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JULY 2017

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The Institution of Engineers, Malaysia

THE MONTHLY BULLETIN OF THE INSTITUTION OF ENGINEERS, MALAYSIA

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Women Engineers AS TRENDSETTERS

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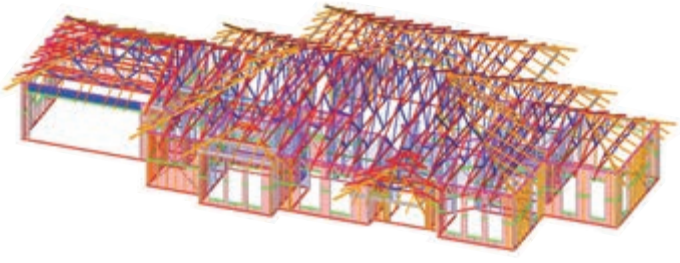

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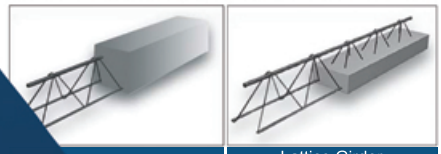
Common usage

Crustal Panel



Lattice Girder in Lintel

Lattice Girder in Crustal panel or Bearing beams

Bearing Beams

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cover note

Women Engineers as Trendsetters

by Ir. Dr Leong Wai Yie
Chairman, Women Engineers Section

This month, *JURUTERA* celebrates "Women Engineers as Trendsetters". Women are one of the biggest contributors to the engineering community and IEM Women Engineers Section wants to acknowledge women who are achievers and leaders in the various fields of engineering.

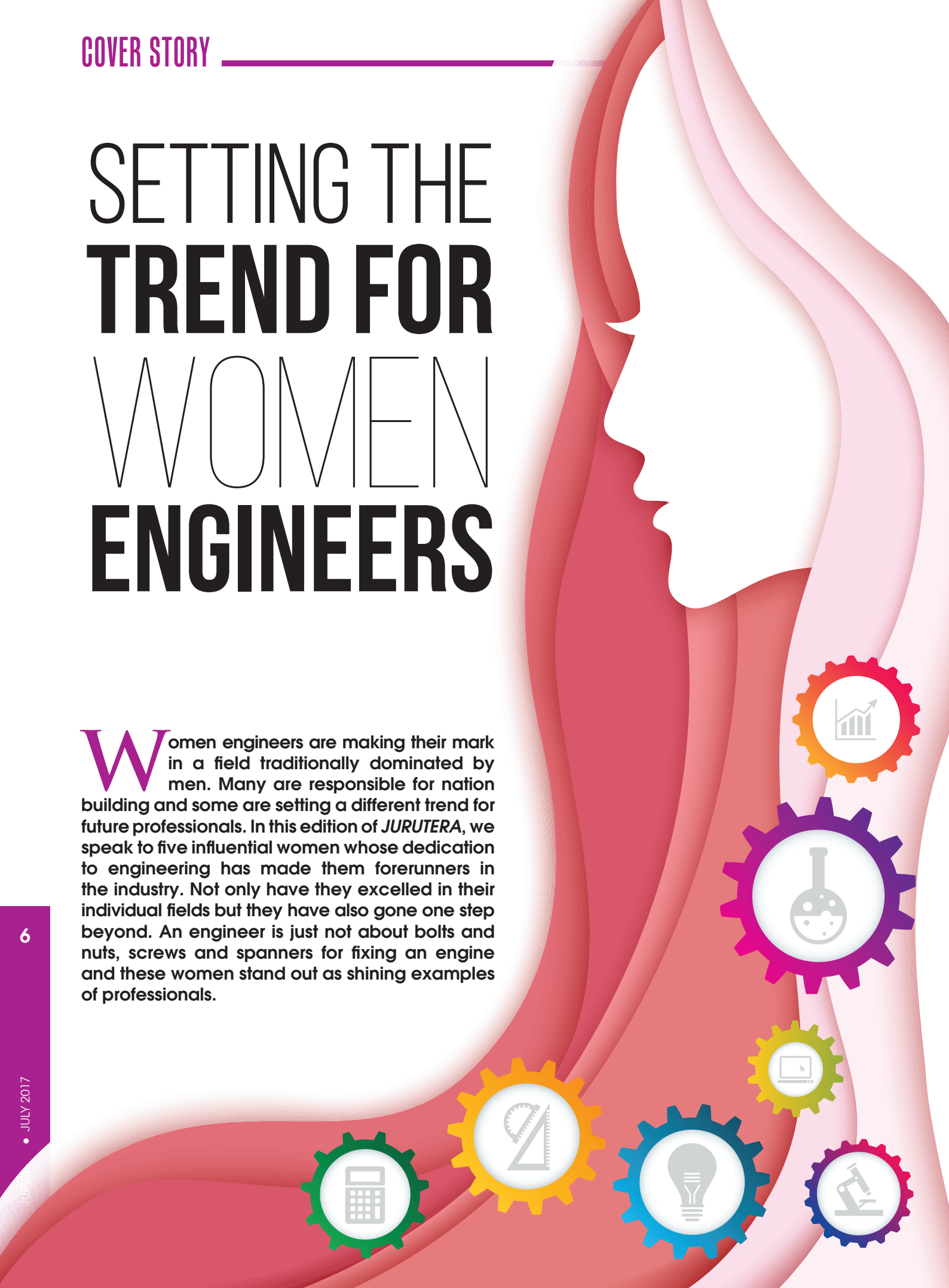
It is time for us to recognise our women members, especially those who have boosted the engineering profession with their contributions to the industry, education and the community. Indeed, women engineers have made a significant impact on their communities as well as the engineering and technology profession as a whole.

Such women leaders are a catalyst for change as we work together to empower women in STEM and close the gender gap in engineering.

Those highlighted in this issue of *JURUTERA* are professionals and collegiates from some of the most influential businesses, corporations and universities in the country. In particular, we have also mentioned the community service that has benefitted young women in rural areas.

We're sharing our presence and experiences at both the 2016 Women Engineers meeting at the ASEAN Federation and Engineering Organisations (AFEO), Palawan, The Philippines, and The International Conference of Women Engineers and Scientists (ICWES) and we've also invited representatives to pen their thoughts on gender rights, responsibilities and opportunities in their workplaces. ■

SETTING THE TREND FOR WOMEN ENGINEERS



Women engineers are making their mark in a field traditionally dominated by men. Many are responsible for nation building and some are setting a different trend for future professionals. In this edition of *JURUTERA*, we speak to five influential women whose dedication to engineering has made them forerunners in the industry. Not only have they excelled in their individual fields but they have also gone one step beyond. An engineer is just not about bolts and nuts, screws and spanners for fixing an engine and these women stand out as shining examples of professionals.

Ir. SUHANA ABDUL MAJID
CIVIL ENGINEER

A graduate from the University of Glasgow in Scotland, Suhana has more than 25 years' experience in the profession. Among others, her repertoire includes construction of the North-South Highway, the Kuala Lumpur International Airport project, the KTM rail project and the Klang Valley LRT.

At present, Suhana is Vice Chairman (1) of the IEM Women Engineer Section and Managing Director of Prestasi Perintis Sdn. Bhd., a C&S Engineering consulting firm.

Engineering was not her first choice for a career but still, she enrolled in a technical school and later graduated with a Bachelor's Degree in Engineering.

"I had worked with various companies as a professional engineer. But when life didn't go according to plan, I decided to set up my own business when I turned 47," she recalls.

Speaking of work-life balance, Suhana credits her family's support for her achievements. Not only is she blessed with spousal support but her mother and personal helper are also always available to help manage daily family matters. As for what keeps her going, she says her passion for the job has seen her through all obstacles.

She has dedicated to all women engineers the following poem written by her daughter:

I Am My Mother's Patience
Her motivation
Her strength to move forward
But most importantly
I am my Mother's daughter
And there is nothing more that I ask
But happiness for her instead

MICHELLE LAU
CORROSION ENGINEER

She is a corrosion engineer, one who specialises in the field of cathodic protection and Michelle Lau runs a company providing such expertise to the oil & gas, and energy production sector. According to her, it was her former employer who encouraged her to pursue a career in the field.

"I had a very nice boss who showed me the way although she herself wasn't an engineer. I was then working as a part-time clerk and my job was to sort out names of alumni members. My boss approached me and asked if I would be interested in a career in corrosion engineering," she recalls.

"She then told me to fax my resume to this company overseas which had a vacancy. Since then, I have never looked back."

Although that was how her career started, that is not where it is today. Just like Suhana, Lau realised that setting up business would be a good way to create more opportunities. That was 15 years ago. But for Lau, one thing that has not changed is that engineering remains the backbone of her successful business.

As she has a relatively young workforce, her advice to the younger generation is that active participation is important in all disciplines and ranks within an organisation.

"Being open and more interactive are necessary to allow your peers to share with you. Sharing sessions (sometimes, just via chat groups) are held to talk about anything and everything, from fun-after-work activities to challenges that someone may be facing in a certain project," she explains.

As for non-work-related matters, Lau says there are two activities that keep her focused and motivated.

"I spend time with an international association to advocate for awareness on corrosion to industry and the general public. Through such an avenue, I get to meet and network with people from various countries and different industries," she says.

Lau is also an avid cyclist and an archer, so naturally, her second distraction is the great outdoors.

"A calendar filled with such activities among work is my idea of work-life balance," she concludes.

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Ir. SHARIFAH AZLINA RAJA KAMAL PASMAH

CHIEF OPERATING OFFICER,
HSS ENGINEERS BHD.

A Civil Engineering graduate who earned her degree in the USA, Sharifah Azlina also has a Master's Degree in Business Administration. She sits on the committee of building SMART Malaysia, a council that drives the Building Information Modelling (BIM) agenda at national level. She has more than 26 years of experience in the field, particularly in project management services, with a focus on road and highway designs.

Speaking of why she had chosen this career path, Sharifah Azlina says: "I was in the pure science stream during my upper secondary years in school. During that time, I had limited exposure, unlike today's wealth of information at one's fingertips, and engineering appealed to me as the most attractive career to embark on."

As for advice to young engineers, the corporate head says: "Be result-oriented and set a yardstick to gauge yourself. Attitude is paramount, while skills can be learnt and developed."

To women aspiring to be engineers, she adds: "Build credibility early in your career although, needless to say, for most of us, hard work is inevitable. The ability to overcome challenges and to tackle complex issues is not developed overnight. However, no obstacle is insurmountable. Often, when you look at issues from different perspectives, you may get the answer or a clue to the solution."

Sharifah Azlina took a truly amazing and different path in August, 2016, when her company was public listed on the ACE Market of Bursa Malaysia. She says: "One of the more difficult tasks was educating the public and potential investors on the differences between a company which rendered consultancy services and a builder/contractor of an infrastructure or facility. While the public at large can easily recognise the functions of the builder and architect, the role of consultant engineers seems to be on the low-profile end of the construction industry's spectrum."

Yes, Sharifah Azlina is definitely a trendsetter who wears two hats: As a professional engineer and the Chief Operating Officer of a public-listed consultancy firm.

Ir. NURUL HUDA BINTI MAT NOR

ENVIRONMENTAL ENGINEER

Even as a freshman at University of Malaya, Nurul Huda was already committed to a career as an Environmental Engineer. "While working as an Environmental Engineer with Sime Darby Jomalina Sdn. Bhd., I furthered my studies at Universiti Teknologi MARA where I earned a Master's Degree in Environmental Engineering. Later, I continued with a Doctorate Degree in Engineering at University of Malaya with the aim of preparing myself to become a world-class Environmental Engineer," she says.

Nurul Huda says her husband keeps her motivated by telling her she must believe she is extraordinary. "Many of us stunt our own growth and we stop ourselves from getting what we want when we have a fixed mindset," she explains.

As an example, she cites how one day, while on a job, it dawned on her that industries needed people with creative minds. All that is required is to share with them and to develop solutions to environmental problems using the principles of engineering, soil science, biology, and chemistry.

So, she decided that, with her own company set up, she would be able to serve the industry better, especially when it comes to compliance issues.

Commenting on time management, Nurul Huda says job stress is inevitable but adds that the most important thing is how to manage your stress.

"We have 24 hours a day to plan. The keyword is PLANNING what to do and what to delegate," she says.

Ir. ZAINAB BINTI KAYAT

PROCESS ENGINEER

Through Zainab's eyes and achievements, we see the perspectives of an engineer in national oil company PETRONAS, where she has contributed to new breakthroughs with technology and engineering solutions. Within the organisation, she is an industry shaper and mover, with a string of accolades behind her.

She says: "Innovativeness comes when we have to resolve problems within ridiculous deadlines especially during a crisis, or to pave new ways of working because of an organisational change."

All these have made Zainab who she is and what she has achieved over the years.

With her many years of experience, this outstanding engineer shares with us that her mental strength, finding additional information and having different approaches are what have allowed her to conquer doubtful moments and overcoming challenges. She sets the benchmark for not only women, but also for many engineers out there, from development to championing and deployment of solutions as well as being an advisor.

What an inspiration these women engineers are! They are not merely women engineers with a degree but they are the ones who have decided to pursue the safer path to climb the corporate ladder, who have broken traditional frontiers and who have formed their own companies.

So go ahead and be a trendsetter, an entrepreneur engineer or a forefront technology developer. Start a trend that will motivate future generations. ■

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Equality and Equity #BeBoldForChange

Zairul Amri Zakaria

For this International Women's Day, it is topical to talk about women's rights. Indeed, you do not have to look far to see how the subject is "trending". However, the problem is that, by their very nature, trends will pass as soon as the next subject hits the headlines.

You can talk all you like but, to make an enduring difference, the subject must become more than a trend; it must be engrained in our thinking. We need to go back to basics and re-evaluate our fundamental beliefs about the roles of women and, indeed, of men. We need to be bold for change, lasting change.

Looking back at history, we can see that women have had to fight for their rights and, in many countries, they are still fighting just to achieve a moderate degree of freedom and autonomy. How long will women have to fight to earn the same rights that men enjoy on an international level? Cultures around the world pay lip service to equality, but the reality is often far removed from the ideal.

So from where and how did the idea that women are subservient to men, originate? In many cultures, women still play "second fiddle" to men because that is the way it has always been and these cultures are often influenced by religion. However, people tend to confuse culture and religion and they cite religious reasons to create the strict distinction between male and female roles. Women are described as the fairer sex, the weaker sex. "Women should dress with greater modesty". "Women should not be seen to dress or behave like men or do jobs that are perceived as men's work, such as engineering".

