi Malaysia.



The World Peace Pagoda, situated on a narrow ridge high above Phewa Lake in Pokhara, measures 105m in diameter. It is a major tourist attraction in Nepal and offers a panoramic view of the Himalayan peaks. The pagoda has 4 statues of Lord Buddha around the wall, gifts from Japan, Sri Lanka, China and Lumbini Nepal.

Men at work were spotted hanging on the brilliant-white 35m-tall wall of the pagoda, which stood at 1,100m above sea level. Principles of engineering mechanics, static, safety and ergonomics are important aspects for those men, hanging high on the wall. ■



CHALLENGES IN GETTING STARTED AGAIN



by Mr. Wei Kewu

On 18 March 2020, the Movement Control Order (MCO) was enforced nationwide to contain the spread of Covid-19. At 12 May, the MCO had been extended four times to end on 9 June.

Because of this, work at construction sites came to a stop for about 2 months. The MCO was a very difficult period. As a main contractor, we had to ensure that essential activities such as security, housekeeping and vector control was observed at sites. We also had to ensure that payments to suppliers, subcontractors and our employees were made on time. This situation reminded us of the saying: "Cash flow is the king."

On reflection, we faced four main challenges when we were preparing to resume site works: When the MCO would end, the higher costs incurred if new Covid-19 cases were detected, the ability of suppliers and subcontractors to resume work and new instructions, if any from the Government.

Expected end of MCO: During the early days of the MCO, we were preparing for when work would resume as the first phase was from 18 March to 1 April 2020 but on 25 March, the Government announced that it would be extended to 14 April. At that point, we changed our plan and worked from home.

On 10 April 2020, there was good news. Nine industries were allowed to resume operations, subjected to stringent conditions imposed by MITI. These included allowing only 50% of employees at any one time and compliance with

certain Standard Operation Procedures (SOP). We were also reminded that if any worker was detected as Covid-19 positive, we, the employers, would have to bear the full cost of the medical bill.

Higher costs incurred if new Covid-19 cases were detected: We calculated the benefits against the cost since we had a few hundred migrant workers on the payroll. As the daily loss worked out to be much higher than the potential medical cost, we chose to commence work. On 13 April, MITI activated the application process and, together with thousands of other applicants from the nine permissible industries, we made our applications online. We obtained approval only after 10 days but in the meantime, we made detailed plans that covered the following:

1. Team A and Team B arrangements as well as alternating working hours
2. Pandemic control measures
3. Supervision arrangement
4. Emergency response
5. Emergency support.

We took steps to mark social distancing on site and commissioned specialists to disinfect the site and office.



Disinfection in Progress

Ability of suppliers and subcontractors to resume work:

We arranged for our suppliers and subcontractors to apply for their permits and waited a week for approval. However, a new situation arose which changed our plans. On 1 May 2020, the government announced that most industries could resume work from 4 May without the need to get an approval from MITI. Thus, all our efforts to apply for the resumption of works since 13 April appeared to be redundant.

New instructions from the Government:

It was a difficult decision for the Government to allow businesses to operate during the MCO. As we were preparing to start work on 4 May, the government announced that all foreign workers would have to undergo Covid-19 tests and that costs would be paid by the employers. Each test



Social Distancing inside the site office

costs RM400 and we had 800 workers. But we immediately arranged for this to be done at an approved clinic and on 12 May, all our workers had completed the tests with negative results.

It was only then that our sites started to hum again with activity. Tower cranes were activated and trucks rolled in to deliver concrete. The



Covid-19 testing in progress

real challenge, however, was catching up on time lost due to the MCO. At the same time, we learnt to embrace the new norm as Covid-19 was expected to be around for a bit longer. ■



Observing social distancing in buses



Observing social distancing at the workplace



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IMPORTANCE OF DIGITALISATION DURING COVID-19



by Mr. Alex Looi
Tink Huey



Ir. Dr Siow Chun Lim

Last New Year's Eve was unlike any other we had ever experienced. Table 1 shows the calendar of events since then.

Date	Event
31 December 2019	China reported a pneumonia case of unknown cause to WHO
25 January 2020	Malaysia reported its first case
30 January 2020	WHO declared a Public Health Emergency of International Concern
11 February 2020	WHO named the new coronavirus disease as COVID-19
11 March 2020	WHO declared COVID-19 as a pandemic
18 March 2020	Malaysian government initiated the Movement Control Order

Table 1: Calendar of events from New Year's Eve to Malaysia's Movement Control Order¹⁻²

The COVID-19 pandemic has horizontally and vertically impacted the global supply chain markets. Airlines, construction, motor vehicles, real estate, travel agencies and retail outlets are among those forced to bear the full brunt of this global crisis. Businesses struggle to meet monthly expenses and make ends meet, particularly SMEs and those in the gig economy.

The Malaysian Investment Development Authority (MIDA) has estimated that industrial output will reduce between 40% and 70% during the MCO, with a projected negative growth of -8.6% of the manufacturing sector³. The value of Gross Domestic Product (GDP) loss relative to that projected for 2020, is estimated to be in the range of RM38 billion to RM102 billion³.

