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By Ir. Assoc. Professor Dr Leong Wai Yie Chairman IEM Women Engineers Section

Ir Assoc Professor Dr Leong Wai Yie is the Chief Executive Officer of Golden Brain Sdn. Bhd., a company dealing in left-brain education training. telecommunications design. signal processing and biomedical processing.

Strength in Diversity of Women Engineers

he IEM-Women Engineers Section (IEM-WE) has put in a lot of effort to provide a platform that recognises women engineers who have made outstanding contributions to the profession and community.

WE recognises women engineers who have overcome barriers to pursue engineering or who have affected their communities through their dedication and involvement to inspire, engage and support more women engineering students as well as keep them motivated.

In this issue, WE talks to women engineers from diverse disciplines on various related issues such as gender equality at the workplace, their future in engineering, what makes good women engineers, work-life balance and the challenges they face in professional arowth.

WE also presents some of recent activities including involvements in the National Women Summit, WEAFEO Forum & Initiatives during the CAFEO 33 in Penang and the Lean In Summit.

There are women with outstanding achievements in the field of science, technology, engineering and mathematics (STEM). They have shown excellent leadership qualities with their persistence in sharing their knowledge of STEM with the pre-university community, mentoring students and supporting the formation of local WE branches.

Women engineers have also shown exemplary leadership and an extraordinary commitment in activities that support and meet the visions of WE at national, regional and international levels. WE appreciates their efforts and their commitment to the development and the progression of women in engineering which have resulted in corporate partnerships between industry, academia and community.

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Conference of ASEAN Federation of Engineering Organizations

STRENGTH IN DIVERSITY OF ASEANS WORLENS

he newly formed Women Engineers of ASEAN Federation of Engineering Organisations (WEAFEO) reinforces support for both professionals and the younger generation of women engineers to scale to greater heights.

Women engineers in ASEAN have come a long way. Today, they are well established in the various fields of engineering and some have become role models who inspire the younger generation.

The ASEAN Federation of Engineering Organisations (AFEO) is an ideal platform for continued contact and interaction for all women engineers. To further strengthen the support, the Women Engineers of ASEAN Federation of Engineering Organisations (WEAFEO) was formed in 2013. Among other initiatives, it encourages women engineers to remain in practice, promotes greater contribution from women engineers, supports them in their careers, encourages their achievements as engineers and leaders as well as encourages the study and application of engineering among female students. At the recent Conference of ASEAN Federation of Engineering Organizations (CAFEO 33) in Penang, JURUTERA interviewed several ASEAN women engineers from diverse disciplines on issues related to gender inequality at the workplace, their future in engineering, what makes good women engineers, achieving worklife balance and the challenges they face in their career arowth.

On the most significant difficulty as a female science/engineering professional in her country, *Er. Emily Tan* from Singapore said it is important "to get over our own mental barrier that women are different from men". She noted that both genders have their own strengths and weaknesses, so they should complement each other in all fields instead.

For her, the main issues are work-life balance and workplace culture. She said women engineers face a lack of networking, lack of career support, limits in technical roles, lack of access to senior roles and lack of job opportunities.

Asked if women in leadership and administrative positions appear to be judged more harshly than men who hold same positions, she said: "Perhaps subconsciously, women, especially good looking ones, are judged differently from men in the same position. Often, men are afraid to promote women in case it is perceived that they are 'improperly associated' with the women."

Ir. Assoc. Prof. Hayati Abdullah of Malaysia felt that women are judged more harshly while *Ir. Assoc. Prof. Dr Leong Wai Yie* of Malaysia did not think so.

Engr. Lydia G. Tansinsin of the Philippines said: "Sometimes. But once male bosses and co-employees observe that a woman engineer is qualified and performs well, they will respect her and cooperate to perform their respective duties. But in some cases, cruel male colleagues may continue to test a woman's patience to determine if she will be distracted when making decisions. They may even attempt to show that a female leader or administrator is not fit for the position."

Engr. Juana Torrano-Tapel of the Philippines said: "Women are generally soft-spoken and compassionate but those in top positions can become very decisive and persuasively strong; this is a deviation from their normal behaviour. Furthermore, most women leaders are honest and incorruptible. So, in the eyes of other people, women may seem harsher than men of the same hierarchical level."

Engr. Si Than of Myanmar said either gender can hold leadership and administrative positions. What matters is that he/she is the right person who can be the most effective in the position.

As for the observation that women are generally less interested in technology but more interested in socially oriented areas, Er. Emily Tan thinks this is the generally perception, so even when men are interested in socially oriented areas, they dare not express it as it is not the accepted social norm.