However, are we trying to protect women because we consider heavy/physical jobs as a predominantly male domain, or are these ideas underpinned by an insidious subconscious belief that women are less capable because they have a womb?

How often have we heard the expression that "the man is the head but the woman is the neck that turns it"? But is this just an excuse to keep up the pretence that women have the real power? Women don't want power through the 'back door'; they need to be perceived and esteemed for what they are… every bit as strong, independent and capable as men, if not more.

Women do not want to be the neck that manipulates the head as a means to an end. They deserve equal opportunities and, to achieve that, they need to be treated with equity. But how do we give women equality and equity, and what do we mean by these terms anyway?

Equality means that everyone should have the same opportunity. If an individual does not make as much of a success of his/her life as another individual, it should be as the result of the choices he/she makes rather than because of gender.

Equity means that everybody should be treated equally, with fairness and impartiality, without bias or prejudice, so that the outcome will be the same for all.

What does it mean for the "outcome" to be the same for all? It means men and women should be capable of achieving the same end result, whether in the employment market, politics or even in the home. Equity is about creating an environment where men and women can achieve the same results, regardless of their gender.

However, because traditionally, the sexes have not been treated the same, there still exists an imbalance between the genders, resulting in it being much harder for women to achieve the same "end result" as men. This imbalance needs to be redressed. To achieve equity and the same end result, women may have to be presented with a slightly different set of circumstances until the imbalance is resolved.

What is the best way to explain this? Perhaps we can take education as an example. We want all our children to be intelligent and to achieve a certain degree of success in school. This is relatively easy for children from fortunate backgrounds where parents understand the value of education and who will motivate their children. But for children from less fortunate backgrounds and whose parents do not realise the benefits of education, they may need more "input" from the school to address the pre-existing imbalance in educational standard and ability. These children may need extra-curricular activities or training in motivation and values. It may be that the school has to spend a little more time and effort on these children to enable them to achieve the same standard as the others, but will this be fair to the others? Surely not! We do not want to discriminate positively in favour of the less able children; we just want all children to achieve the same level of education so that they can all have the same opportunities and choices in life.

Of course, where gender is concerned, we are not concerned with ability as women are every bit as capable as men and have been said to be able to multi-task much better than men! However, in most societies, there is still

a 'pre-existing imbalance' in the opportunities that exist between men and women. You only have to look at the number of women in top positions in government or large, international corporations around the world to see this.

Perhaps Europe is slightly more advanced than many other countries in this respect, but how many women have won the Nobel Prize as compared to men? In celebration of International Women's Day this year, The Nobel Prize published a list of women who had won the prize since 1903, all forty-eight of them, without realising the irony that it had been awarded to men 863 times. Is this really something to celebrate?

How can we empower women and give them the equality and equity that they deserve? We must do more than pay lip-service. Society needs to change its ideas about gender, generally. Not only must we learn to accept the idea of women in what have previously been regarded as "men's roles" but we may also need to reanalyse our attitudes towards men adopting roles that are traditionally perceived as women's?

Take childcare as an example. When a woman has a child, we think about arrangements to be made for the woman in relation to the child. Does the company provide childcare? Will the woman be given time off? What will it cost the company in respect of the mother's employment?

But what about the male partner? What if the couple decides that the woman should work and the man should take care of the child? Many cultures have quite strong views about this and they regard it as shameful for a woman to support the man. But why not?

As long as society holds on to this attitude, it will be as hard for the man who wishes to remain at home as the primary caregiver as it will be for the woman who wishes to pursue her career. Perhaps we should be equally open-minded about both sets of circumstances and treat each case even-handedly?

We often need look no further than our own homes to see the imbalance between men and women. How many families do you know where both partners work but, when the man gets home, he relaxes after a "hard day at work" while the woman cooks, cleans and deals with the children? Where is the fairness in this situation? How is that providing equality and equity for women? Empowering women means treating them as equals, not just at work, but in every area where men and women co-exist.

Let us go back to the working environment and to empowering women at work. Our goal for International Women's Day this year is to think about how we can realistically improve women's chances of realising their ambitions without being held back by their gender. There are two courses of action essential to achieving this goal.

Firstly, we need to put in place structures which support women. These include child care support, perhaps more flexible working hours or working conditions as well as equal pay and status. This is not about positive discrimination, but about creating a set of circumstances where women are allowed to flourish and thrive within their working

environment so that they can achieve the same status and level of accomplishment as men.

Secondly, and more importantly, we need to examine and change our core values about women and their roles in order to give women real choice over their future. Having an equal opportunities policy written into your company handbook is not enough if the culture within the organisation surreptitiously prevents women from ever achieving their full potential.

However, it is not only men's attitudes that need changing. Every time a woman accepts less than is her due because of her gender, she is perpetuating the lie that women are second class citizens.

On this subject, William Golding, Nobel Winner, British novelist, playwright and poet (1911-1993) wrote: *"I think women are foolish to pretend that they are equal to men. They are far superior and always have been. Whatever you give to a woman, she will make greater. If you give her sperm, she will give you a baby. If you give her a house, she will give you a home. If you give her groceries, she will give you a meal. If you give her a smile, she will give you her heart. She multiplies and enlarges what is given to her. So, if you give her crap, be ready to receive a ton of shit!"*

So let us take advantage of this International Women's Day to re-evaluate our beliefs about the roles of men and women and make a promise to ourselves to empower women with true equality and equity. ■

Author's Biodata

Zairul Amri Zakaria, *B.Eng (Hons) Cardiff, M.Sc (Mechanical Engineering, Kingston University, UK) is a Senior Lecturer and Programme Coordinator at Nilai University. He has more than eight years engineering experience as Senior Mechanical Design Engineer in the Aerospace & Ground Station industries in the United Kingdom.*

ERRATA

Error on Cover Story – ***58th IEM ANNUAL DINNER & AWARDS NIGHT*** published on page 6 to page 11 in *JURUTERA* May 2017 issue. We wish to attach the corrected List of Awards Recipients at the ***58th IEM ANNUAL DINNER & AWARDS NIGHT***.

MOST SUPPORTIVE AWARD		
TYPE OF AWARD	**ORGANISATION**	**PERSON WHO RECEIVED AWARD**
Graduate Membership for Individual Category		Ir. Assoc. Prof. Dr Khoo Hooi Ling @ Lai Hooi Ling
Graduate Membership for Organisation Category	Petroliam Nasional Berhad	Y.M. Raja Iskandar Arifin bin Raja Azman
Corporate Membership for Individual Category		Ir. Dr Ahmad Anuar bin Othman
Corporate Membership for Organisation Category	Tenaga Nasional Berhad	Ir. Fathullah Razzaq Ghazali
Most Active Organisation	Tenaga Nasional Berhad	Ir. Shah Nawaz Asan Gany

IEM CONTRIBUTION TO ENGINEERING INDUSTRY AWARD 2016		
ORGANISATION	**PERSON WHO RECEIVED AWARD**	**AWARD FOR**
Eco World Development Group Berhad	Y.Bhg. Dato' Sundrarajoo Somu, Chief Operating Officer	Property Development
Ekovest Berhad	Y.Bhg. Datuk Seri Lim Keng Cheng, Managing Director	Construction
IJM - JAKS	Mr. Wong Kim Kong, Chief Operating Officer	Water
Malaysia LNG Sdn. Bhd.	Ir. Pau Kiew Huai, Chief Executive Officer	Energy
Rapid Rail Sdn. Bhd.	Y.Bhg. Dato' Ir. Zohari Sulaiman, Chief Executive Officer	Transportation

IEM OUTSTANDING ENGINEERING ACHIEVEMENT AWARD FOR THE YEAR 2017		
ORGANISATION	**PERSON WHO RECEIVED AWARD**	**PRIZES**
Shell Projects and Technology, Malaysia	Mr. Momas Modon, Project Manager	Plaque Certificate

The error is much regretted.

ERRATA

Incomplete list published in FEATURE – CAFEO 34 at an Island Paradise published on page 15 to page 21 in *JURUTERA* May 2017 issue. We wish to attach the corrected List of Recipients of the AFEO Honorary Awards for Malaysia at CAFEO 34, Philippines.

AFEO Distinguished Hon. Fellow	Yang Berhormat Datuk Seri Ir. Dr Wee Ka Siong, Minister in the Prime Minister's Department Malaysia
AFEO Hon. Fellow	1. Dato Ir. Lim Chow Hock, AFEO Immediate Past Chairman & IEM Immediate Past President 2. Ir. Lee Weng Onn, IEM Country Registrar 2015 and past IEM Vice President (Upgrade from Hon. Member) 3. Ir. Lee Boon Chong, IEM Vice President (Upgrade from Hon. Member) 4. Ir. Prof. Dr Ruslan bin Hassan, IEM Vice President (Upgrade from Hon. Member) 5. Ir. Lai Sze Ching, IEM Vice President
AFEO Hon. Member	1. Ir. Ong Sang Woh, ex-Excomm member 2. Ir. Kim Kek Seong, ex-Excomm member 3. Ir. Assoc. Prof. Dr Norlida binti Buniyamin, Vice President 4. Ir. Assoc. Prof. Dr Hayati binti Abdullah, past Southern Branch Chairperson and ex-Excomm member 5. Ir. Fam Yew Hin, past METD Chairman 6. Ir. Dr. Tan Chee Fai, Melaka Branch Chairman and Excomm member 7. Ir. Ellias bin Saidin, IEM Vice President and AER Head Commissioner 8. Dr Wang Hong Kok, IEM Honorary Treasurer 9. Ir. Siew Yaw Jen, Past Chairman, Highway and Transportation Engineering Technical Division 10. Ir. Chin Kar Keong, Past Chairman, Highway and Transportation Engineering Technical Division

The error is much regretted.

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IEM WE Essay Writing Competition on Gender Equality

Ir. Dr Leong Wai Yie

Gender equality entails the concept that all human beings, men and women, are free to develop their personal abilities and make choices without the limitations set by stereotypes, rigid gender roles and prejudices.

The differences in behaviour, aspirations and needs of women and men are considered, valued and favoured equally. It does not mean women and men have to become the same but rather, that their rights, responsibilities and opportunities would not have to depend on their gender. This may include equal treatment, or treatment which may be different but is considered equal in terms of rights, benefits, obligations and opportunities.

Recently, IEM WE organised an Essay Writing Competition which attracted more than 30 submissions. Here, the 6 winners share their various opinions on this topic.

1. **Ir. Heng Lee Sun:** Even after decades, we are still struggling to achieve true gender equity in the workplace. Statistics from the International Labour Organisation shows that women continue to participate in labour markets on an unequal basis with men. In 2013, the male employment-to-population figure stood at 72.2%, while that for females was 47.1%. In 2015, only half of the world's working-age women were in the labour force, compared to 77% of working-age men.

   To move forward, we have to accept that women and men are different and yes, we need to work together to achieve true equality. Men play equally important roles as a supportive family member, colleague or employer while encouraging women to aspire to leadership, to sit at the table, seek challenges and lean in to their careers. Empower women, for both men and women need to be encouraged and be respected for their efforts.

   Equal opportunity is not equal unless everyone receives the encouragement that makes seizing opportunities possible. Empowering women and promoting gender equality are crucial to accelerating sustainable development. Ending all forms of discrimination against women and girls is not only a basic human right, but it also has a multiplier effect across all other areas of development.
2. **Zairul Amri Zakaria**, a lecturer at Nilai University, paints this scenario: A man and a woman, both of whom have very good jobs with similar wages, get married. Soon, their first child is born. After a long deliberation, the couple decide that the father should stay at home to look after the baby while the mother continues to work to support the family.

   How do you think society will react to this? More importantly, how do you feel about it? We can assume that some will agree with their decision and that those who feel men should be the ones to support the family, will disagree.

   Even as we continue to discuss gender equality and about women getting the same treatment as men, most people will continue to support the traditional view that men should be the breadwinner?

   Why is it so controversial when this role is reversed? This takes us back to my original point, which is our real perception of gender equality because, if we change our perception, start listening first and reserve our judgment, the real issues of gender equality will be easier to discuss.

   Therefore, I feel that before we start discussing gender equality, or in fact anything, we must first throw away our ego and our judgement before entering the discussion or meeting room as equals; it doesn't matter whether we are men or women, which race or faith we are or which title we hold – everyone is entitled to his/her own opinion and we should respect each other for that.

TOWARDS GENDER EQUALITY

3. **Ir. Mah Siew Kien:** More than 100 years have passed since International Women's Day was first observed in 1911. Yet, we still see news coverage on violence against women, equal citizenship rights debate, gender bias and stereotyping cases.

   On one side, there are the men and women fighting for women's rights and equality. On the other side are people who refrain from making comments on this issue. This group of people acknowledges that not only does gender equality exist but also that life has always been unfair and that this is not limited to women. Based on data from the Malaysian Labour Force Survey Report (Department of Statistics Malaysia, 2015), the labour force participation rate for women in Malaysia has been consistently falling behind men by more than 25% for the

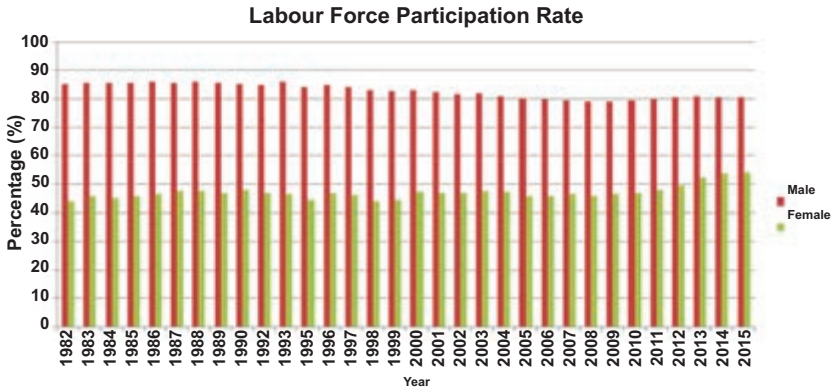


Figure 1: Department of Statistics, Malaysia

past 33 years. Low levels of female participation, coupled with an ageing population, can lead to low productivity and this will ultimately affect the country's GDP growth rate.

The life expectancy for males in Malaysia is 71.1 years and for females, it is 76.7 years. Since women tend to outlive men, the poverty rate for older women tends to be higher than that for men. Indirectly, achieving gender equality will lead to a stronger economy. Gender inequality is therefore, an economic concern.