The announcement of the MCO on 16 March 2020 caught many companies by surprise. With only a day's notice before the MCO kicked in on 18 March, they

scrambled to prepare and implement remote working arrangements. Expecting limited-to-zero cash flow during this period, they had to abandon conventional business processes and instead, adopt new strategies to stay afloat.

One recent survey revealed that 40% of the respondents were not prepared for remote working arrangements⁴. Companies which did not have digital business processes and digital sales channels would most likely be more affected during the MCO. All these are leading indicators of the importance of digitalisation.

Companies should leverage on the power of digitalisation in executing their Business Continuity Plans. Firstly, accounts and human resource expertise should be leveraged to maintain the physical and mental well-being of employees and to provide guidance, assurance and relief to those affected⁵. Online banking accounts should be set up to facilitate the transfer of funds in lieu of depositing traditional cheques. PwC highlighted that future digital banks can empower consumers with big data analytics tools and platforms which are supported by machine learning algorithms to assess financial status and information⁶.

Next, back-up plans for affected employees may be developed by incorporating digital automation and remote working arrangements⁵. Employees should be equipped with collaborative tools with reliable broadband connections. Interactions and meetings with internal teams and customers can be conducted via conference bridges or virtual meeting facilities.

Cloud-based accounting systems can be used to manage cash flow and working capital, real-time inventory data and forecasts alongside supply and demand predictions. KPMG noted that businesses with data-rich environments can achieve better operational performances by harnessing the capabilities in operations, procurements and Research & Development (R&D)⁵.

Companies can also explore the e-commerce platform to ensure internal supply chains and delivery

mechanisms are able to cope with the demand and to satisfy customer requirements with comprehensive end-to-end supply chain management and advanced forecasting abilities using data analytics⁷.

Businesses with full supply-chain transparency with algorithms to detect purchase-pattern changes will be able to mitigate stock-outs during the crisis⁸.

The shift to remote working arrangements at both scale and pace will be likely increase cybersecurity threats as existing processes and good practices may be sidestepped when employees utilise virtual meetings and data sharing tools⁹. Remote access systems may also be targeted by Distributed Denial of Service (DDOS) attacks seeking to disrupt business operations or to extort a business for money. To mitigate cybersecurity threats, businesses should ensure that remote access systems are securely configured and installed with the latest security patches, monitor web traffic logs (such as file sharing, collaboration tools and virtual meetings) to detect data theft and develop cybersecurity risk management plans. The culture of cybersecurity should also be cultivated among employees.

According to McKinsey, the COVID-19 crisis has significantly accelerated the shift to digitalisation where consumers and businesses have accelerated the use of digital technologies¹⁰. The adoption of digitalisation is more about human psychology rather than the technology itself and the ways in which humans interact and use these technologies.

Therefore, businesses must adopt a people-centric approach to their digital transformation efforts for successful implementation. COVID-19 is expected to stay for some time and digitalisation is the key enabler of the new norm that we all have to embrace. ■

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VISIT TO MIYATA PLANT, TOYOTA MOTOR KYUSHU, JAPAN



by Illy Alia binti Mohd Azizan

On 24 January 2020, 10 students from UiTM IEM Student Chapter attended the Nanosatellite Mission Design Review 2.0 at Miyata Plant, Toyota Motor Kyushu, Inc., Japan. The Miyata was established on February 8 1991 and focused on the production and sales of cars and car parts. The plant manufactures the Lexus brand which builds quality products with fine expertise. The cars built here are customised to customers' requests, so no two are alike.

Production flow starts with metal stamping to make the doors, fenders and other parts of the car, followed by quality inspection. Next, during the welding process, robots are used to create a high precision rigid body for a smooth and quiet ride. The welded body is then washed followed with pre-, intermediate- and top-coat painting. Both interior and exterior are then polished to mirror finish.

At the parts assembly facility, about 2,000 employees put together as many as 6,500 parts, including windows and engine. The final step after the assembly is the inspection of about 1,800 check-points on every car including the exterior, functions, gaps and alignments on hood and doors, surface height difference, bumps, dents and any extraneous objects. This ensures only high-quality vehicles are delivered which will leave customers totally satisfied.

At the quality zone, we were briefed on the production

and workmanship of the skilled team members. For the interior of the car, they self-apply the luxurious instrument panel. Although the leather seats are installed by the robots, the stitching is done by the 12 extraordinary "Takumi" specialists with care. To qualify for this job, these specialists must demonstrate their ability by folding an origami-paper cat in under 90 seconds with one hand. It takes a long time to ace this skill to a proper degree of refinement.

As for the exterior of the car, we were shown how the parts were installed with optimal gaps, avoiding misalignments of outer panels. When it comes to the doors, they aim for a high-class closing sound.

The Toyota guidelines define the framework of basic values and business methods where employees at every level applies the "Toyota Way" principle at work, globally.

The Toyota Way is built with two pillars which are continuous improvements that take in the concept of Challenges, Kaizen and Genki Genbutsu as well as embrace Respect and Teamwork. The principles are updated constantly for self-improvement in order to make the highest quality products. They also emphasise human resource development by training the employees to build the perfect Lexus.