Ir. Hayati did not feel that women are less interested in technology while Engr. Torrano-Tapel said: "The overall discernment is that women are more interested in socially oriented areas or concerns. But women engineers and scientists are differently honed in that they have developed an interest in technology-based concerns. This may be due to influence from their environments. For example, if their parents and/or other family members are inclined towards technology and engineering, they will be more likely to develop an interest in the STEM (Science, Technology, Engineering and Mathematics). In addition, women engineers are extraordinary women and comparable to men."

Engr. Tansinsin felt that women are generally more interested in the social sciences and medical fields which are the "soft sciences" but in this modern age, "these areas have to contend with continuing developments in engineering technologies which facilitate their tasks at their workplaces. So they cannot afford to ignore the technologies produced by engineers."

Engr. Si Than said women are interested in technology as well as social oriented areas.

When asked for reasons why she may leave her engineering career, Er. Tan said it will be because "someone buys out my company" but definitely not because of limited career prospect, long working hours, unfairness/biased evaluations, a sense of isolation in a male-dominated field or lack of women mentors.

BETTER BUT CHALLENGING FUTURE

On whether she expects things will get better for women engineers, Er. Tan was optimistic that things will improve with greater awareness and promotions worldwide. She said: "Some day in the future, there may even be more women engineers than men as the university intake for male and female engineers is already about 50:50."

Ir. Hayati believed that things will definitely get better for women engineers as women in the professional fields are getting more recognised across the board and globally. She felt that the things that make a good woman engineer are the same things that make a good ordinary engineer. "The challenge is to be an extraordinary engineer. Whenever I'm asked this question, Lionel Richie's song, Three Times A Lady, comes to mind. To make an impact in your profession and in your community, you need to be three times better than your ordinary counterpart," she said.

Engr. Torrano-Tapel expected the number of women engineers worldwide to increase as more countries are recognising female contribution in all aspects of development. She said: "I'm confident that things will get better for women engineers as our numbers grow

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because when there are more women engineers, strength will be our alliance."

Ir. Leong said women are very keen to take up challenging work to benchmark themselves in mendominated fields. Also, there are new engineering disciplines that require precise and critical thinking which best suits women. These include software engineering, multimedia engineering and nanotechnology.

Although Engr. Tansinsin could see a better future for women engineers, she said it would also become more challenging as men now realise that there are areas in engineering which are better performed by women. "Women engineers have a patience cannot be equalled by their male counterparts, and they are also challenged to prove themselves. Examples are biomedical engineering and electronics engineering where one has to be creative and innovative to further improve the communication system."

Dr Carmel C. Gacho said renewed attention will be given to women engineers to become role models. With their technical backgrounds and capabilities, they are more likely to participate in and contribute actively to society, influencing the priority agenda and policymaking in science and technology, particularly research and development that will improve gender parity. Thus, more opportunities await women engineers to empower more women in the world. As role models, the task becomes more challenging as women engineers need to be agents of change to intensify women's involvement in STEM and to address gender issues at the workplace, such as flexible working time, programmes to promote work-life balance recruitment, retention, advancement and leadership. Likewise, Engr. Si Than expected women engineers to play a more important role in the future.

On what makes a good woman engineer and the kind of challenges she faces, Er. Tan said that "just like all engineers, a good woman engineer should be able to think logically".

Engr. Torrano-Tapel said if a woman is positive, with few insecurities, and has a mindset to strive for exemplary performance, she won't settle for the mediocre or use her "charm" to make things happen. She is efficient in using resources including time and effective in multitasking, meaning she will be able to handle a few jobs at one time. She said among the challenges women engineers face are balancing career and family life (especially when she has young children and a demanding spouse), managing herself during pregnancy, lack of women mentors at the workplace and that feeling of isolation when she is the only female in the work area.

Ir. Leong said successful women engineers are those who have excelled not only in their professional lives but also as leaders and role models. "A successful woman engineer should be able to balance her career and family life. We have to cope with challenges such as taking care of the family, which is not easy. Extra care and concern are needed to raise children who can contribute back to society. Maternity leave is another concern which may discourage women engineers from proceeding further. Women need time to recover before they go back to work. Without the support of family members, they will face a lot of difficulties," she added.





Engr. Tansinsin said a woman engineer must show a serious attitude at work and perform within the allotted time frame. She must be patient when doing professional work that requires meticulous attention. She should also be honest, trustworthy and ethical at work. Women engineers like challenges, especially when those that test their mental capabilities. They will also have to undergo lifelong learning to keep themselves updated on the latest technologies in their field.