WOMEN ENGINEERS IN THE EDUCATION ARENA

4. **Dr Siow Chun Lim:** Since the country attained Independence some 59 years ago, the education field has undergone significant dynamics in some aspects while status quo is preserved in other aspects. What makes me a proud Malaysian is that there hasn't been any major issue of gender discrimination against women here with regards to the right to education. Unlike many developing and under-developed countries, the access to free and compulsory primary education is guaranteed for all Malaysians, irrespective of gender. The number of girls enrolled in primary and secondary schools has risen steadily in the past few decades and it is only a matter of time before it equals the number of enrolment for boys.

In fact, the number of female students in public universities has overtaken that of male students since more than 15 years ago. It is safe to say the gap will steadily narrow. Based on my observations, the same scenario is also replicated in private universities. Visit the libraries, lecture theatres and classrooms and one will see more female students than male students.

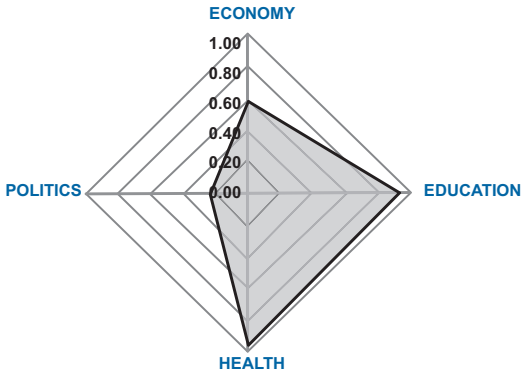
It is interesting, but not surprising, to note that the academic performance of women at all levels of education is also better than that of men. This is also one of the main reasons why more than half of university undergraduates here are actually women.

Although there are significantly fewer female students in technical and vocational courses, this is purely attributed to preference and perhaps gender stereotyping but not because of gender discrimination. One can expect to see more girls studying Chemical and Food Engineering than Civil and Mechanical Engineering. In my opinion, this should not trigger any panic as the freedom to choose what to study should be safeguarded.

Today, there are both male and female programme directors, deans and deputy deans. The number of female professors in engineering faculties is also growing steadily. The point I want to highlight is that it is choice rather than any form of pressure which determines whether a leader is a man or a woman.

GLOBAL GENDER GAP INDEX (GGGI)

5. **Kamila Ab Hamid:** The present study on gender gap has been analysed globally (145 countries are included in the analysis) and is shown in Figure 2. It can be deduced that overall, the education and health sectors have progressed to reach "zero" gender gap or that gender equality has been achieved. However, a "huge" gender gap can be significantly noticed in politics and economy.



Sample average (0.00 = inequality, 1.00 = equality

Source: Global Gender Gap Index 2015

Figure 2: Global Gender Gap Index (GGGI)

Based on the analysis mention earlier, the top 5 countries with highest GGGI are Iceland (0.881), Norway (0.850), Finland (0.850), Sweden (0.823) and Ireland (0.807). However, among the 145 countries, Malaysia ranks 111, with a GGGI value of 0.655 with the index for the corresponding sectors as per Table 1.

Table 1 summarised that gender inequality had been observed in areas of education, health, economy and politics. However, huge gender disparities were encountered in the political sector. Political empowerment refers mainly to the number of women with regards to seats in parliament, at ministerial level and number of female heads of state. The political obstacles that women face, as observed by Nadezhda Shvedova, are lack of party support, prevalence of masculine model, lack of sustained contact and cooperation with other public organisations as well as nature of the electoral system, etc. Hence, in most countries, there is less female involvement in many decision-making sectors due to the sceptical/ stereotype view of the capabilities of women to uphold such positions. However, the GGGI for Malaysia has been reported to have risen progressively compared to the past few decades.

Table 1: Global Gender Gap Index (GGGI)

Country	Global Gender Gap Index	Economy Participation and Opportunity	Educational Attainment	Health and Survival	Political Empowerment
Malaysia	0.655	0.634	0.976	0.969	0.051

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6. **Muk Pui Yan:** IEM Student Section (UHTM): One of my male friends asked me: "Women have women's rights but what about men?"

   It is a good question. As we can see, in real life, women are protected by the law. Men will also come out to defend women but they have to protect themselves when they are bullied. I suggest that women learn the art of self-defence so that they can defend themselves, the weak and perhaps even men.

   Women have no reason to be weak or emotional. It has been argued that women are more emotionally aware than the men. Women cry to express sadness or stress. However, when men cry, they are seen as feeble. Sometimes, men also act as a punching bag for women. Why don't men have rights or laws to protect them against violence and abuse? Aren't we looking for gender equality? Why shouldn't men be allowed to express themselves emotionally? It seems like double standards.

CONCLUSION

For the future that we want, let us draw strength from each other and work together to achieve gender equality. We can move towards achieving prosperity without leaving anyone behind, and definitely not women. Let us "Lean In" for each other and reap the benefits of gender equality. A higher GDP, a stronger economy and a better society… these are the main motivators to advocate for gender equality. ■

IEM Essay Writing Competition Results:

Champion
Ir. Heng Lee Sun

First Runner Up
Zairul Amri Zakaria

Second Runner Up
Ir. Mah Siew Kien

Consolation Prizes:

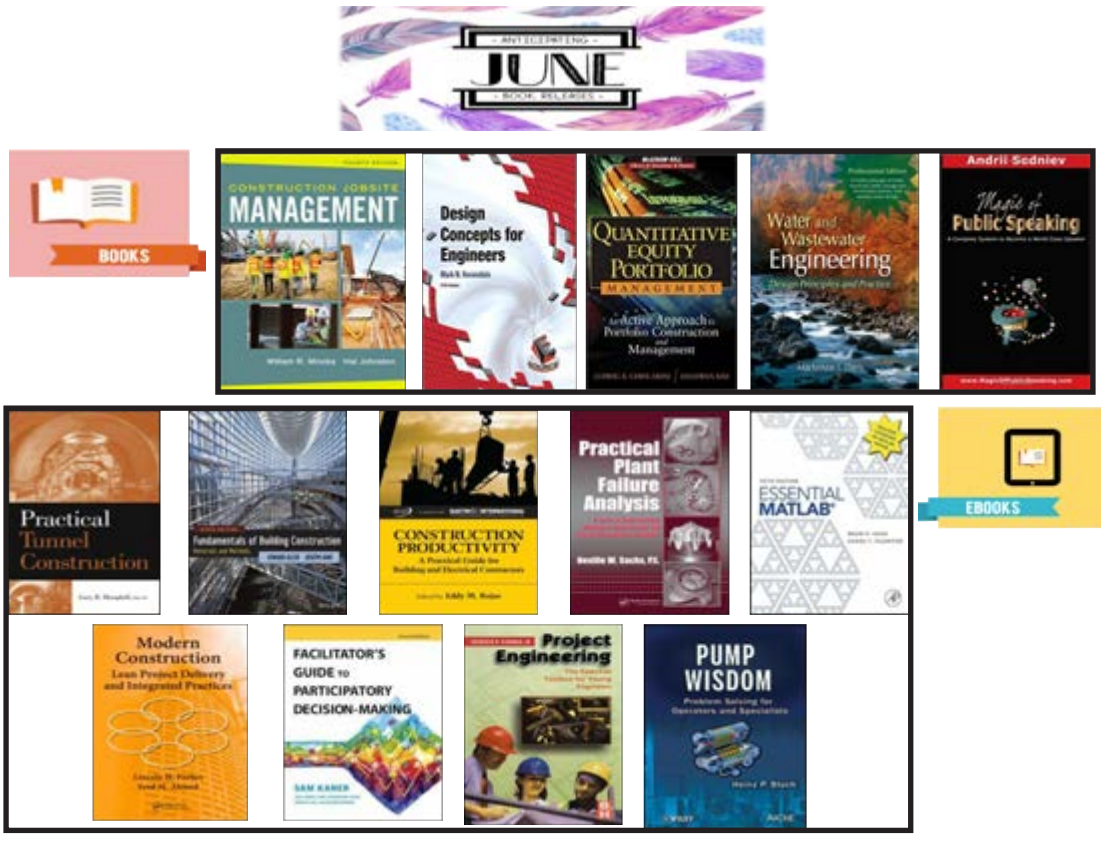
Kamila Ab. Hamid

Dr Siow Chun Lim

Muk Pui Yan

Author's Biodata

Ir. Dr Leong Wai Yie, *Chairman of Women Engineers Section. She is involved in biomedical signal processing analysis and wireless communications.*



Meeting the Challenges of Subsea Pipeline Repairs

Marian Copilet

Advances in reservoir understanding and breakthroughs in technology, including developments in directional drilling, lead to original estimates of recoverable reserves of oil and gas in many old fields to be revised upwards. Recently developed satellite fields required access to old pipelines even after the original field had been shut down. In all these cases, mature oil and gas field facilities and offshore infrastructures were required to continue to function safely well beyond their original design life.

In the case of subsea pipelines, regular inspection and maintenance programmes can monitor and mitigate but not totally eliminate the effects of corrosion, fatigue and other failure mechanisms. Subsea pipelines are also at risk of damage from dropped objects, dragged anchors or fishing nets, or changes to subsea floor conditions caused by currents or earthquakes.

The capability to carry out repairs and interventions to subsea pipelines is critical to their continued safe and profitable operation. In shallow waters, variously defined as down to either 200m (600ft), repairs can be carried out by skilled divers using specialised tooling. In deep waters the repairs are carried out using tools adapted for operation using Remote Operated Vehicles (ROVs).

Subsea repair clamp installed by ROV

In order to determine the optimum repair solution, an extensive inspection programme needs to be carried out, including internal inspection using in-line inspection vehicles, sometimes referred to as intelligent pigs, followed by confirmation of the location and extent of the damage using external inspection.

MINOR PIPELINE REPAIRS

Defects such as pinhole leaks, defects in girth welds, localised metal loss or impact damage that do not exceed 1 x Pipeline Diameter, are classified as minor pipeline repairs. Where the repair is intended to be permanent, a split-sleeve clamp with sealing and mechanical grips capability may be installed on the pipeline.

Leak caused by crack in subsea pipeline

Where the pipeline is due to be replaced, or shut down in due course, a temporary repair solution may be considered sufficient. In such cases, a split-sleeve clamp with only sealing capability but without mechanical may be installed on the pipeline. For temporary repairs, many companies prescribe a maximum operational limit of 12 months. At the end of this period, a permanent repair solution must be provided or the pipeline will be shut down.

For pipeline sizes up to 24 in OD and operating pressures up to 150 bar repair clamps can be found in stock, available for immediate delivery. For larger diameters and/or higher pressures, customised repair clamps are designed, manufactured and tested to meet the requirements of each specific project.

The first step in performing a minor repair is to provide sufficient space 360 degrees around the pipeline. This can be achieved by either dredging or by using pipe lifting frames. The next step is the removal of any concrete and/or anti-corrosion coatings, as well as any weld caps, in order to achieve a smooth, linear and circular pipeline surface. A repair clamp can now be installed on the pipeline.

In shallow waters, divers will tighten a number of bolts in a specified sequence to ensure the compression of

elastomeric seals and the actuation of the mechanical grips. In deep waters, the clamp is configured with either ROV compatible bolts, or the bolts are completely replaced by a hydraulic module.

MAJOR PIPELINE REPAIRS

A repair which cannot be achieved using a split-sleeve repair clamp is classified as a major pipeline repair. In such cases a damaged section of the pipeline needs to be removed and replaced by a spool section. The connection between the old, undamaged section of the pipeline and the new repair spool is achieved using special subsea pipeline connectors. These types of repairs require either a total pipeline shutdown or the isolation of the damaged section using piggable plugs or plugs inserted through hot taps.

As in the case of minor repairs, the first step is to provide adequate space around the pipeline. In shallow water, dredging is the more economical solution, with pipe lifting frames being used only where dredging is not feasible. In deep waters, pipe lifting frames are required to provide support of the damaged pipeline and alignment with the repair spool. Before cutting the damaged section, any concrete and anti-corrosion coating needs to be removed from the cutting areas. Several cutting methods are available, including mechanical orbital cutters, diamond wire cutters and chop saws.

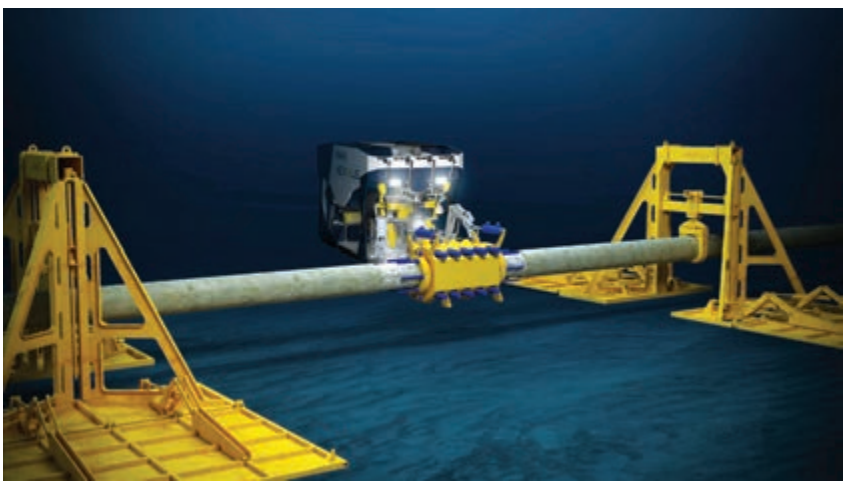
After the damaged section is cut and removed, the pipe surface must be cleaned to bare metal, and weld caps need to be removed, as well as any internal or external burs that can damage the elastomeric seals of the pipe connectors.

The connection between the old pipeline and the new repair spool can now be achieved using subsea pipeline connectors which can provide either a flanged end for connection to a flanged pipe spool, or can be used in a special back-to-back arrangement to connect two square cut pipe ends.

Once actuated, the subsea pipeline connectors will provide full sealing capability using two separate seals with an annulus test port to verify the functionality of the seals prior to restarting the pipeline, as well as withstanding full pipeline axial, bending and torsional loads.

Special consideration must be given to what happens to the removed damaged section, which can vary in length from a few metres to several kilometres. Where feasible, shorter sections are lifted from the sea floor for disposal and recycling, but longer sections may be abandoned on the sea bed, subject to detailed environment impact assessments.

In some cases, due to seabed topography or the movement of the pipeline due to residual stresses, the two exposed ends of the cut pipeline may be misaligned, making it impractical or even preventing the mating of flanges between the subsea connector and the repair spool. In such cases, misalignment ball flange connectors can be used to correct for axial misalignment up to 10 degrees at each end.