The UiTM students were amazed at Toyota's production line. ■



UPCOMING ACTIVITIES

WEBINAR - Sustainability Professional: In the Throes of Unprecedented Crisis

Date : 3 September 2020 (Thursday)
 Time : 2.30 p.m. – 3.30 p.m.
 Venue : Digital Platform
 Approved CPD : 1
 Speaker : Ts. Sr. Nadzirah Hj. Zainordin

Technical Visit to KTMB Track Engineering Depot Shah Alam - Rescheduled from 21 March 2020 (Keretapi Tanah Melayu Berhad, Depoh Kejuruteraan Landasan, Lot 95, Jalan Belung 15/11, Seksyen 15, 40200 Shah Alam, Selangor Darul Ehsan.)

Date : 5 September 2020 (Saturday)
 Time : 9.00 a.m. – 1.00 p.m.
 Approved CPD : 3.5
 Organised By : Public Sector Engineers Special Interest Group

WEBINAR - "MS IEC 62305 SERIES SESSIONS 1 & 2"

Date : 7 - 8 September 2020 (Monday to Tuesday)
 Time : 2.00 p.m. – 4.00 p.m.
 Venue : Digital Platform
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 Speaker : Mr. Shailendra Kumar

One-Day Course On "Offshore Platform and Facilities for Exploration And Production Including Structural Health Monitoring For Asset Life Monitoring" - Rescheduled from 30 April 2020

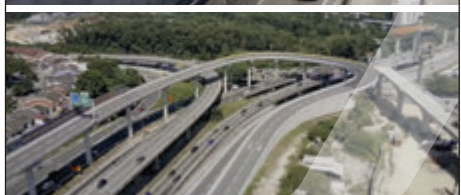
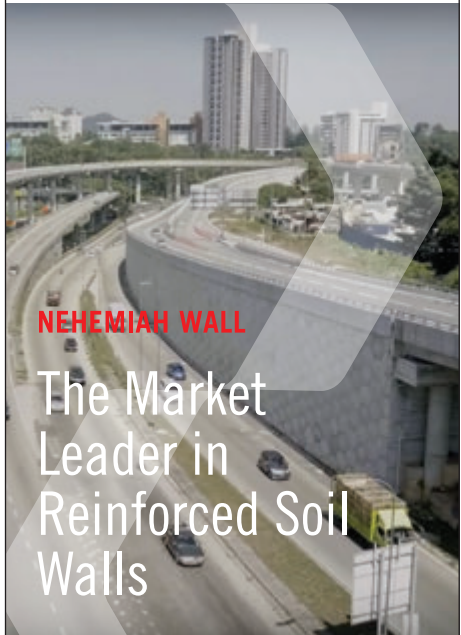
Date : 9 September 2020 (Wednesday)
 Time : 8.30 a.m. – 5.30 p.m.
 Venue : Wisma IEM, 04 - Auditorium Malakoff, Ground Floor
 Approved CPD : 7
 Speakers : Ir. Prof. Dr Mohd Shahir Liew, Ir. Dr Lim Eu Shawn

WEBINAR - An Overview + Application of Occupational Safety and Health In Construction Industry Management (OSHCIM) Session 1 (of 2-Part Training Programme)

Date : 12 September 2020 (Saturday)
 Time : 1.30 p.m. – 3.30 p.m.
 Venue : Digital Platform
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 Speakers : YBrs. En. Nazruddin bin Mat Ali, En. Azman bin Hussain, Ir. Dr Mohd Fairuz bin Ab Rahman, Ir. Mokhtar bin Sabtu, En. Mohamad Syamir bin Senin

WEBINAR - An Overview + Application of Occupational Safety and Health In Construction Industry Management (OSHCIM) Session 1 (of 2-Part Training Programme)

Date : 12 September 2020 (Saturday)
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 Venue : Digital Platform
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WE SABAH HELPS IN FIGHT AGAINST COVID-19



by Nor Shakinah
Awang Raiman



Donation of food for students of Universiti Malaysia Sabah

On 11 March 2020, the World Health Organisation (WHO) declared the novel coronavirus (Covid-19) outbreak a global pandemic due to the rapid increase in the number of cases outside China. Countries raced to slow down the infection by conducting testing and treating patients, carrying out contact tracing, limiting travel, placing citizens under quarantine and cancelling large gatherings such as schools, weddings and religious gatherings.

Several countries have succeeded in slowing the outbreak. However, the situation remains unpredictable. On top of that, the latest Global Financial Stability Report shows that the financial system is already feeling a dramatic impact. Every day, around the world, people lose their jobs and incomes and there is no way of knowing when normality will return.

Nevertheless, our healthcare workers continue to devote their time and energy to try and contain the pandemic. We are humbled by their immense sacrifices, invaluable dedication, commitment and unwavering efforts in managing Covid-19, oftentimes at the risk of their own lives, for the benefit of the nation.