Women tend to be more emphatic, diplomatic and flexible, traits that make a woman engineer a good team member or leader. It's also the secret of successful collaborations in an organisation, said Dr Gacho, who noted that one of the challenges women engineers face, is being able to strike a balance between career and family life.

"To become successful, we need family support, strong technical knowledge, effective working experience and active participation in social activities," said Engr. Si Than.

On whether the government should set a target for 30% of decision-making posts to be held by women and whether such a target is achievable in the engineering industry, Er. Tan said: "We should not try to meet the target just for the sake of meeting the target. But with that as a target, there will be a conscious effort to give women more opportunities."

Ir. Hayati said it is good to have targets. "For the engineering industry, we need to have the 2N ('numbers' and 'network') first, which are still a long way to go," she said.

Engr. Torrano-Tapel said: "I feel that putting a target cap on posts to be held by women may not be fair to men. It is better to have an equal playing field for both. Postings should be based on merit. Let's encourage women engineers to polish our skills so that we are comparably competitive with our male counterparts. There are exemplary women engineers who have already excelled in their field. We can follow in their footsteps."

Ir. Leong felt that the target "is very encouraging and will enhance achievement among women". "Given the opportunities, this target is achievable in the engineering industry," she added.

Engr. Tansinsin said: "Initially, it may appear to be a good idea to secure leadership posts for women engineers. But competitiveness may be lost, so let the best excel and allow market forces to prevail in the job market. The engineering industry is not keen on the idea of reserving 30% leadership posts for women; there is no question that the industry forces can decide better what is needed to operate efficiently and effectively."

Dr Gacho noted: "Yes, the government should set a target of at least 30% of decision-making posts to be held by women as women play a central role in a number of sectors in society. Because of this key role, it is critical that our interests, concerns and issues are incorporated into any effort, particularly decisionor policy-making which should be reflective of an inclusive growth agenda of the government. Yes, this is achievable in the engineering industry or in any sector."

For Engr. Si Than, the exact target is not important but the ability to make decisions is. She feels the target is not achievable at present.

JUGGLING WORK-LIFE BALANCE

Asked whether she thought employers are hesitant to promote women to higher positions for fear they would resign in the future to become stay-at-home-mothers or become more preoccupied with their children rather than work, Er. Tan said women of the right calibre should be able to juggle both career and family well.

Ir. Hayati believed this view will not be an issue in the future with advancement in technology, especially in ICT.

"It's a matter of priority. When my children were small, my first priority was their welfare. Now that they're grown up, I can focus on my career and need less time to supervise them. A text message every now and then to check on them is sufficient," said Engr. Torrano-Tapel.

Ir. Leong said: "Today, women are well educated and there are more and more women in the workplace. Promotion should be based on performance. Being worried unnecessarily will only slow down the development of a company. Outstanding women engineers can adjust their work-family life with ease and move forward. There are many talented women engineers and if a company cannot provide alternative work schedules, it will lose out. If you can't make accommodations for that, you won't be able to use such talent."

Engr. Tansinsin noted: "Employers should not have this kind of attitude just because women engineers may get married and have children. In fact, women generally perform better as they want to prove that family life is not a deterrent to their careers and that they can bring better benefits for their families as well. After all, men engineers may also leave the company, even after they are promoted, as there may be better benefits or offers from other companies."

Dr Gacho said: "This is no longer true of any organisation, whether private or government, due to enacted laws aimed at achieving gender equality at the workplace. Today, more employers are inclined to retain talented women and to advance them to higher positions because of what they can contribute to an organisation; this is what matters most. If a woman is seen to be an asset, an employer will usually provide incentives and family-friendly human resource support facilities such as flexi-time and exclusive training as well as onsite child daycare and programmes.

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"If this is not the case at the workplace, the scenario can only be changed if women have equally representation in the ranks of executive officers and leaders. It is only when there are sufficient numbers of women on the corporate ladder that the muchneeded support will be realised since women leaders or executives with family and children will be familiar with having to balance career and family and consequently, are more flexible and sympathetic towards female staff."

But Engr. Si Than felt that it was true that employers were hesitant to advance women to higher positions for fear they would resign when they become mothers.

The women engineers were also asked about the view that as much as a woman may want to get to greater heights before pursuing other interests, there's always the desire to get married and have children. This may then push a woman to slow down in her career to meet the increasing demands of family.

Ir. Hayati said the nurturing attribute is what makes women so special and it is also the driving force that makes women stronger. With a good support system, family commitments should not be a major obstacle to succeed at work.