Use of pipe lifting frames to assist installation of repair clamp

After the installation and testing of the connectors, the pipeline is lowered back onto the sea bed, where pipe lifting frames have been used, or a dredger is employed to fill back and level the seabed under the repaired pipeline section. Where the additional weight of the connectors is a concern, concrete or steel mud mats can be placed on the seabed.

EMERGENCY PIPELINE REPAIR SYSTEMS

Due to the significant environmental and operational impact of pipeline failures, and considering that the lead time for some pipeline equipment can be six to eight months, pipeline operators often decide to have in stock a full range of emergency pipeline repair inventories, including as a minimum one permanent repair clamp and two subsea pipeline connectors for each pipeline size in operation. For deepwater locations, the emergency pipeline repair systems also include at least two pipe lifting frames.

PROJECT MANAGEMENT

A subsea pipeline repair is a complex operation which requires an experienced project manager who is able to coordinate input from engineering, inspection and logistics departments as well as to ensure availability of a vessel with lifting facilities and capability to support diving and/or ROV operations.

All tools and equipment must be subject to regular testing and maintained in good operating condition. Specialised equipment may need to be modified, hired or custom-built. The successful completion of a pipeline repair depends on having qualified divers and ROV operators, with prior experience of pipeline repair projects.

To prevent lengthy downtime, operators should have detailed plans in place to cover a variety of pipeline repair scenarios as well as build relationships with reputable companies which can respond quickly in case of emergency. ■

Author's Biodata

Marian Copilet *is a graduate of Polytechnic University in Bucharest, Romania. For the last 25 years, he has been involved in both upstream and downstream sectors of the oil and gas industry, with a focus on subsea umbilicals and oil and gas pipelines. He is now based in KL, at Oceaneering International Asia HQ, where he is head of Technical Solutions Group for Asia Pacific.*

IEM DIARY OF EVENTS

Title: Pre-AGM Talk on "Do We Need Malaysian Consultants in Mega Projects?" A Personal Perspective from a Practicing Professional Engineer

22 July 2017

Organised by : Consulting Engineering Special Interest Group
Time : 9.00 a.m. – 11.00 a.m.
CPD/PDP : 2

Kindly note that the scheduled events below are subject to change. Please visit the IEM website at www.myiem.org.my for more information on the upcoming events.

Effective Principles of Change Management for Leaders

WOMEN ENGINEERS SECTION

reported by

Ir. Mah Siew Kien

Dr Diana Jayasauri

Participants at the talk on Effective Principles of Change Management

On 11 March, 2017, a CPD talk on The Effective Principles of Change Management for Project Sponsors/Leaders (Mid-Managers/C-Suite Executives) was held at Wisma IEM.

The 20 participants who attended, wanted to know what Change Management, in terms of managing the people side of change, was all about. The key points of the talk were on how to effectively lead "Change" and actions that could make "Change" happen, in the context of playing the role of a leader in order to translate the vision of change from the C-Suite to the ground troops. This is extremely critical to the success of any organisation.

The talk brought forth a different perspective for leadership in navigating change. Change is the result of constant focus on improving performance, identifying opportunities for growth and addressing issues that prevent an organisation's growth. Leading Change comes in many forms: Processes, people, technology and even business structure. Change for processes, technology and structures can be straight forward aspects to tackle, but not the case of Change for people.

How can leaders be better equipped to lead Change? This was the main question asked by speaker Dr Diana Jayasauri. The talk was engaging and interactive just as how successful change management would require engaging people across all levels to deliver the change.

The participants shared their personal stories and related to the conundrum of Change from an individual/organisational level, with various exchanges of opinions by reflecting on their past, present and future. The atmosphere was fuelled by fun and laughter as participants were challenged to interpret the description of a local food dish and then to draw it as a team, based on what they thought it was, despite the limited information provided. This made them realise the power of clear communication and team spirit to win the challenge. This illustrated the practical application of PROSCI Change Management methodology and framework i.e. ADKAR (Awareness, Desire, Knowledge, Ability and Reinforcement) in a holistic manner.

At the end of the session, the participants realised that Change was from within and that to manage the people side of Change effectively, all it took was to treat everyone as his/her own – principle of inclusiveness and acceptance of diversity. In other words, when it rained, we would share an umbrella with anyone despite the differences that might emerge between one another. This was simply because Change was not a matter of luck. It was a matter of strategy, a strategy of togetherness in making the Change happen successfully.

Change is the only constant and everything else is in constant change. Making change forces one to act. Allowing change gives one time to accept and embrace it! ■

Starting at a Tender Age

WOMEN ENGINEERS SECTION

reported by

Dr Habibah @ Norehan Haron

On a bright sunny Sunday (March 12, 2017), Sekolah Kebangsaan Seneng in Bachok, Kelantan, launched the Fun Learning Toy Library (FLTL) at its pre-school class. Officiating at the ceremony was Tuan Hj. Sepian Mohd Nor, representing the Kelantan Education Department, witnessed by Tuan Nik Suwardi Nik Mat (Bachok State Education Department), Prof. Ir. Dr Sha'ri Yusof (Dean of UTM Razak School), Prof. Emeritus Ir. Dato' Dr Zainai Mohamed (Adopt A Kampung Advisor, also representing Kelantan Islamic Religious Council), the school principal, teachers and 75 parents. IEM Women Engineers (WE) Section Committee to Kelantan was represented by Ir. Hjh. Rosnelawati and project leader Dr Habibah @ Norehan Haron, who also represented Srikandi84 (main financial contributor for the FLTL project) and Adopt A Kampung team.

Adopt A Kampung is the university social responsibility (USR) team from UTM Razak School of Engineering and Advanced Technology.

The 12 members of Adopt A Kampung and IEM representatives had arrived earlier and took almost two days to set-up, paint and organise the class to integrate the FLTL. Among them were four mechanical and electrical engineering lecturers, two management lecturers and five engineering students.

Three women representatives of Srikandi84 flew in from Kuala Lumpur for the ceremony. The class teacher was extremely happy as she had struggled for two years to start the class from scratch; there was no budget for a pre-school teacher and facilities when instructions came for the pre-school class to be operational.

Now it is furnished with 25 sets of tables and chairs, a teacher's table, colourful book racks, cabinets, shelves, a big screen TV and four learning corners with specific themes and related toys. The teacher said: "I feel blessed. My previous efforts to make the class function like any other pre-school class, have been paid by this marvellous gift."

Previously, she brought utensils from home, used her own pocket money to tile the cement floor and to buy files/folders which were basic requirements to operate the class.

"We are fortunate to be the second school in Kelantan to have received the Fun Learning Toy Library," said the school principal. FLTL helped changed the learning environment. The expressions on the children's faces when they arrived on the morning of the first day, made us feel it's been a worthwhile effort.

Before setting up of FLTL

After setting up of the FLTL

School should be fun, especially for the learning Science and Mathematics. Learning in an environment where creativity is encouraged and understanding of the concepts are explored through curiosity, is what makes IEM WE Section participate actively in the efforts of the Adopt A Kampung team. The committee and members contributed notebook computers, books, posters and various types of toys. Common toys for urban children are luxury toys for the rural children.

These toys made them bold and daring to speak up and share their thoughts. Soft skills were also observed during the short period of interaction time.

The four themed learning corners are filled with related books and toys. Introduction to solar-powered small robots at the Science, Engineering and Technology corner triggers inquisitive minds to start to learn science at a tender age.

For more information on FLTL concepts or to contribute to the project, contact the author at habibahharon.kl@utm.my. ■

Sisters in STEM

WOMEN ENGINEERS SECTION

reported by

Ir. Dr Leong Wai Yie

Ir. Mah Siew Kien

INWES Europe Regional Conference 2016: The International Network of Women Engineering and Scientists (INWES) established INWES Europe Network last November. This milestone means women scientists and engineers in Europe are now connected and will join the influential INWES Asia Pacific Nation Network (APNN, 2009) and INWES African Regional Network (ARN, 2010).

Ir. Mah Siew Kien, Honorary Secretary of IEM Women Engineers Section, attended the INWES Europe Regional Conference in Freising, Germany, on 4-6 November, 2016.

After Dr Lutz Möller, Deputy Secretary-General of German Commission for UNESCO, gave the opening speech, INWES President Prof. Kong-Joo Lee spoke about her vision for a better future in Science, Technology, Engineering and Mathematics (STEM). Keynote speakers included Tina Müller (Chief Marketing Officer, Opel Group GmbH), Dr Alexandra Borchardt (Managing Editor, Süddeutsche Zeitung), Karin Hutfloetz and Melanie Vogel.

Ir. Mah presented a talk on big data development in Malaysia, stressing on the importance of a female talent pipeline and how it can contribute to a developing nation. She also shared the current state of big data development, future perspectives, opportunities and challenges including the integration of gender diversity to enhance efforts to accelerate big data developments in the country.

Other panel speakers – Dorothee Anderman, founder of Visio2Actio consulting, Sandra Becker, Director of Medienwerkstatt at Kulturwerk and Bettina Hirdina-Falk from DIB – discussed security and privacy concerns, trade-offs between convenience, benefits and dangers

Group photo at the closing banquet

Roundtable and Panel Discussion

for organisations and end-users as well as the aggressive behaviour of companies using available data for business.

There were also views on European projects and panel discussion on Young Leadership for women in technology. Participants also took part in yoga, power games and a Reiki energy workshop to refresh the mind and reawaken the body. Networking programmes were held in the evening.

On the last day, kids' workshops and a student congress were held for international participants and students. An interesting session during the students' congress was the discussion about the first German female astronaut. The speakers, Anja Hofmann, Susanne Peters, Magdalena Pree and Johanna Maislinger, are candidates of Germany's Die Astronautin, a project by HE Space, which plans to send a female German astronaut into space before 2020.

Young Woman Scientist Camp: Then on 22-23 November, the Young Woman Scientist (YWS) Camp, sponsored by Korea Woman Scientists and Engineers (KWSE) and Asia & Pacific Nation Network (APNN), was held in Asia's Silicon Valley, Daejeon, in South Korea. The camp, initiated in 2012, started with an exhibition of country-themed booths decorated by the students.

Seventy-seven female scientists from 22 countries in the Pacific and Asia region as well as from other parts of the world, took part.

Malaysian representatives were Cik Kamila binti Ab. Hamid and Ir. Jeyanthi a/p Ramasamy while Ir. Assoc Prof. Leong Wai Yie (IEM Women Engineers Section) was the invited keynote speaker.

Day 1: In the morning, Dr Sung-Mo Steve Kang, President of the Korea Advanced Institute of Science and Technology, delivered the plenary talk on strategies

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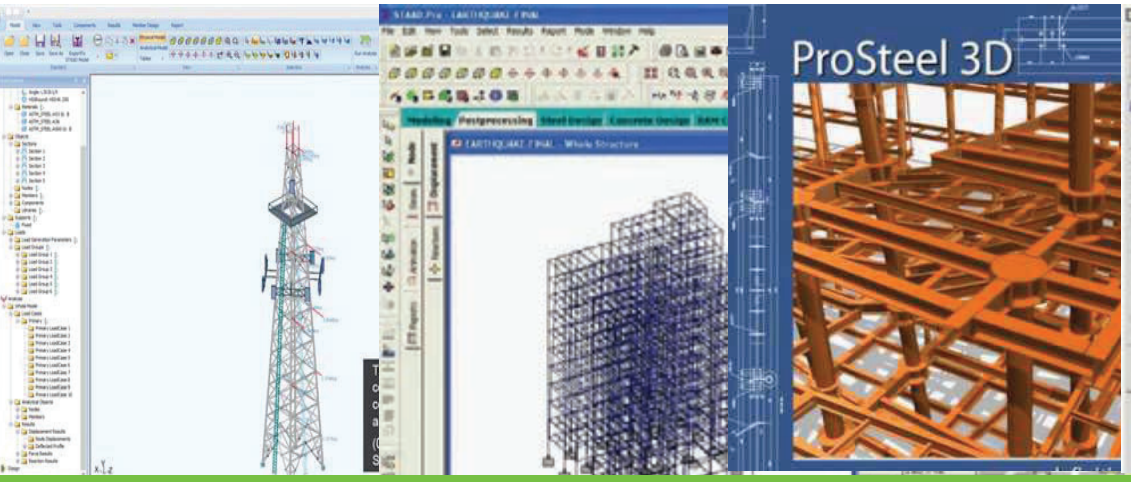

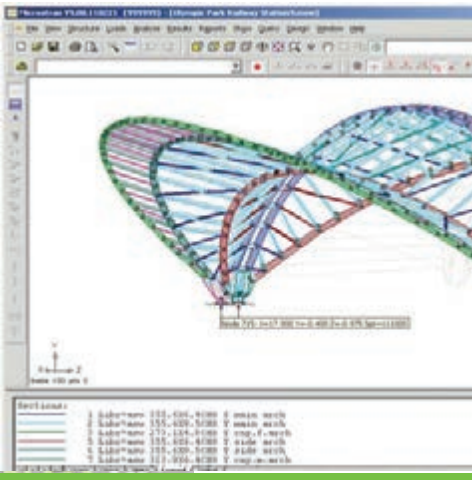

Bentley

RENDANG TECHNOLOGIES SENDIRIAN BERHAD

for female science and technology professionals, followed by talks in the afternoon by foreign students in South Korean universities.

Day 2: There were four lectures – "Strengthening Women's Network in STEM is a Global Priority" by Dr Kim Jung Sun (Vice President, Dongseo University), "INWES APNN - Introduction & Activities" by Dr Kayoko Sugahara (Chair of APNN, President of INWES), "Cracking the Inclusive Code for Asia Pacific" by Ir. Dr Leong Wai Yie (Chair of Women Engineers Section, IEM Malaysia) and "Be a STEM Woman In The Coming Society" by Dr Wu Chia-Li (Emeritus Professor, Tamkang University).

There were lots of interactive activities to keep participants engaged. Students were divided into nine groups led by mentors. The theme was "Recreate Yourself, Enhance Ability and Be Strong". They had to put their ideas on a poster for presentation. The theme for global issue discussion was "How to Face the World Food Crisis in 2050 from the Perspective of Gender in STEM?". Students learnt from each other and realised that there might be different solutions for different parts of the world.

The YWS Camp is a platform for young women scientists to develop their strengths, feel the sisterhood and make friends internationally. The KWSE or APNN will keep track of participants and follow up on their work after 10-20 years. ■

IEM ENGINEERING WEEK 2017

Dear members,

IEM ENGINEERING WEEK 2017

"ENGINEERING THE WORLD FOR A BETTER FUTURE"

Mark your calendar as busy between 20 – 26 August 2017 as it is the official date for IEM Engineering Week 2017!