To do our part, The Institution of Engineers Malaysia (IEM) Sabah, Women Engineer (WE) Section organised a donation drive to support those affected. WE collected donations totalling RM3,950 over 2 days and the money was channelled to the following:

1. Lunch, dinner and supper meals which were distributed to staff members of Kementerian Kesihatan Malaysia (KKM), Polis Diraja Malaysia (PDRM) and Angkatan Tentera Malaysia (ATM) in Kota Kinabalu, Beaufort and Kota Belud districts.
2. Supplies for Hospital Queen Elizabeth.
3. Food donation to University Malaysia Sabah (UMS) students.
4. Donation of 1 unit non-contact thermometer for Hospital Beaufort.

This is not just a public health crisis; this is a crisis that has touched every sector. For this reason, we must all do our part, no matter how small or even to a limited extent. Practise physical distancing, thoroughly clean your hands regularly and avoid mass gatherings or crowded places. We should be in this together to fight the COVID-19 pandemic.

#STAYATHOME #STAYSAFE ■



Donation of food for students of Universiti Malaysia Sabah

UPCOMING ACTIVITIES

Webinar - Introduction to Wells Decommissioning

Date : 12 September 2020 (Saturday)
 Time : 9.00 a.m. – 11.00 a.m.
 Venue : Digital Platform
 Approved CPD : 2
 Speaker : Ir. Razak Yakob

2-Day Course on Malaysian Civil Engineering Standard Method of Measurement (MyCESMM2)

Date : 14 - 15 September 2020 (Monday to Tuesday)
 Time : 9.00 a.m. – 5.00 p.m.
 Venue : Wisma IEM, 02- C&S Lecture Room, Second Floor,
 03- TUS Lecture Room, Second Floor
 Approved CPD : 13
 Speaker : Ir. Hj. Shahul Ikram bin Hj. Adnan

WEBINAR - 1. Introduction of Kenaf Fibre in Expanded Polystyrene Concrete* 2. The Hidden Threat Behind El NINO

Date : 17 September 2020 (Thursday)
 Time : 2.30 p.m. – 3.30 p.m.
 Venue : Digital Platform
 Approved CPD : 1
 Speakers : Dr Ling Lloyd, Ir. Dr Kwong Kok Zee

Pre-AGM Talk On “Air Pollution Episode In Pasir Gudang: What Can We Learn?”

Date : 19 September 2020 (Saturday)
 Time : 9.00 a.m. – 11.00 a.m.
 Venue : Wisma IEM, 04 - Auditorium Malakoff, Ground Floor
 Approved CPD : 2
 Speaker : Dr Mohd Famey bin Yusoff

One Day Course On “Hazard Identification, Risk Assessment and Control (HIRAC) in Engineering Project Management”

Date : 22 September 2020 (Tuesday)
 Time : 9.00 a.m. – 5.00 p.m.
 Venue : Wisma IEM, 04 - Auditorium Malakoff, Ground Floor
 Approved CPD : 7
 Speaker : Dr Abdul Rahman bin Abdul Rahim

One-Day Course On “Introduction to Offshore Decommissioning For Fixed Offshore Structures” – Rescheduled from 18 May 2020

Date : 23 September 2020 (Wednesday)
 Time : 8.30 a.m. – 5.30 p.m.
 Venue : Wisma IEM, 04 - Auditorium Malakoff, Ground Floor
 Approved CPD : 7
 Speakers : Assoc. Prof. Dr Noor Amila, Professor Shahir, Ir. Dr Lim Eu Shawn



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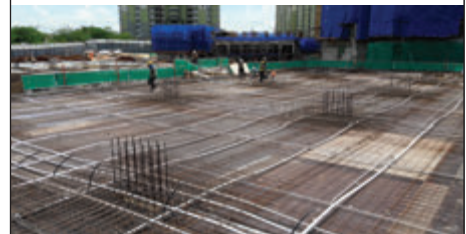
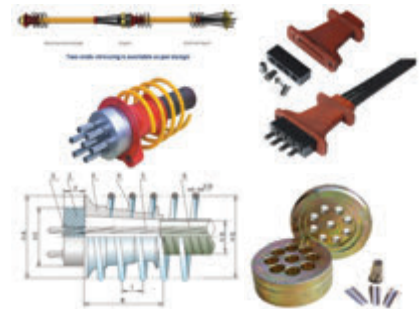
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MY SON SANCTUARY



Ir. Dr Oh Seong Por

Ir. Dr Oh Seong Por is the chairman of IEM Negeri Sembilan Branch.



My Son Sanctuary

Last year October, I joined my buddies to visit My Son, the ancient shrine of Champa Kingdom, located about 70km southwest of Danang, a coastal city of Central Vietnam. At Danang we hired a local tour guide named John and headed to My Son by van. It was raining but fortunately it stopped when we reached our destination.

My Son means beautiful mountain in Vietnamese and is situated at a valley surrounded by two mountain ranges at Quang Nam Province. It is a cluster of Hindu temples built between the 4 ~ 13th century by the Kings of Champa, an Indianised kingdom of the Cham people. According to John, the first temple was built by King Bhadravarman who reigned from the year 380 ~ 413. Whenever a new king ascends the throne, he is obliged to build a temple to dedicate to the God Shiva as his protector. Over the centuries, more than 70 temples have been constructed within the valley, thus making My Son the largest and oldest ancient holy sanctuary in the South East Asia, beating Angkor Wat of Cambodia and Borobudur of Indonesia.