Engr. Torrano-Tapel felt that the bottom line of such a decision is "where does my heart belong?", "Where do I feel true happiness?", "Is it my career or my sharing with my family?".

Ir. Leong said: "We really need to plan for balance in our lives because it doesn't just happen. We have to make time for things that are important. We have to carve out time from our professional life but that's not to say things can't be flexible."

According to Engr. Tansinsin, "there is no question that women engineers will give priority to family but, as we have said, they will work better as a professional to bring home the needed benefits".

She added: "A supportive spouse will encourage her to give her best. But if she still cannot balance her career and family, she will resign. This is rare though, as most women engineers can successfully balance work and family. Women are generally used to multitasking."

Dr Gacho is of the opinion that one has to set shortand long-term goals as well as find ways to achieve success in career and family life while Engr. Si Than said the view regarding the employers "is correct".

On promoting gender equality at the workplace, Er. Tan said it can be done by empowering women in leadership positions while organisations can fasttrack gender equality and demonstrate its practical benefits. But, she added, "We should empower a person for leadership qualities based on meritocracy, not gender."

Ir. Hayati noted that we should not focus on gender at the workplace. She said: "Instead, let us promote harmony and tolerance as well as focus on quality, performance and deliverables. If a woman excels in these areas, a leadership position will be a natural progression."

Engr. Torrano-Tapel said gender equality starts from birth. Equal treatment and opportunities should be given whether a child is male or female and parents should encourage their daughters to join the labour force as they do their sons. The government should promote the same political rights and participation of women.

"Transform your mind! Management must be open minded and willing to accept women in leadership. We believe in the power of women and their ability to make a difference. To make an impact and make it happen is genuinely extraordinary. We need to pull ourselves up and remind ourselves how outstanding we really are," said Ir. Leong.

Engr. Tansinsin added: "First, gender equality can be promoted if there is a good recruitment system. Competition among the applicants is the best strategy for promoting gender equality. Second, projects can be developed or tailored for women engineers. In the Philippines, there's a mandate to reserve 5%-10% of government budget for gender equality. The 1986 Philippine Constitution guarantees equality in the employment of women and men at workplaces."

Dr Gacho suggested offering training programmes or a re-orientation period for female employees after parental leave of more than three months so as to give them the necessary support for technical updating, professional development and skills acquisition in order to boost their self-confidence and make them feel welcomed.

Engr. Si Than said Myanmar citizens have equal rights at all levels according to the country's history, culture and laws. Gender equality can be promoted by producing educated women in all sectors.

The women engineers were also asked about the main challenges that impede professional growth and prevent women's reach and stay in decisionmaking roles. One scenario is societal structure which is responsible for the idea that men are inherently breadwinners and leaders while women are the caretaker. This traditional view that career women are unfit mothers who may not be able to balance work and family life, still exists today and remains a concern even in modern societies.

"Fortunately in Singapore, it's difficult to pinpoint any challenge that impedes women's professional growth. The challenge will be our own mental obstacle, the perception that we are lesser than others," said Er. Tan.

Ir. Hayati said: "This view may be prevalent in some parts of the world or society but I am inclined to believe it does not exist in a modern and advanced society. Mindsets are changing and, as I had mentioned earlier, the numbers and networking are what matters." Engr. Torrano-Tapel said: "We should create the awareness that working women are an asset as mothers because they also provide financial support for the family apart from the love and care that ordinary housewives and mothers can give."

Ir. Leong noted: "The greatest challenge is being open to where life can take you and to embrace the opportunities that come along. Then you have to be able to say 'no' to some things in order not to burn out. Once you know some key features of your mind, change these for the better. This way, it will be pretty effortless to be your outstanding self. How we are wired and what we can do to change that can be very simple and powerful. We can make choices immediately. We can make possible life changes in an instant.

"We are born with more than enough and we have everything we need to live the life we have always wanted. To be a successful woman engineer, we must stop that voice in our head that nags, worries, obsesses and compares. Instead, turn it into strength, confidence and purpose."

Engr. Tansinsin said there is no question that many women engineers need to balance their professional life and family life. Times have changed. Women and men are now partners in a marriage, partners who support the family instead of competing with each other. The age-old idea that man is the bread-winner while the woman is the family caretaker, is no longer true today. The idea of a house-husband is no longer alien, especially if the wife earns a bigger salary and the children are growing up and because domestic help is getting scarce or costly. This is prevalent in households in the Philippines and elsewhere in the world.

Dr Gacho said there's a lack of role models to impart greater awareness of and to share practical experiences to overcome issues on gender inequality at the workplace. However, the modern working

environment does consider the special needs of working mothers. More companies are now instituting initiatives to address the needs of employees in order for them to balance career and family.