Launching of IEM Engineering Week 2017 with **IEM Engineer's Run (E-Run 2017)** at the Perdana Botanical Garden, Kuala Lumpur (formerly known as Taman Tasik Perdana) on 20 August 2017 (Sunday).

Closing - **IEM STEM Quiz 2017** at Monash University Malaysia, Petaling Jaya on Sun, 26 August 2017.

A series of activities/events will also be organized during the week to recognize the contributions to society made by engineers and highlighting the importance of STEM (Science, Technology, Engineering and Maths) and promote their study in post primary schools.

The list of activities and further details will be published in IEM website and JURUTERA August 2017.

Thank you.

Ir. Ellias Saidin
Chairman of IEM Engineering Week 2017
Standing Committee on Welfare & Service Matters

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Report on One-Day Seminar on Design & Applications of Cold-Formed Steel in Buildings

CIVIL AND STRUCTURAL ENGINEERING TECHNICAL DIVISION

reported by

Ir. Raymond Tien Loy Bong

Group picture of the speakers with CSETD representative and BlueScope representative

On 21 March 2017, the Civil and Structural Engineering Technical Division (CSETD), in collaboration with NS BlueScope Malaysia Sdn. Bhd., organised a seminar on the design and applications of Cold-Formed Steel (CFS) in buildings.

Attended by 79 participants from the construction industry, it started with a warm welcome by Ms. Yeoh Moi Thian from BlueScope, who expressed hope that through the seminar, cold-formed steel will be promoted positively and be the industry's choice for structure products.

CSETD Chairman Ir. Dr Ng Soon Ching thanked BlueScope, two speakers from Australia and local speakers for making the time and effort to promote cold-formed steel to the industry. The workshop will enable those in the industry to have a better understanding and appreciation of as well as insight into the use of CFS.

The first keynote speaker, Mr. Ken Watson, is no stranger to the CFS industry. He has extensive experience in its management, design, market research and development. He is also a technical publication author and in the standards committee. For his topic, Introduction to Cold-Formed Steel, Typical Application and National Association of Steel Framed Housing Inc (NASH), he gave a brief overview of CFS and its advantages as well as the differences between hot-rolled and cold-formed steel. Countries such as Australia, New Zealand, South Africa and North America have adopted the use of CFS in the housing industry due to its cost, durability, light weight, flexibility in design and speed of construction without compromising on strength.

The next speaker, Prof. Emad Gad, is the Dean of Engineering at Swinburne University of Technology, Australia. He has wide experience in structural dynamics, residential construction, structural connections, experimental techniques and modelling. He spoke on Introduction to Design Members – Effective Width & Direct Shear Methods, giving a brief outline of cold-formed design methods, design of tension members, compression members, flexural members and connections.

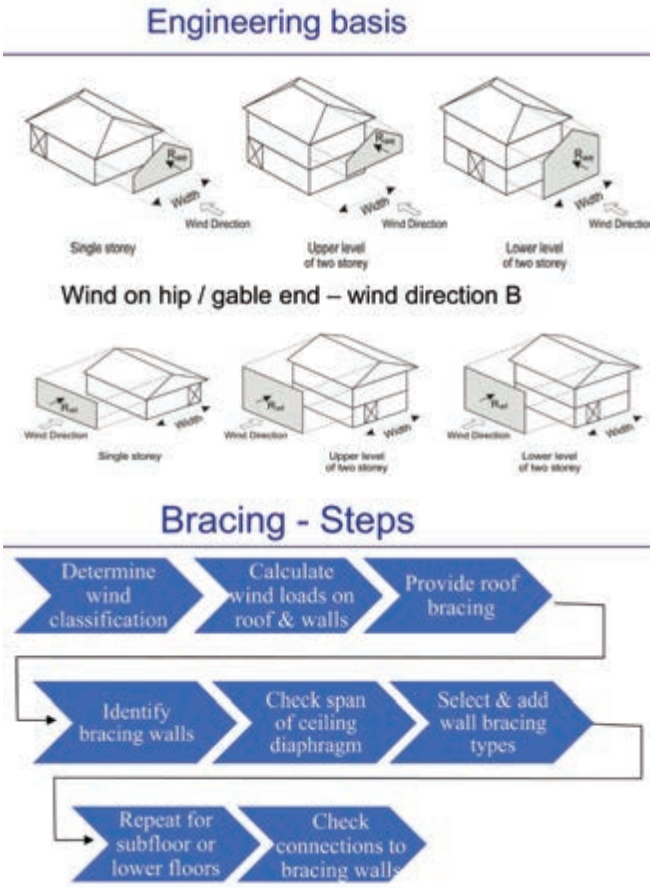
From the review, it is noted that CFS has a different mechanical and physical behaviour from hot-rolled steel especially in local/post buckling, propensity for twist, distortional buckling, web crippling, corrosion rate and connection details. This is largely due to the fact that CFS is more slender (both local and global element) than hot-rolled steel.

Mr. Ken Watson then introduced Design of Frames Using NASH Standards. NASH is an industry association on light steel structural framing systems for residential and commercial construction in Australia. The standards cover roof members, wall members, floor member, connections, bracing and testing for CFS. NASH standards provide a guide for designers in modelling, elemental designs and building performances. Span tables of generic products for the design and detailing of CFS structures were also provided. This will give users a gauge in sizing the steel members.

After lunch, Mr. Jack Chum, Technical Marketing Manager for NS BlueScope Malaysia, spoke on Sustainability and Durability of Coated Steel for Lightweight Steel Framing. He gave participants an insight into the performances of

CFS with different coatings. He showed videos of how cold-formed steel is made and coated. There are two types of metallic coated steel, galvanised steel (Z-type) and aluminium/zinc-alloy coated steel (AZ type). The coating provides a protection layer for the steel. Different thicknesses and coatings will yield different corrosion protection levels. He illustrated the severity of corrosion on different corrosion protection type; AZ type has better corrosion protection. Corrosion rate is also influenced by the environment, i.e. severe marine > industrial marine > rural.

The next topic on lateral loading and bracing wind and earthquakes, was presented by Prof. Emad Gad. The idea of bracing is to ensure the whole structure acts as a system for stability. Lateral force acting on different directions of a building will yield different forces on the steel elements. Step-by-step design of bracing was illustrated for easier understanding.



Engineering basis and bracing steps

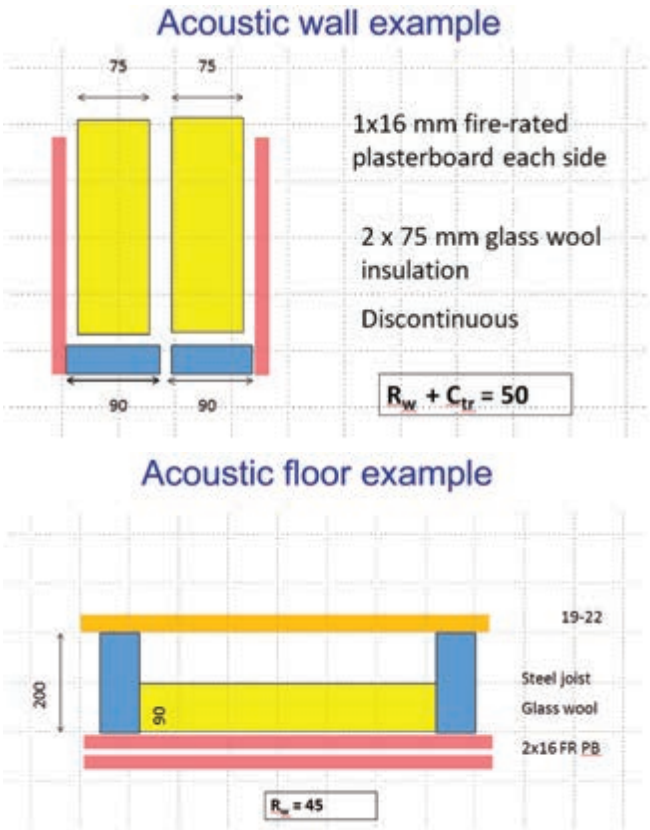
Bracing for roof and walls is assisted by the load distribution through diaphragm effect from the plasterboard or cement-board. Prof. Emad Gad went through a design example of the design checks that need to be covered through design calculations.

Mr. James Lim gave a hands-on session on construction using enduroframe. With a shop drawing at hand, his team assembled a mock-up unit of a scaled-down house. With motorised screwdriver and the cold-formed channels, the unit was installed with ease and speed but without compromising on accuracy. He emphasised good practices where there is a need for a good fabricator and installer. The design must be endorsed by a Professional Engineer and all materials must be covered by warranties.

The next topic was Design of Cold-Formed Steel Structures for Fire & Acoustic. Mr. Ken Watson made a quick study and comparison of fire regulations requirements in buildings between Australia and Malaysia.

Malaysian fire regulations tend to be more prescriptive in nature and performance-based solutions have also been adopted. Parameters that influence cold-formed steel fire rating levels include stud depth, thickness of steel, different stud cross sections, different steel types, wall configurations and insulations in walls.

Acoustic, on the other hand, can be controlled by using glass wool and plasterboard.



Typical wall and floor fire and acoustic protection layers

The final topic on design by testing was presented by Professor Emad Gad. Design by testing is encouraged for steel framing systems because some elements are difficult to produce capacities from first principals due to thin steel behaviour and composite structures. To ensure a comprehensive result through design by testing, it is important to identify critical design issues, design the test to critical situations, to have ample samples and to standardise procedure to ensure consistency in application. He went through a worked example on how to obtain a reliable target method.

The seminar concluded with a brief question and answer session and an appreciation gift ceremony between IEM CSETD, NS BlueScope and the speakers. ■

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One Belt One Road Initiative: Opportunities for Engineers

URBAN ENGINEERING DEVELOPMENT SPECIAL INTEREST GROUP

reported by

Ir. Tiong Choong Han

Front row (from left): Ir. Yap Soon Hoe, Dr Ngeow Chow Bing, Ir. Prof. Dr Ruslan, Dr Wang Hong Kok, Dr Zhang Miao, Ir. Yam Teong Sian

The One Belt One Road (OBOR) Initiative seminar on 29 March 2017 was organised by Urban Engineering Development Special Interest Group (UEDSIG) with the collaboration of the Malaysia Institute of Transport (Mitrnas). OBOR is a grand plan proposed by China's President Xi and supported by more than 100 participating countries along the route.

It was timely too as evidenced from the number of participants and the ability of the organisers to bring in speakers who are high-level experts familiar with OBOR.

To start the seminar, Dr Wang Hong Kok gave a warm welcome speech. He emphasised on the visions of UEDSIG and the expected skills for acquisition by engineers in the fields of urban planning, economics and housing. This was followed by Ir. Prof. Dr Jeffrey Chiang who highlighted the two objectives of the seminar: To explore the contributing factors leading to OBOR and to explore the potential benefits for Malaysian engineers.

In the first paper, Dr Ngeow Chow Bing of Universiti Malaya, presented One Belt One Road Initiative: The Rationality and Historical Context. He named three uncertainties as contributing factors to OBOR: Geopolitical uncertainty, geo-economic uncertainty and domestic political economic uncertainty.

In the second paper, Dr Zhang Miao, also of Universiti Malaya, presented One Belt One Road Initiative: The Economic Impacts. He focused on China's investments around the globe in general and in Malaysia in particular. She also touched on five dimensions of connectivity as important: Policy, facility, trade, financial and people-to people.

In the third paper, Mr. Ramesh Balakrishnan of Land Public Transport Commission (SPAD) presented Malaysia's Land Public Transport Master Plan Towards 2030. He gave examples of key public transport developments in the Greater Kuala Lumpur, as well as presented the development status of East Coast Rail Link.

In the fourth paper, Mr. Sim Ooi Kok of MyHSR and Mr. Tony Watson of CH2M jointly presented Planning of Kuala Lumpur – Singapore High Speed Rail: Lessons Learnt from Past Similar Projects. They pointed out five challenges they faced as designers, ranging from siting of stations, synchronising of co-ordinates and cross border HSR to future proofing and lessons learnt from across the world in HSR.

In the last paper, Ir. Prof. Dr Ruslan Hassan presented Economics & Environmental Impacts of Railway: A Case Study. Drawing on his experience in the 98km-long Seremban-Gemas electrified double track rail line, he discussed its environmental and economic impacts.

Judging from the enthusiastic questions raised for the speakers at the end of their presentations, the seminar was a success and met its objectives. A participant from Universiti Kebangsaan Malaysia (UKM) suggested that more seminars of this nature should be organised in the future. ■

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Globalisation and Challenges Faced by Future Graduates/Engineers

ELECTRONIC ENGINEERING TECHNICAL DIVISION

reported by

Ir. Bhuvendhraa Rudrusamy

Prof. Dr Rizal B. Arshad giving his welcome speech

Ir. Prof. Dato' Dr Chuah Hean Teik receiving a certificate of appreciation from Ir. Bhuvendhraa Rudrusamy (eETD) and Dr Muhammad Nasiruddin Mahyuddin (USM)

The Electronic Engineering Technical Division (eETD) invited Ir. Prof. Dato' Dr Chuah Hean Teik, President of Universiti Tunku Abdul Rahman (UTAR) to deliver a talk on "Globalisation and Challenges faced by Future Graduates/Engineers" on 19 October, 2016 in USM Engineering Campus, Nibong Tebal, Penang.

The talk was co-organised by USM IEM student chapter, led by Dr Muhammad Nasiruddin Mahyuddin. Prior to the talk, there was a fellowship lunch for IEM student chapter, YES, eETD, and USM staff members, to discuss collaboration possibilities.

About 100 participants – IEM members, academicians, students and fellow engineers – attended the talk. Prof. Dr Rizal B. Arshad, Dean of the School of Electric and Electronic Engineering, welcomed the participants and thanked Prof. Chuah Hean Teik for his presence despite his tight schedule. Then Ir. Bhuvendhraa Rudrusamy gave a short introduction of IEM eETD. He stressed on the importance of continuing professional development (CPD) activities organised by eETD and IEM.

The objective of the talk was to enlighten participants on changes in the world today and the various trends. These included urbanisation and inequality of wealth distribution, clean water, food distribution, energy, global warming and climate change, and security. Though these changes can create problems and challenges, it is possible to overcome them by generating new ideas and inventions which are only possible with excellent engineers.