In 1832, Minh Mang, the Emperor of Vietnam conquered My Son. It was left abandoned and later covered by jungle until 1885, when a Frenchman MC Paris rediscovered it. During the

Vietnam War, communist Viet Cong seek shelter at My Son and in August 1969 the United States launched carpet bombing using B52 bombers.

As the result, many temples were destroyed. After the war, Vietnamese Government started the conservation work and in 1999 My Son was gazetted by UNESCO as a World Heritage Site of the ancient Champa Civilisation.

As I explored the site, I realised that the temples were built in moderate size. All the temples were made entirely from reddish bricks or stones, beginning from the bottom foundation till the top roof. The bricks were carefully



My buddies and families

layered and bonded by some kind of sticky mortar. As explained by John, the structures were hardened by fire after the temple was completely constructed. This technique made the temples solid and they prevailed till today. I also noticed some inscriptions on the walls which according to John were sacred phrases in ancient Sanskrit or old Cham. There were varieties of decorative and deity carvings cut into the bricks.

As I explored further, I noticed there were few artefacts at the site which was quite unusual for an ancient temple. I asked John and he replied that most of the artefacts were collected by archaeologists who came to do research. Some artefacts were transported to museums. Some were stolen and sold to antique collectors.

As I explored the site, I could see traces of wars such as bullet marks on walls or towers and half ruined structures. Even the surroundings were covered with bomb craters turned ponds. The long history spanning for almost 9 centuries of the Champa civilisation was reduced together with the destructions brought by bloody wars. It becomes the living proof that the greatest enemy of mankind is man. Man creates, man destroys. However it is heartening to see conservation works to restore the ruined temples. Those who appreciate ancient history will find My Son a worthwhile place to visit. I am definitely one of them. ■



Bomb crater turned pond



Cluster of ruined temples and structures

IEM Top Mentors Award

2019

IEM Top Mentors Award recognises the IEM Engineering Competency Development mentors who have gone the extra mile to inspire and help their mentees become professional engineers

THE FIVE WINNERS OF THE IEM TOP MENTORS FOR 2019 ARE:

No.	Name	Discipline
1.	Ir. Prof. Madya Dr Abdul Talib Din	Mechanical
2.	Assoc. Prof. Ir. Dr Hayati Abdullah	Mechanical
3.	Ir. Chuah Rhun Rieng	Electrical
4.	Ir. Lau Eng Kee	Civil
5.	Ir. Dr Ahmad Fadzil Ismail @ Ibrahim	Electronic

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Tarikh: 13 Ogos 2020

Kepada Semua Ahli,

SENARAI CALON-CALON YANG LAYAK MENDUDUKI TEMUDUGA PROFESIONAL TAHUN 2020

Berikut adalah senarai calon yang layak untuk menduduki Temuduga Profesional bagi tahun 2020.

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 2020.

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. Dr David Chuah Joon Huang
Setiausaha Kehormat, IEM
(Sessi 2020/2021)

PERMOHONAN BARU		
Nama	Kelayakan	
KEJURUTERAAN AWAM		
ADILAH BINTI MOHD ZAWAWI	BE HONS (UTP) (CIVIL, 2010)	
KEJURUTERAAN ELEKTRIKAL		
ALI AKBAR BIN AHMAD JASMI	BE HONS (UNITEN) (ELECTRICAL POWER, 2007)	
MOHD ROSLI BIN AWANG	BE HONS (UTMH) (ELECTRICAL - ROBOTIC & AUTOMATION SYSTEM, 2007)	
TEO TECK CHEONG	BE HONS (UTAR) (ELECTRICAL & ELECTRONICS, 2013)	
PERMOHONAN BARU / PERPINDAHAN MENJADI AHLI KORPORAT		
Nama	Kelayakan	
KEJURUTERAAN AWAM		
NOOR NABILAH BINTI SARBINI	BE HONS (UTM) (CIVIL, 2008) ME (UTM) (CIVIL-STRUCTURE, 2010) PhD (UTM) (CIVIL, 2014)	
KEJURUTERAAN ELEKTRONIK		
SAFRI BIN CHE KUB	BE HONS (PORTSMOUTH) (ELECTRONIC & ELECTRICAL, 1997)	
KEJURUTERAAN MEKANIKAL		
CHE HASSAN BIN CHE MAHMOOD	BE HONS (USM) (MECHANICAL, 2002)	
PERPINDAHAN AHLI		
No. Ahli	Nama	Kelayakan
KEJURUTERAAN AWAM		
94021	AMNORZAHIRA BINTI AMIR	BE HONS (MALAYA) (CIVIL, 2003) MSc (UPM) (ENVIRONMENTAL, 2007) PhD (KAIST) (CIVIL & ENVIRONMENTAL, 2012)
105663	LEONG KAH HON	BE HONS (UTMH) (CIVIL, 2009) PhD (MALAYA) (2015)
35919	LEOW ANN HONG	BE HONS (UTM) (CIVIL, 2010)
108400	MASLINDA BT MOHIDDIN	BE HONS (MALAYA) (CIVIL, 2005)
74307	TANEIZ CHELVAM A/L SELVARAJAH	BE HONS (UTM) (CIVIL, 2012)
KEJURUTERAAN ELEKTRIKAL		
25079	AHMAD SYUKRI BIN MOHAMAD	BE HONS (ELECTRICAL & ELECTRONICS, 2003) MSc (UPM) (ELECTRICAL POWER, 2013)
74118	ALEX ANAK ELIZABETH ENCHING	BE HONS (UTM) (ELECTRICAL, 2004)
99271	EFFENDY BIN MANGSOR	BSc (SOUTHERN CALIFORNIA) (ELECTRICAL, 2006) CONVERSION (UNITEN) (2010)
101935	MUHAMMAD ZAKI BIN MUHAMAD ZAFIR	BE HONS (UNITEN) (ELECTRICAL POWER, 2013)
105764	MOHD HAFIZZUDIN BIN ISMAIL	BE HONS (UTeM) (ELECTRONIC POWER & DRIVE, 2012)
KEJURUTERAAN ELEKTRONIK		
23064	CHIN WENG SENG	BE HONS (UTM) (ELECTRICAL - MEDICAL ELECTRONICS, 2000) ME (UTM) (ENGINEERING MANAGEMENT, 2002)