Therefore, he said, continuously educating engineers is the key driver to success for any nation. Looking at the local economy, he shared some of the challenges Malaysian engineers face due to globalisation and the mobility of engineers in ASEAN, APEC and TPPA. Prof. Chuah also discussed skill sets that young graduates/engineers should acquire to help them face challenges in the globalised era. Each element was explained in laymen words that were easily understood by the participants. ■

IEM DIARY OF EVENTS

Title: 8th Annual General Meeting of Consulting Engineering Special Interest Group, IEM

22 July 2017

Organised by : Consulting Engineering Special Interest Group
Time : 11.00 a.m. - 1.00 p.m.
CPD/PDP : 2

Kindly note that the scheduled events below are subject to change. Please visit the IEM website at www.myiem.org.my for more information on the upcoming events.

Technical Visit to Subang Jaya Medical Centre's Healthcare Technologies & Biomedical Engineering Facilities

ELECTRICAL ENGINEERING TECHNICAL DIVISION

reported by

Ir. Shamila Ariaratnam

The Healthcare & Biomedical Engineering Working Group, under the Electrical Engineering Technical Division of The Institution of Engineers, Malaysia, organised a technical visit for 20 members to Subang Jaya Medical Centre (SJMC) on 15 March, 2017.

After registration at 9.00 a.m., the group was treated to healthy breakfast of "parfait" and wrap. Then there was a welcome address by the Administrator of Support Services, Mr. Puvanenthiran Alagamuthu Nadar, followed by a safety briefing by its Safety and Health Officer, Cik Mimi Surianti Othman. Then Ir. Shamila Ariaratnam gave a short presentation on SJMC's beginnings until present day.

RSD Hospitals Sdn. Bhd. – Subang Jaya Medical Centre is the current official name following the joint venture between Ramsay Healthcare Limited and Sime Darby Berhad, which formed the holding organisation, Ramsay Sime Darby Health Care (RSD).

RSD-owned assets in Malaysia are Subang Jaya Medical Centre, Ara Damansara Medical Centre, Park City Medical Centre, Mediplex Wellness Centre and RSDH College. Its assets in Indonesia are RS Premier Jatinegara, RS Premier Bintaro and RS Premier Surabaya.

SJMC is a 393-bedded tertiary hospital which opened 32 years ago. It uses cutting-edge medical technologies and equipment as well as state-of-art facilities, especially in imaging and cancer radiation therapy.

Ir. Shamila gave an overview of the function of the Biomedical Engineering department. Participants then visited the Cancer and Radiosurgery Centre to view four major medical devices – the Brachytherapy System, Dual Source Computed Tomography System (DSCT), Linear Accelerator (LINAC) System and 64 Slice Positron Emission Tomography/Computed Tomography (PET/CT) System. On hand to explain the functions of these devices were Senior Medical Physicist Mr. Jasper Hew Choon Soong and the Manager, Mr. Toh Lian Sing, on the Dual Source Computed Tomography Angiography System (DSCT-Angio), which was done at the Imaging Department.

Brachytherapy treats cancer by placing radioactive sources directly into or next to the area requiring treatment. DSCT has two X-ray tubes. Two corresponding detectors are oriented in the gantry with an angular offset of 90 degrees. Generally, DSCT technology comprises two different operating modes: Two X-ray sources and two detectors

Participants at the Biomedical Engineering Workshop

Participants listening intently at Cancer and Radiosurgery Centre

Participants being briefed by the Safety and Health Officer

used at the same time in different scanning modes. The two X-ray source/detector systems rotate simultaneously, capturing image data in half the time required when using conventional technology.

LINAC is the device most commonly used for external beam radiation treatments for patients with cancer. The linear accelerator is used to treat all parts/organs of the body. It delivers high-energy X-rays to a patient's tumour.

PET/CT is a nuclear technique that combines, in a single gantry, a Positron Emission Tomography (PET) scanner and an X-ray Computed Tomography (CT) scanner, to acquire sequential images from both devices in the same session. The images are combined into a single superposed image.

DSCT-Angio is an advanced, non-invasive diagnostic tool that visualises the myocardium (heart), coronary circulation and aorta. This revolutionary technology dramatically alters the way cardiac and vascular diseases (such as coronary artery disease, dissections and aneurysms of the aorta, and atrial fibrillation) are diagnosed, evaluated and treated.

The participants visited the Transformer, Genset, Main Switch Chiller and Air Handling Unit Rooms where they were briefed on the equipment and systems by Ir. Steven Yeoh Kai Siang. They were also taken to the Facilities Engineering and Biomedical Engineering Department office and workshops. Many of the members raised questions about the equipment and received satisfactory answers.

At the end of the visit, the participants were treated to lunch prepared by SJMC's Food Services Department. The visit had successfully given the participants an insight into medical devices and equipment management. ■

IEM DIARY OF EVENTS

Title: Talk on Behaviour and Stability of Cut Slopes, With Special Reference to Malaysia

25 July 2017

Organised by : Geotechnical Engineering Technical Division
Time : 5.30 p.m. - 7.30 p.m.
CPD/PDP : 2

Kindly note that the scheduled events below are subject to change. Please visit the IEM website at www.myiem.org.my for more information on the upcoming events.

IEM DIARY OF EVENTS

Title: 1-Day Seminar on "The Next Generation of DC Switching, Sources-Changeover and Energy Monitoring"

26 July 2017

Organised by : Building Services Technical Division
Time : 8.30 a.m. - 5.30 p.m.
CPD/PDP : 7

Kindly note that the scheduled events below are subject to change. Please visit the IEM website at www.myiem.org.my for more information on the upcoming events.

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PPC PUBLICATIONS FOR SALE

The following publications are now available for purchase at the IEM Secretariat Office, 2nd Floor, Finance Department, Bangunan Ingenieur, Petaling Jaya, Selangor:

1. IEM Form of Contracts for Civil Engineering Works (Third Edition, January 2017)
   – RM 16.00 inclusive GST;
2. IEM Form of Contracts for Mechanical and ElectricalEngineering Works (Third Edition, January 2017)
   – RM 16.00 inclusive GST;
3. IEM Arbitration Rules 2016
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For further details kindly contact IEM Secretariat at 603-79685518 or finance@iem.org.my.

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CPD Points awarded

Venue & Date
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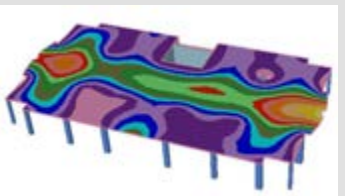
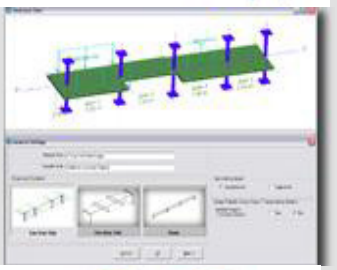
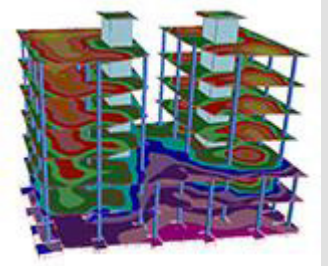
31st July & 1st August, 2017

9:30 PM - 6:00 PM
(Sessions includes refreshments)







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IEM Sarawak Branch Annual Dinner 2017

reported by

Lee Mei Ping
Vice Secretary/Treasurer
IEM Sarawak Branch
G&S Section 2016-2017

Deputy Chief Minister Tan Sri Datuk Amar Dr James Jemut Masing with IEM President Ir. Tan Yean Chin (right) and IEM Chairman (Sarawak Branch) Ir. Vincent Tang Chok Khing

The 2017 Annual Dinner of The Institution of Engineers Malaysia, Sarawak Branch, was held on 22 April at the Grand Ballroom of Imperial Hotel, Kuching. The event, with the theme "The Oscars", was also to raise funds for the construction of the International Engineering Centre (InTEC) Phase I, to be located on 6.11 acres of land in Kota Samarahan which was approved by the state government in 2011.

Sarawak Deputy Chief Minister Tan Sri Datuk Amar Dr James Jemut Masing joined in the meaningful event. A pre-dinner cocktail reception in the foyer of the ballroom allowed attendees to enjoy snacks and drinks as they mingled around. A photo booth was set up for those who want to take Oscar-style pictures to document their memories of the evening.

IEM Sarawak Branch presented a video on the proposed InTEC, Phase I which will be used to promote and advance scientific and professional aspects of engineering for the benefit of Malaysians, in particular Sarawakians. Its goals are to promote life-long learning, advancement and expertise in various engineering fields, to collaborate with local universities on applied research and to enhance the integration of knowledge and adoption of innovative technology.

This year, lucky draw prizes given out included LG Smart Full HD LED TV, Samsung Home Theatre, Panasonic vacuum cleaner, Samsung Blue Ray Disc Player and Panasonic air-conditioner.

IEM Sarawak Branch would like to thank the following sponsors who had generously contributed towards the success of the annual dinner:

- Pekerjaan Piasau Konkerit S/B
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Group photo with Deputy Chief Minister Tan Sri Datuk Amar Dr James Jemut Masing

Members of the Organising Committee, IEM Sarawak Branch Annual Dinner 2017

IEM ENGINEER'S RUN 2017

20th August 2017

KL Botanical Garden

7.00 am - 12.00 pm

5KM RUN **10KM OPEN RUN**

Registration with **www.racexasia.com** (previously known as myraceonline.com)

IEM members are entitled to RM5 cash rebate during REPC. Membership card will be required for verification purpose.

ENTRY FEES :
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The Inferno Cauldron

Ir. Chin Mee Poon | *www.facebook.com/chinmeepoon*

Ir. Chin Mee Poon *is a retired civil engineer who derives a great deal of joy and satisfaction from travelling to different parts of the globe, capturing fascinating insights of the places and people he encounters and sharing his experiences with others through his photographs and writing.*

The sun set at about six in the afternoon and, just when I was enjoying a respite from the exhausting heat, Gere our guide rounded us up and pushed us to start trekking towards the summit of the mountain that appeared so insignificant in the fading light of dusk.

Our international group of 12 was made up of a Belgian couple, a German couple, a young couple and two women from Israel and 4 Malaysians. Three camels led the way; the first one carried one of the Israeli women and the other two carried provisions. It was a very gradual climb, but there was no clear path and the ground was uneven and tricky to negotiate. Despite the half-moon overhead, we had to switch on our head lamps to light the way and avoid the risk of twisting our feet or spraining an ankle.

The mountain we were ascending was actually a basaltic shield volcano known as Erta Ale, which meant "smoking mountain" in the local Afar language. It rises only 613m from its base in the Danakil Depression in northern Ethiopia, bordering Eritrea, but it has a large base diameter of about 40km as is typical of shield volcanoes.

The camp, Askoma, is home to 10 armed soldiers whose duty it is to protect travellers visiting the volcano. This is also where travellers take shelter from the scorching sun, eat snacks and drink water to replenish their sapped energy as well as get ready to trek to the summit as soon as the sun sets.

My friends and I had travelled in a 4WD vehicle from Mekele into the Danakil Depression, meeting up with the other 8 members of the group in Abala village. The beautiful road we were travelling on initially was constructed by the Chinese some 3 years ago. At 1.30 p.m., we went off-road and over a large patch of very rough black lava rock before emerging on a sandy plain. Outside the air-conditioned vehicles, the air was hot as an oven. Yet even in such a desolate and hostile environment, we encountered half a dozen ostriches and a lonely bustard.

After a late lunch of rice with pea, potato, onion, canned tuna and meat in Kusrawad, a hamlet of a few shabby houses, we resumed our journey. Soon we had a second round of bone-shaking "African massage" as we went over extremely rough black lava rock for the next 12km to get to Askoma! It took more than 1½ hours to cover the 12km stretch before we arrived at 4.30 p.m.

Danakil Depression, with its lowest point at 125m below sea level and a year-round average temperature of 34°C, is the hottest place on earth. Measuring 200km by 50km, the depression was formed by a complex geological interaction between three tectonic plates and other forces of nature.

With three stops of 15 minutes each, we took 4 hours to reach the summit of Erta Ale. We were served a late dinner of macaroni on the northern rim of the old oblong crater that measured 1.7km by 600m. A pit crater of bubbling lava on the southern rim could be seen across the old crater. Gere led us down a steep slope into the old crater to get close to the cauldron of simmering molten rock, first going over hardened old lava rock and then over fragile new lava rock formed barely three weeks earlier. The new lava rock was dark grey in colour and hollow. Had the rock collapsed under our weight, our feet would have been severely cut by the sharp edges of the resulting crack. Gere tested the ground by pounding his wooden pole hard on the lava rock, and we followed him in a single file.

After 30 minutes, we came to a point about 10m from the smouldering cauldron. The new lava rock felt like charcoal beneath our feet and we could feel heat coming from not only the cauldron but also from the lava rock. On the way back to the crater rim, I found that I had lost the sole of one shoe and the other was on the verge of dropping off.

We spent the rest of the night lying on the crater rim and counting stars in the sky, absolutely satisfied that we had gotten really close to one of the few long-lasting lava lakes in the world. ■

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Closing of Full paper Submission	: 08th JAN 2018
Notification of Full paper Acceptance	: 15th MAR 2018
Camera Ready Paper	: 05th MAY 2018
End of Early Bird Registration	: 31st MAR 2018
Normal Registration	: 01st APR 2018

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The abstract must be between 150 – 250 words and submitted in MS Word format by e-mail to:- wiset2018@gmail.com
Selected papers will be considered for publication in SCOPUS indexed journal

Tarikh: 19 Jun 2017

Kepada Semua Ahli,

SENARAI CALON-CALON YANG LAYAK MENDUDUKI TEMUDUGA PROFESIONAL TAHUN 2017

Berikut adalah senarai calon yang layak untuk menduduki Temuduga Profesional bagi tahun 2017.

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 2017.

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. Yap Soon Hoe
Setiausaha Kehormat, IEM,

PERMOHONAN BARU

Nama	Kelayakan
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MOHD AZRIZAL FAUZI	BE HONS (UiTM) (CIVIL, 2005)
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MOHD HAFIZI BIN MAT AKHIR	BE HONS (UTM) (CIVIL, 2006)
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KEJURUTERAAN SUMBER AIR	
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KEJURUTERAAN NAVAL ARKITEK	
MOHD KHAIROL AFFANDI BIN MOHD YAACOB	BE HONS (HOCHSCHULE BREMEN) (NAVAL ARCHITECTURE & OCEAN, 2008)
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MUHAMMAD IRWAN BIN ABDUL HAMID	BE HONS (UiTM) (MECHANICAL, 2008)
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MOHAMAD FADZREEN BIN KHAIREEL	BE HONS (UiTM) (MECHANICAL, 2012)
POH HAN KHEE	BE HONS (UTM) (MECHANICAL, 2013)
MUHAMMAD FAIQ BIN MOHD ROZI	BE HONS (UTM) (MECHANICAL, 2004)

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38571	ANDING ANAK UNCHI	BE HONS (UTM) (CIVIL, 2011)
86588	BEH CHAI TERNG	BE HONS (NTU) (CIVIL, 2007)
48868	LIM GEE ZHIONG	BE HONS (UNIMAS) (CIVIL, 2008)
52526	MOHD FAIZ BIN MOHAMMAD ZAKI	BE HONS (UTM) (CIVIL, 2010) ME (UTM) (CIVIL-GEOTECHNICS, 2012)
52479	MOHD MUHIDIN BIN FAHARUDDIN	BSc (CALIFORNIA) (CIVIL, 1989)
49983	ROSANNAH BOLHASSAN	ME HONS (IMPERIAL COLLEGE LONDON) (CIVIL, 2010)
18712	STALE ANAK BURI	BSc HONS (WALES SWANSEA) (CIVIL, 1980)
81312	TAN CHYI FUH	ME BE (LEEDS) (CIVIL & STRUCTURAL, 2012)
32076	TAN KAI HONG	BE HONS (USM) (CIVIL, 2011)
43181	TING EE CHUEN	BE HONS (UNITEN) (CIVIL, 2006)
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88292	AZMIR BIN MOHD YUSOFF	BE HONS (UTeM) (CONTROL, INSTRUMENTATION & AUTOMATION, 2007)
38602	BALBIR SHAH @ MOHD FADDULLAH	BE HONS (UiTM) (ELECTRICAL, 2006) CONVERSION (UNITEN) (2013)
42514	DEVENDRA KUMAR KALIAPPAN	BE HONS (UNITEN) (ELECTRICAL POWER, 2008)
38329	MD HAJUPERI BIN MD ALI	BE HONS (USM) (ELECTRICAL, 2006)
70265	MOHD FAIRUS KHAFIZ BIN KHALID	BE HONS (ELECTRICAL & ELECTRONIC, 2006)
51699	SUDALLI BIN SABTUAHIM	BE HONS (UMS) (ELECTRICAL & ELECTRONIC, 2009)
19391	TAN HANG KAK	BSc (MISSISSIPPI) (ELECTRICAL, 1997)
72639	TAN YU QUAN	BE HONS (RMIT) (ELECTRICAL, 2011)
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75279	HABIBAH BINTI HASHIM	BSc (NOTTINGHAM) (ELECTRICAL, 1983) MSc (CNAA-TEESSIDE) (COMPUTER-AIDED, 1986) PhD (UNITEN) (INFORMATION & COMMUNICATION TECHNOLOGY, 2007)
61989	HAZRUL BIN MOHAMED BASRI	DIPL-D'ING (BELFORT-MENTBELIARD) (2008) ME (BELFORT-MONTBELIARD) (2010)
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24787	NGU LOCK HEI	BE HONS (CHEMICAL, 2001)
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81273	MOHD NASIR BIN MOHD ISA	BE HONS (SUNDERLAND) (MECHANICAL, 2012) ME (UPM) (MANUFACTURING SYSTEMS, 2013)
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61150	CHOO JERN YUE, EDWIN	BE (IMPERIAL COLLEGE LONDON) (MATERIALS SCIENCE & ENGINEERING, 2004)
40703	FAROUQ BIN AHMAT	BE HONS (IIUM) (MATERIAL, 2012)

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KEAHLIAN

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86009	AHMAD NUZUL KHAWARIZMI BIN AHMAD KHAIRI	B.E.HONS.(MALAYA) (ENVIRONMENT, 2008)
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86004	AFIFAH BT AZRAE	B.E.HONS.(UITM)(CIVIL, 2012) M.SC.(UITM)(CIVIL-STRUCTURES, 2013)
85930	AHMAD AZZAM BIN ADAM	B.E.HONS.(IUKL)(CIVIL, 2013)
86014	AHMAD MUZAIDI BIN MUSANNEF	B.E.HONS.(KLIUC)(CIVIL, 2012)
86021	AHMAD SYAZWAN BIN SAIDIN	B.E.HONS.(UNIMAS)(CIVIL, 2011)
85983	AINUL AISYA BINTI ALIMAN	B.E.HONS.(UITM)(CIVIL, 2012) M.SC.(BRISTOL)(WATER & ENVIRONMENTAL MANAGEMENT, 2014)
85993	CHIONG ZHEN, GABRIEL	B.E.(UNSW)(CIVIL, 2013)
85940	CHOI WEI XIONG	B.E.HONS.(UTAR)(CIVIL, 2016)
85959	CHONG MENG HUI	B.E.HONS.(UKM)(CIVIL & ENVIRONMENTAL, 2004) M.E.(UTM)(HYDROLOGY & WATER RESOURCES, 2009)
85882	CHONG WOEI SONG, RAYMOND	B.E.HONS.(MALAYA)(CIVIL, 2008)
85949	CHOO CHEONG YEW	B.E.HONS.(SEGI)(CIVIL, 2014)
85899	FADHLAN BIN ABDUL HADI	B.E.HONS.(UTM)(CIVIL, 2001)
85956	FARAH ALWANI BINTI WAN CHIK	B.E.HONS.(USM)(CIVIL, 2005) M.SC.(USM)(CIVIL, 2010)
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85946	LEE YEONG HENG	B.E.HONS.(UTHM)(CIVIL, 2009)
85994	MOHAMED RIZALI BIN MOHAMED DAUD	B.E.HONS.(UPNM)(CIVIL, 2011)
85478	MOHD FAEEZ BIN KAMARUZAMAN	B.E.HONS.(UITM)(CIVIL, 2014)
85953	MOHD NOOR ASYRAF BIN AMIRUDDIN	B.E.HONS.(UTM)(CIVIL, 2008) M.E.(UTM)(CIVIL-TRANSPORTATION & HIGHWAY, 2010)
86013	MOHD NURKHAIRIE BIN SHAHARUDDIN	B.E.HONS.(UNIMAP) (BUILDING, 2012)
86017	MOHD YASAK BIN EFFANDI	B.SC.(ABERDEEN)(CIVIL, 1987)
85951	MUHAMMAD FADDZUR SHAH BIN MANAN	B.E.HONS.(UPNM)(CIVIL, 2013)
85925	MUHAMMAD IMRAN BIN IBRAHIM	B.E.HONS.(UPNM)(CIVIL, 2015)
85479	MUHAMMAD NURHAFIZ BIN SALLEH	B.E.HONS.(UITM)(CIVIL, 2011)
85982	NOOREIHANA BINTI BASRI	B.E.HONS.(UTM)(CIVIL, 2009)
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85499	QUAH KEN YONG	B.E.HONS.(UTHM)(CIVIL, 2011)
85996	S. MUHAMMAD ADLI BIN HASHIM	B.E.HONS.(UTM)(CIVIL, 2015)
85939	SALWANI BINTI MARLIZAN	B.E.HONS.(UITM)(CIVIL, 2001)
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85498	YEE THIAN KEE	B.E.HONS.(KLIUC)(CIVIL, 2011)
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85999	ABU HANIFAH BIN MUHAMAD ALI	B.E.HONS.(IIUM)(MATERIALS, 2014)
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86000	ABDUL ADIB BIN MOHD SUHAIMI	B.E.HONS.(UTM) (ELECTRICAL-CONTROL & INSTRUMENTATION, 2010)
85904	AISYAH BINTI ABD RAZAK	B.E.HONS.(UITM) (ELECTRICAL, 2014)
85990	ARIF FARHAN BIN ABDUL RAHMAN	B.E.HONS.(UTM) (ELECTRICAL, 2012)
85932	BRUNO ANAK VINCENT	B.E.HONS.(UTM) (ELECTRICAL, 2014)
86006	CHIN WEE YANG	B.E.HONS.(UTP)(ELECTRICAL & ELECTRONICS, 2004)
85884	DINESH A/L NADARAJAN	B.E.HONS.(UNITEN) (ELECTRICAL & ELECTRONICS, 2013)
86001	FAISAL IRSHAD BIN HARUN	B.E.HONS.(UNITEN) (ELECTRICAL POWER, 2012)
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85886	KANG CHING YEW	B.E.HONS.(UNITEN) (ELECTRICAL & ELECTRONICS, 2012)
85483	LIM CHUN SING	B.E.HONS.(LIVERPOOL JOHN MOORES)(ELECTRICAL & ELECTRONIC, 2000)
86023	LIM FONG KIAT	B.E.HONS.(UNIMAP) (ELECTRICAL SYSTEM, 2014)
85900	LIYANA AISYAH BINTI AMAT YAZID	B.E.HONS.(UNITEN) (ELECTRICAL POWER, 2015)
85944	LOI YII TIEN	B.E.HONS.(UMIMAS) (ELECTRONICS & TELECOMMUNICATIONS, 2008)
85960	MOHAMMAD FARID BIN SAAID	B.E.HONS.(UITM) (ELECTRICAL, 2006) M.E.(UITM)(ELECTRICAL, 2013)
86018	MOHD ZAMRI MOHD DUYALMI	B.E.HONS.(ADELAIDE) (ELECTRICAL & ELECTRONIC, 2013)
85957	MUHAMMAD AKMAL BIN MUHAMMAD HANAPI	B.E.HONS.(UNITEN) (ELECTRICAL POWER, 2012)
85128	MUHAMMAD AZHAR BIN OMAR	B.E.HONS.(UPM)(ELECTRICAL & ELECTRONICS, 2011)
85926	NG YEE CHONG	B.E.HONS.(UNITEN) (ELECTRICAL POWER, 2013)
85901	NIK ALI MURTAZA BIN NIK AB RAZAK	B.E.HONS.(MONASH) (ELECTRICAL & COMPUTER SYSTEMS, 2012)
85493	NOOR ANUM BINTI ATAN	B.E.HONS.(UPM)(ELECTRICAL & ELECTRONICS, 2008)
85897	NORDIT TAY BIN ABIDIN	B.E.HONS.(UTM) (ELECTRICAL, 2014)
86010	NUR 'IZZAH BINTI MOHAMAD NOR	B.E.HONS.(UTP)(ELECTRICAL & ELECTRONICS, 2015)
86027	PUEN MING CHIANG, DANIEL	B.E.HONS.(MMU) (ELECTRICAL, 2012)
85487	SALAMIYAH BT MOHAMAD	B.E.HONS.(UITM) (ELECTRICAL, 2003)
85486	TAN KIA CHUN	B.E.HONS.(UTAR) (ELECTRONIC, 2013)
85922	TAN WEI LUN	B.E.HONS.(UNIMAS) (ELECTRONICS & TELECOMMUNICATIONS, 2009)
85903	TANG KAI ING	B.E.HONS.(UPM)(ELECTRICAL & ELECTRONICS, 2010)
85948	TENG AARON	B.E.HONS.(UCSI)(ELECTRICAL & ELECTRONIC, 2015)
86005	TENGKU MOHD MAIZATUL IZWAN BIN ENGKU MAJID	B.E.HONS.(UTM) (ELECTRICAL, 2009)
85923	VIV ANDERSON YIH	B.E.HONS.(UMS)(ELECTRICAL & ELECTRONICS, 2013)
85131	YAP YI-LUN	B.E.HONS.(MELBOURNE) (ELECTRICAL, 2005)
85902	ZAILANI BIN AB GHANI	B.E.HONS.(UNISEL) (ELECTRICAL, 2006)
85958	ZARINA BINTI JOHAN	B.E.HONS.(UNITEN) (ELECTRICAL POWER, 2007)
KEJURUTERAAN ELEKTRONIK		
85481	ABDULLAH BIN ABDUL RAHMAN	B.E.HONS.(UTM)(BIO-MEDICAL, 2010)
85921	CHOW VOON YANG	B.E.HONS.(AUSTRALIAN NATIONAL)(ELECTRONIC & COMMUNICATION SYSTEMS, 2012)
85491	FAIZAH BINTI AMIR	B.SC.(MARQUETTE) (ELECTRICAL, 1988) M.SC. (UKM)(MICROELECTRONICS, 2008)
85130	IZHAR HADAFI BIN ABDUL HALIM	B.E.HONS.(UKM) (ELECTRICAL, ELECTRONIC & SYSTEMS, 2000)
86022	LAJIM BIN MOLAH	B.E.HONS.(UTM) (ELECTRICAL, 1999)
85489	MOHD FAIZAL BIN MUSTAPHA	B.E.HONS.(KUITTHO) (ELECTRICAL, 2003)
85938	MOHD KHAIRUL AZLI BIN AZMI	B.E.HONS.(UITM) (ELECTRICAL, 2011)
85931	MUHAMAD HAZWAN BIN ABDUL HALIM	B.E.HONS.(UITM) (ELECTRICAL, 2012)
85941	MUHAMMAD SYAHIR BIN ZULKURNAIN	B.E.HONS.(UPNM) (ELECTRICAL & ELECTRONIC-COMMUNICATIONS, 2013)
85492	NOOR HAYATI BINTI HAMZAH	B.SC.(OHIO)(ELECTRICAL, 1989) M.SC.(UITM) (TELECOMMUNICATION & INFORMATION, 2010)
85488	NOR ARNI ZURAIMI BINTI MD NOAR	B.E.HONS.(UKM) (COMMUNICATION & COMPUTER, 2008) M.E.(USM)(ELECTRICAL & ELECTRONICS, 2000)
85490	SHOKHANA BINTI HAIMIN	B.SC.(TOLEDO)(ELECTRICAL, 1988)
85935	TING TING CHAI	B.E.HONS.(UTAR) (ELECTRONIC, 2016)
85995	WAN ZAIZARENAH BINTI ZAMAN	B.E.HONS.(UNIMAP) (ELECTRONIC, 2008)
85892	WASIF ALI KHAN	B.E.HONS.(NILAI) (ELECTRONIC, 2015)
85987	ZAIMIHASLIZA BINTI ZAINOL	B.E.HONS.(UTM) (COMPUTER, 2006) EXEC.M.(UTM) (OCCUPATIONAL SAFETY & HEALTH MANAGEMENT, 2015)
KEJURUTERAAN INDUSTRI		
85984	ANNUAR BIN MOHD SAFFAR	B.SC.(MISSOURI) (INDUSTRIAL, 1984) M.SC. (MISSOURI)(INDUSTRIAL, 1986)
85485	SANTHIRAHASAN MUTHUSAMY	B.SC.(PURDUE)(INDUSTRIAL, 2015)
86008	YAP CHEE WEI	B.SC.(ARKANSAS) (INDUSTRIAL, 2000) M.SC.(ARKANSAS) (MECHANICAL, 2003)
KEJURUTERAAN KIMIA		
85945	ANG KENG LIN	M.E.(CANTERBURY) (CHEMICAL & PROCESS, 2012)
86020	AZLINDA BINTI AZIZI	B.E.HONS.(UTM)(CHEMICAL, 2007)
85880	LEE MEI JIUN, ESTHER	B.E.HONS.(UTAR)(CHEMICAL, 2016)
85881	LIM CHU ERN	B.E.HONS.(UTAR)(CHEMICAL, 2016)
86011	MOHAMMAD RIDHWAN SYAFIQ BIN MOHAMMAD YUSOFF	B.E.HONS.(MALAYA) (CHEMICAL, 2015)
85928	MOHD SYAWAL BIN MOHD	B.E.HONS.(UITM)(CHEMICAL, 2010)
85927	NURSHUHADA IDAYU BINTI DAHALAN	B.E.HONS.(UITM)(CHEMICAL, 2012)
86024	RAFEQAH BINTI RASLAN	B.E.HONS.(UTM) (CHEMICAL, 2005) M.SC.(UKM)(CHEMICAL & PROCESS, 2011)
85952	RICHARD EASUPATHAM CRISTHAPPA	M.E.HONS.(NOTTINGHAM) (CHEMICAL, 2011)
85937	SANDIP SINGH A/L HARBHAJAN SINGH	B.E.HONS.(UTAR) (PETROCHEMICAL, 2016)
85936	TAY YI HUI	B.E.HONS.(UTAR) (PETROCHEMICAL, 2016)
85888	YONG WEE FON	B.E.HONS.(MONASH) (CHEMICAL, 2011)
85934	YUBENRAJ A/L RAMAKRISHNAN	B.E.HONS.(UTAR)(CHEMICAL, 2016)
KEJURUTERAAN KOMPUTER		
85947	FIKRI BIN JOHARI	B.E.HONS.(UTM)(COMPUTER, 2010)
86003	MOHD AISHAMUDDIN BIN YAAKOB	B.E.HONS.(UNIMAP) (COMPUTER, 2010) M.SC.(UUM)(INFORMATION TECHNOLOGY, 2012)
KEJURUTERAAN MAKANAN & PROSES		
86019	DR. TEE YEE BOND	B.E.HONS.(UPM) (FOOD & PROCESS, 2011) P.HD.(UPM) (PACKAGING, 2015)
KEJURUTERAAN MEKANIKAL		
85883	AHMAD RUZAINI BIN REDZAUN	B.E.HONS.(UNITEN) (MECHANICAL, 2008)
85133	ARIHAN SALLEHIN BIN IDRIS	M.E.HONS.(LIVERPOOL) (MECHANICAL, 2009)
85497	CHAN TZE SEANG	B.E.HONS.(USM) (MECHANICAL, 2012)
85891	CHAN XIN YANG	M.E.HONS.(NOTTINGHAM) (MECHANICAL, 2014)