43948	NIK MOHD ZARIFIE BIN HASHIM	BE (FUKUI) (ELECTRICAL & ELECTRONICS, 2008) ME (FUKUI) (ELECTRICAL & ELECTRONICS, 2008)
79050	ZURIATI BINTI JANIN	BE HONS (UTM) (ELECTRICAL, 1996) MSc (UPM) (REMOTE SENSING & GEOGRAPHIC INFORMATION SYSTEMS, 2001)

KEJURUTERAAN MEKANIKAL

76190	MARK OVINIS	BE HONS (UTM) (MATERIALS, 1999) ME (TEXAS A & M) (MECHANICAL, 2003) PhD (LOUGHBOROUGH) (2011)
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KEJURUTERAAN STRUKTUR

94106	TEH SEE YEE	BE HONS (UTM) (CIVIL, 2007)
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PERMOHONAN BARU / PERPINDAHAN MENJADI AHLI KORPORAT

No. Ahli	Nama	Kelayakan
KEJURUTERAAN AWAM		
37046	ELAINE KUSON	BE HONS (UTP) (CIVIL, 2007)
108127	MOHD ZULHAIRI BIN SOBRI	BE HONS (UTP) (CIVIL, 2008)
KEJURUTERAAN MEKANIKAL		
42437	JARONIE BIN MOHD JANI	Dip.Ing. (MASHINENBAU) (MECHANICAL, 2001) MIED (UPM) (2008) PhD (RMIT) (2016)
KEJURUTERAAN MEKATRONIK		
58103	SALMIAH BINTI AHMAD	BE HONS (IUM) (MECHATRONICS, 2001) ME (CURTIN) (ELECTRICAL, 2005) PhD (SHEFFIELD) (2010)

UPCOMING ACTIVITIES

Technical Talk on "Ecotechment" In Water and Environment - Rescheduled from 31st March 2020

Date	: 23 September 2020 (Wednesday)
Time	: 5.35 p.m. – 7.30 p.m.
Venue	: Wisma IEM, 04 - Auditorium Malakoff, Ground Floor
Approved CPD	: 2
Speaker	: Ir. Megat Johari Megat Mohd Noor

1 Day Seminar On Active Transportation - Pathways To Healthy Living

Date	: 29 September 2020 (Tuesday)
Time	: 9.00 a.m. – 5.00 p.m.
Venue	: Wisma IEM, 02 - C&S Lecture Room, Second Floor, 03 - TUS Lecture Room, Second Floor
Approved CPD	: 7
Speakers	: Datin TPr Hj Mazrina Dato' Abdul Khalid, Mr. Lee Hwok Lok, Datin TPR Noraida Saludin

One Day Course on Technical Report Writing - Guidelines for PI Submission

Date	: 30 September 2020 (Wednesday)
Time	: 9.00 a.m. – 5.00 p.m.
Venue	: Wisma IEM, 02 - C&S Lecture Room, Second Floor, 03 - TUS Lecture Room, Second Floor
Approved CPD	: 6
Speaker	: First Admiral Dato' Ir. Hj. Ahmad Murad bin Hj Omar

CONTINUATION FROM
JULY ISSUE 2020

PEMINDAHAN AHLI KEPADA AHLI KORPORAT

No. Ahli	Nama	Kelayakan
KEJURUTERAAN KIMIA		
84918	CHIN YEN WEI @ TAN YEN WEI	BE HONS (UITM) (CHEMICAL, 1998)
KEJURUTERAAN AWAM		
75472	ASSRUL REEDZA BIN ZULKIFLI	BE HONS (UTM) (CIVIL, 2008)
103108	CHONG CHAN KIAT	BE HONS (SEGI UNIVERSITY) (CIVIL, 2013)
72499	NICKY WAI-LUN NG	BE HONS (UKM) (CIVIL & STRUCTURAL, 2014)
26818	YAW SIEW KIN	BE HONS (UPM) (CIVIL, 2004)
52310	AZHAR BIN AZMI	BE HONS (UTM) (CIVIL, 2006) ME (UPM) (HIGHWAY & TRANSPORTATION, 2013)
94689	LOK MING SHANN	BE HONS (NOTTINGHAM) (CIVIL, 2011)
99170	TAN TENG HAU	BE HONS (MALAYA) (CIVIL, 2012)
43545	CHAN HWA FANG	ME (PORTSMOUTH) (CIVIL, 2003)
33245	MOHD FIRDAUS FAEZAL BIN CHE AZMI	BE HONS (UITM) (CIVIL, 2008) MSc (UITM) (CONSTRUCTION, 2018)
96876	RIDZWAN BIN ZAKARIAH	BE HONS (UTM) (CIVIL, 2015)
65279	HAFIZ BIN MOHD KHANAFI	BE HONS (KUITTHO) (CIVIL, 2005)
27029	EFFA IRDA WATI BINTI SUPERMAN	BE HONS (UITM) (CIVIL, 2006)
64802	HO KENG SING, KENNETH	BE HONS (KLIUC) (CIVIL, 2011)
28829	LIM CHEW HIN	BE HONS (UTM) (CIVIL, 2003)
27790	MOHD IZHAR BIN SAIBIN	BE HONS (UITM) (CIVIL, 2007)
50676	MOHD JAMRY BIN ABD JAWAS	BE HONS (UKM) (CIVIL & STRUCTURE, 2006)
27062	RUMAIZAH BINTI MOHD NORDIN	BE HONS (UITM) (CIVIL, 2006)
20186	TAN YENG KIANG	BE HONS (UTM) (CIVIL, 2002)
45298	THAN WYE JIN	BE HONS (NEW SOUTH WALES) (CIVIL, 2010)
26616	EGU PHOOI MEI	BE HONS (MALAYA) (CIVIL, 2006)
45370	NIK MOHD MAHZAN BIN NIK MOHD MAHATHIR	BE HONS (UTM) (CIVIL-CONSTRUCTION, 2008)
2652	SUMATHI A/P SUBRAMANIAM	BE HONS (UTP) (CIVIL, 2007) ME (UITM) (GEOTECHNICS, 2016)
KEJURUTERAAN PEMBINAAN		
15123	TAN CHEE SENG	BE HONS (UITM) (CIVIL, 1995)
KEJURUTERAAN ELEKTRIKAL		
62008	MUHAMMAD HAFEEZ BIN MOHAMED HARIRI	BE HONS (USM) (ELECTRICAL, 2010)
25071	MARAYATI BTE MARSADEK	BE HONS (UNITEN) (ELECTRICAL POWER, 2012) ME (UNITEN) (ELECTRICAL, 2006) PhD (UKM) (ELECTRICAL, ELECTRONIC & SYSTEM, 2011)
88815	MUHAMMAD ASYRAF BIN MOHD SAH	BE HONS (MALAYA) (ELECTRICAL, 2015)
7819	YIU YAT MING	BE HONS (NOVA SCOTIA) (ELECTRICAL, 1981)
69506	CHANG HEEN LOONG	BE HONS (QUEENSLAND) (ELECTRICAL & COMPUTER, 2005)
74332	TAN CHEK YAU	BE HONS (UTAR) (ELECTRICAL & ELECTRONIC, 2010)
50066	KATHIRAVUN A/L MUTHAIAH	BE HONS (UNITEN) (ELECTRICAL & ELECTRONICS, 2014)
72721	MOHAMAD SABHI BIN HISSAM	BE HONS (UITM) (ELECTRICAL, 2012)
78886	NAJWA BINTI ISMAIL	BE HONS (UMS) (ELECTRICAL & ELECTRONICS, 2006)
48116	SLOW LIP KHAI	BE HONS (UPM) (ELECTRICAL & ELECTRONICS, 2010)
KEJURUTERAAN ELEKTRONIK		
38361	AHMAD AZLAN BIN AB AZIZ	BE HONS (UTHM) (ELECTRICAL, 2008) MSc (UITM) (TELECOMMUNICATION & INFORMATION, 2012) PhD (UITM) (2017)
74391	LIM BOON HAN	BE HONS (UITM) (ELECTRICAL, 1998) PhD (UITM) (2013)

79574	SAMSUL BIN SETUMIN	BE HONS (SURREY) (ELECTRONIC, 2006) ME (UTM) (ELECTRICAL-ELECTRONICS & TELECOMMUNICATIONS, 2010)
26750	AMARUL BIN TALIP	BE HONS (UTHM) (ELECTRICAL, 2005)

KEJURUTERAAN PEMBUATAN

38036	WAN SHARUZI BIN WAN HARUN	BE HONS (UNIMAS) (MECHANICAL & MANUFACTURING SYSTEMS, 2004) ME (UTM) (MECHANICAL - ADVANCED MANUFACTURING, 2008) PhD (KYUSHU) (MECHANICAL, 2013)
54249	MEERA A/P VAJAINDRAN	BE HONS (Unimap) (MANUFACTURING, 2009) ME (UPM) (MANUFACTURING SYSTEMS, 2011)