85896	CHEANG WEI YANG	B.E.HONS.(UTAR) (MECHANICAL, 2016)
85895	CHIA CHEE YONG	B.E.HONS.(UTAR) (MECHANICAL, 2016)
85480	DINIE RIFDI BIN KHAIRUDIN	B.E.HONS.(IIUM) (MECHANICAL-AUTOMOTIVE, 2011)
85890	DONALD SOO AMONG BIN DENNIS	B.E.HONS.(SUNDERLAND) (MECHANICAL, 2013) M.SC.(NEWCASTLE UPON TYNE)(MECHANICAL, 2014)
85924	ELLY NADYA BINTI BAJURI	B.E.HONS.(UNIMAS) (MECHANICAL & MANUFACTURING, 2006)
86007	FAISAL BIN ABDULLAH SANI	B.E.HONS.(UTP) (MECHANICAL, 2010)
85898	HAIZUM AMALINA BINTI A. WAHID	B.E.HONS.(UNITEN) (MECHANICAL, 2015)
86012	JANTING ANAK YABANG	B.E.(KYOTO INSTITUTE OF TECH.)(MECHANICAL & SYSTEM, 2009) M.E.(MALAYA)(MECHANICAL, 2015)
85500	KESAVAN A/L RAJANDRAM	B.E.HONS.(UTM) (MECHANICAL-INDUSTRIAL, 2005)
86016	KHO SHUN JIE	B.E.HONS.(UPM) (MECHANICAL, 2012)
85127	KHOO MING HONG	M.E.HONS.(SHEFFIELD) (MECHANICAL, 2015)
85894	LAI MUN CHUN	B.E.HONS.(UTAR) (MECHANICAL, 2016)
86025	LIM JEN SHERN, CALVIN	M.E.HONS.(SHEFFIELD) (MECHANICAL, 2013)
85985	LING WAI KIAT	B.E.HONS.(UPNM) (MECHANICAL, 2013)
85126	MOHAMAD BIN MALI	B.E.HONS.(UITM) (MECHANICAL, 2011)
85495	MOHD AMIR ZAINI BIN NAZIFF	B.E.HONS.(UNITEN) (MECHANICAL, 2014)
85494	MOHD NAZRUL BIN MAHMOD	B.E.HONS.(UITM) (MECHANICAL, 2007)
85482	MOHD ZUBIR BIN MAIDIN	B.E.HONS.(UTM) (MECHANICAL-AUTOMOTIVE, 2010)
85981	NOOR ZAFIRAH BT ABU BAKAR	B.SC.(PURDUE) (MECHANICAL, 2006) M.E.(MALAYA)(MECHANICAL, 2013)
85123	NUR HASALLI BINTI IBRAHIM	B.E.HONS.(UTHM) (MECHANICAL, 2010) M.E.(UPM)(MANUFACTURING SYSTEMS, 2012)
85992	RAY AKIE OLVERIANA ALBERT	B.E.HONS.(UTHM) (MECHANICAL, 2014)
85124	RUTIARAN A/L JAHANATHAN	B.E.HONS.(UNITEN) (MECHANICAL, 2013)
86026	RUZAIDI BIN ZAMRI	B.SC.(UTM)(MECHANICAL, 1998)
85496	S UMEESH KUMAR SUPPRAMANIAM	B.E.HONS.(UTM) (MECHANICAL-MARINE TECHNOLOGY, 2004) M.B.A.(MIDDLESEX)(OIL & GAS, 2013)
85885	SHANKAR A/L CHANDRAMOHAN	B.E.HONS.(UNITEN) (MECHANICAL, 2013)
85989	SHIVA SARVANAN PILLAI SUBRAMANIAM	B.E.HONS.(UTP) (MECHANICAL, 2012)
85943	TAM JUN HAO	B.E.HONS.(MMU) (MECHANICAL, 2014)
85893	TAN CHUN LING	B.E.HONS.(UTAR) (MECHANICAL, 2016)
85991	THOMAS THADDEAUS JACOB	B.E.HONS.(TAYLOR'S) (MECHANICAL, 2015)
85129	YEK NAI YUH, PETER	B.E.HONS.(UNIMAS) (MECHANICAL ENRG. & MANUFACTURING SYSTEMS, 2005) M.E.(UNIMAS)(MECHANICAL, 2014)
85997	ZAIDAH BINTI HARUN	B.E.HONS.(UTHM) (MECHANICAL, 2009)
85122	ZAINON SHARMILA BINTI SHAMSUDDIN	B.E.HONS.(UTM) (MECHANICAL, 1998) M.E.(UITM)(MECHANICAL, 2011)

KEJURUTERAAN PEMBUATAN

85988	ABDULLAH AFEEQ BIN IMAM JURJANI	B.E.HONS.(IIUM) (MANUFACTURING, 2015)
85998	THIRUKUMARAN S DORAISAMY	B.E.(LINCOLNSHIRE & HUMBERSIDE)(MECHANICAL ENRG. & MANUFACTURING SYSTEMS, 2001) M.SC.(CRANFIELD) (MICROSYSTEMS & NANOTECHNOLOGY, 2004)
85929	ZAIRUL AMRI BIN ZAKARIA	B.E.HONS.(CARDIFF) (MANUFACTURING, 2006) M.SC.(KINGSTON) (MECHANICAL, 2014)

KEJURUTERAAN PERTANIAN

86015	NUUR MUHAIMIN BIN HUSSIN	B.E.HONS.(UNIMAP) (BIOSYSTEMS, 2015)

KEJURUTERAAN PETROLEUM

85986	SHERENE JAWING	B.SC.(COLORADO SCHOOL OF MINES)(PETROLEUM, 2014)

PERMOHONAN MENJADI AHLI "INCORPORATED"

No. Ahli	Nama	Kelayakan

KEJURUTERAAN ELEKTRIKAL

85477	NG CHEONG LEONG	B.E.HONS.(KLMUC) (ELECTRICAL, 2015)

KEJURUTERAAN PERLOMBONGAN

85961	WAN AZRIL MOZZAFAR BIN WAN ZAWAWIE	B.E.HONS.(EXETER)(MINING, 2013)

PERMOHONAN MENJADI AHLI "AFFILIATE"

No. Ahli	Nama	Kelayakan

KEJURUTERAAN KIMIA

85979	CHAN BOON CHEW	B.SC.(CAMPBELL) (CHEMISTRY & BIOLOGY, 1997)

Note: *New list would be published in the August 2017 issue. For the list of approved "ADMISSION TO THE GRADE OF STUDENT", please refer to IEM web portal at http://www.myiem.org.my.*

Pengumuman yang ke-105

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://www.iem.org.my atau menghubungi secretariat di +603-7968 4001/5518 untuk maklumat lanjut. Senarai penyumbang untuk bulan Mei 2017 adalah seperti jadual di sebelah:

NO.	NO. AHLI	NAMA
1	54117	ALI KAMAL SABRI BIN ABDUL AZIZ
2	46809	ANDY LAWRENCE
3	39230	AZWANIZAM BIN CHE ABD RAHMAN
4	24208	FATIHAH BINTI ISMAIL
5	25252	FOO YEW CHIN
6	34326	GAN SIEW CHEOK
7	7160	KOH JIT HUAT
8	15881	KUMARI NALINI A/P P. SUBRAMANIAM
9	09918	LIANG YEW CHI
10	25658	LIEW VOON HING
11	9476	MD RIJALUDDIN BIN MOHD SALLEH
12	26740	MHD. SHUKREE BIN SHAHABUDIN
13	53086	MOHAMAD NORSHAHRANI BIN ABDUL RAHIM
14	20097	MOHD FAUZI BIN SHAFIE
15	15842	MOHD NAZRE BIN HAJI MARDZUKI
16	25559	MOHD. HARDY BIN LAIDIN @ SAIDIN
17	13229	MUHYI @ MOHAMAD YUSOF BIN HAJI ALI
18	78077	MURALI A/L HARIPALAN
19	71132	NORHAFIZAH ABDUL WAHAB
20	13436	OOI CHONG KOOI
21	20427	PANG CHIA PIAU
22	16042	POK SUM LOONG
23	80677	RAJA ANDIFARIZAN RAJA AHMAD
24	36860	SAFARI BIN SAAD
25	8930	SOH THIAM BENG
26	37979	TAN TEE GIAP
27	38741	UNANG ANAK BUNDAN
28	87693	V SARAVANA KUMAR A/L VEERIAH

IEM DIARY OF EVENTS

Title: 2-Day Short Course on Geotechnical Engineering in Residual Soils (GERS)

26-27 July 2017

Organised by : Geotechnical Engineering Technical Division
Time : 9.00 a.m. - 5.30 p.m.
CPD/PDP : 13

Title: Talk on "Conflict Resolution In The Workplace"

27 July 2017

Organised by : Engineering Education Technical Division
Time : 5.30 p.m. - 7.30 p.m.
CPD/PDP : 2

Kindly note that the scheduled events below are subject to change. Please visit the IEM website at www.myiem.org.my for more information on the upcoming events.

IAHR 2017

37th IAHR WORLD CONGRESS

13-18 August,2017

Kuala Lumpur, Malaysia

Managing Water for Sustainable Development - Learning from the past for the Future

13-18 AUGUST 2017

Putra World Trade Centre (PWTC)

www.iahrworldcongress.org

Ministry of Natural Resources and Environment (NRE)

Department of Irrigation and Drainage Malaysia (DID)

National Hydraulic Research Institute of Malaysia (NAHRIM)

REDAC

PRE-CONGRESS WORKSHOPS

TOPICS	VENUE	DATE	FEE
1(A) :Hands-On Introduction to Google Earth Engine 1(B) :Master Class on Hydro informatics And Water Management	Putra World Trade Centre (PWTC)	13/08/2017 (Sunday)	RM200
2 (A) : Two Days Workshop on Sustainable Urban Storm water Management	Universiti Teknologi Malaysia (UTM), Kuala Lumpur	11-12/08/2017 (Friday-Saturday)	RM400
2 (B) : One- Day Workshop on Introduction Coastal Process & Management		12/08/2017 (Saturday)	RM200
2 (C) : One- Day Workshop on Operationalizing Your data and Models		12/08/2017 (Saturday)	RM200
2 (D) : Half-Day Workshop on recent Advance in TSS Field Measurement Technology		11/08/2017 (Friday)	RM150
2 (E) : Half-Day Workshop on River Basin Management Education with Serious Gaming		11/08/2017 (Friday)	RM150
2 (F) : One-Day Workshop on River Engineering: Hard and Soft-Engineering Measures		12/08/2017 (Saturday)	RM200
2 (G) : One-Day Workshop on Practice and challenges on Integrated Operation of Hydropower Stations and Reservoirsng		12/08/2017 (Saturday)	RM200

CONGRESS THEMES	
THEME 1	RIVER AND SEDIMENT MANAGMENT
THEME 2	FLOOD MANAGMENT
THEME 3	ENVIROMENTAL HYDRAULIC AND INDUSTRIAL FLOW
THEME 4	COASTAL, ESTUARIES AND LAKE MANAGMENT
THEME 5	URBAN WATER MANAGMENT
THEME 6	WATER RESOURCES MANAGMENT
THEME 7	HYDROINFORMATICS/ COMPUTATIONAL METHOD AND EXPERIMENTAL

CONGRESS REGISTRATION FEES	On and after May 1,2017
IAHR Member	USD 750
Non-IAHR Member	USD 850
LDC* (IAHR Member)	USD 650
LDC* (non-IAHR Member)	USD 750
Student (IAHR Member)	USD 550
Student (non-IAHR Member)	USD 650

BOOTH RENTAL FEES

Booth fee is MYR 3,500.00 (USD 950.00) /day
Booth fee is MYR 17,500.00 (USD 4,750.00) / 5days

Approved 25 CPD by BEM

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