KEJURUTERAAN MEKANIKAL

43438	CHU SOON HON	BE HONS (MALAYA) (MECHANICAL, 2010)
101047	MOHD FIRDAUS BIN SAID	BE HONS (UITM) (MECHANICAL - MARINE TECHNOLOGY, 2002)
27971	CHAN LOK YONG	BE HONS (ADELAIDE) (MECHANICAL, 2001)
39212	SAIDIN BIN IBRAHIM	BE HONS (UTM) (MECHANICAL-MARINE TECHNOLOGY, 2004)
34020	MOHD SARIZAL BIN ABU BAKAR	BE HONS (UTHM) (MECHANICAL, 2005) MSc (UITM) (MECHANICAL, 2014)
88875	TAN SIEW AUN	BE HONS (USM) (MECHANICAL, 2007) MSc (USM) (MECHANICAL, 2018)

KEJURUTERAAN PETROLEUM

81853	MOHD RAZMI ZIQRI BIN AHMAD SHUKRI	BE HONS (UTP) (PETROLEUM, 2012) MSc (UTP) (PETROLEUM, 2018)
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KEJURUTERAAN SUMBER AIR

88481	AMIRUDEAN BIN SAPIEE	BE HONS (UITM) (CIVIL, 2011)
21630	TEE YI SHENG	BSc (NEW BRUNSWICK) (CIVIL, 2000)

PEMINDAHAN KEPADA AHLI (MELALUI
PEPERIKSAAN PENILAIAN PROFESIONAL)

No. Ahli	Nama	Kelayakan
KEJURUTERAAN KIMIA		
55822	LEONG WEI DONG	ME HONS (NOTTINGHAM) (CHEMICAL, 2012)

KEJURUTERAAN AWAM

78464	CHAI SHIONG YEN	BE HONS (MALAYA) (CIVIL, 2011)
57091	MOHD HAFIZ ARIF BIN ZAKARIA	BE HONS (UITM) (CIVIL, 2011)
18153	MOHD SARUDIN BIN MOHD AZIZ	BE HONS (MALAYA) (CIVIL, 1994)
16327	TAIRINI BIN ABIN	BE HONS (UTM) (CIVIL, 1990)

KEJURUTERAAN ELEKTRIKAL

49283	OOI KEAN LEONG	BE HONS (UPM) (ELECTRICAL & ELECTRONICS, 2007)
13651	WAN MOHD RUSLI BIN WAN DAUD	BSc (UNIVERSITY OF THE PACIFIC) (ELECTRICAL, 1988)

KEJURUTERAAN ELEKTRONIK

89489	MOHD KHAIRUNNIZAM BIN MHD SUPIAN	BE HONS (UKM) (COMMUNICATION AND COMPUTER, 2001) MSc (UKM) (ELECTRICAL, ELECTRONIC & SYSTEM ENGINEERING, 2009)
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PERMOHONAN MENJADI AHLI KORPORAT

Nama	Kelayakan
KEJURUTERAAN AWAM	
AFFANDI BIN AHMAD	BE HONS (UTM) (CIVIL, 1996)
ALDRICH CHAN TSE KEEN	BE HONS (SWINBURNE) (CIVIL, 2011)
AZLI BIN MOHD HASHIM	BE HONS (UTM) (CIVIL, 2007) MSc (UTM) (CONSTRUCTION MANAGEMENT, 2012)
FARAH EYANI BINTI ZAINAL ABIDIN	BE HONS (UITM) (CIVIL, 2007)
IRIN BINTI ISMAIL	BE HONS (UITM) (CIVIL, 2000)

JUSMAIROMAIZANI BINTI JOSOH	BE HONS (UTM) (CIVIL, 2000) MSc (UITM) (CIVIL, 2005)
KENNEDY ANAK KEDO	BE HONS (UTM) (CIVIL, 2005)
MOHD AFZAINAM BIN NOORDIN	BE HONS (UTM) (CIVIL, 2003)
MOHD ALFIAN BIN ABU BAKAR	BE HONS (UITM) (CIVIL, 2007)
MOHD ANUAR BIN ABDUL NASIR	BE HONS (UITM) (CIVIL, 2007)
NOR FAEZAH BINTI ROZAINI	BE (UTM) (CIVIL, 2006)
NORJULIZA AZLINA BINTI MOHD BASRI	BE HONS (UITM) (CIVIL, 2008)
NORKHAIRULNISA BINTI MAT SAH	BE HONS (UTM) (CIVIL, 2003) ME (UTM) (TRANSPORTATION & HIGHWAY, 2005)
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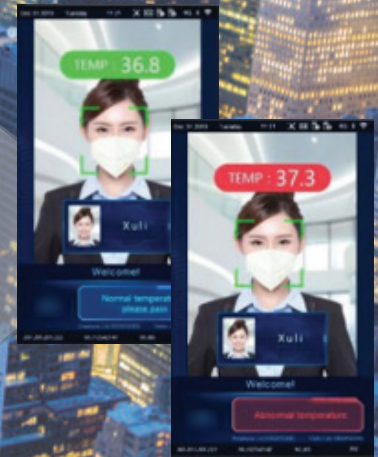
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