MORE THAN JUST HARD WORK

Meanwhile, Er. Tan agrees with the observation that there are some factors and personal attributes of women that lead to their professional growth. Hard work, a supportive family and a supportive spouse or supervisor are reasons for women doing well in their careers and going far. Mentorship, whether at home or at the workplace, is key to developing confidence in women as this assures them of their capabilities and creates a social and professional support network. But Er. Tan said "this applies to everyone, regardless of gender".

For Ir. Hayati, hard work, a supportive family, supportive bosses/supervisors and mentors are key factors to performing well in a career. She agrees that these apply to both men and women. Tradition, culture and faith have an influence on expectations at the workplace, especially for women. Managing these expectations and having good interpersonal skills are also important to success.

Ir. Leong said: "When you are passionate about your work, it can be very challenging to also have a personal life. But we need our personal lives, to get home by a decent time and to not always be talking about work. For mentorship, we all end up drawing on everybody that come into our lives. We tend to take the best things we see in the people we admire and then focus on these. Family members and colleagues as well as welfare and professional organisations will always be good professional role models for us. Even if we are on different career paths and industries, it's good to be able to communicate with each other for advice."

Engr. Tansinsin agrees that hard work, perseverance and the support of spouses and bosses are important factors that boost the professional growth of women engineers. Without spousal support, women engineers generally fail professionally, even if they work hard.

Dr Gacho said: "Yes, I believe that oftentimes, women face difficulties managing their work-life balance, particularly if they do not receive ample support. The unconditional support and understanding of family, friends and colleagues will allow a woman to strive hard and work above her normal capacity."



Engr. Si Than said she concurrs with the observations. However, Er. Tan disagrees with the view that for the few who do make it to higher positions in a corporate environment, the burden of domestic responsibilities eventually catches up and makes it difficult for them to remain in that role. She said it's all about "quality time that's needed with the family, not quantity".

Ir. Leong said: "Get to know people. Show them our passion. Get involved. Be on social media. It's a lot of hard work and persistence. Some people get their rewards sooner than others. There are no guarantees. I would start by adopting a positive attitude and being confident in my own abilities. Whatever we choose to do, we should do it to our best abilities. It will make us proud of what we have accomplished and people will notice that.

"My advice is to not be afraid to take risks outside our comfort zones. That's how we will find out what makes us happy. Take advantage of every opportunity to meet new people and build new relationships because these will serve us in our careers, whether it's moving to a new job or bringing in new clients."

Engr. Tansinsin said there are ways to soften the impact on family life. With household help becoming scarce and costly today, family planning is a must for married women engineers in order that family life will not interfere too much with their professional life.

Engr. Si Than felt that time management at both the workplace and family home, is important for women engineers to succeed.

Indeed, there may be great challenges to face and hurdles to clear but it is clear that generally, women engineers are pumped up with optimism about the future of their profession as more and more countries start to recognise women's contributions in all aspects of development.



Er. Emily Tan, Singapore, Council Member and Chairman of Women in Science, Engineering & Research (WiSER) for the Institution of Engineers Singapore (IES), Managing Director of TSM Consultancy Pte. Ltd. Engineering major/discipline – traffic and transport planning and engineering.

Ir. Assoc. Prof. Hayati Abdullah, Malaysia, Ddirector, Centre for Teaching & Learning, UTM Academic Leadership (UTM Lead), Universiti Teknologi Malaysia, mechanical engineering.

Engr. Juana Torrano-Tapel, the Phillipines, President of Women Engineers Network-PTC, agricultural engineering.

Ir. Assoc. Prof. Dr Leong Wai Yie, Malaysia, Chairman of IEM-WE, Chairman of WEAFEO, electronic engineering.

Engr. Lydia G. Tansinsin, the Philippines, Chartered President and Adviser of Philippine Technological Council (PTC) and WEAFEO, chemical engineering.

Dr Carmel C. Gacho, Treasurer of Women Engineers Network-Philippines, chemical engineering/environmental research.

Engr. Si Than, Myanmar, Vice President of Myanmar Engineering Society (MES), president of MES-WE, civil engineering.

Engr. Khin Sandar Tun, Myanmar, Joint General Secretary of MES, Secretary of MES-WE, electronic engineering.



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Passion for Corrosion



Michelle Lau Grad. IEM

Michelle Lau is the Committee Member of Women Engineers Section. She is an NACE International certified Cathodic Protection Specialist and the General Manager of Mach3 Engineering Sdn Bhd. She graduated in Materials Engineering from Monash University, Australia and, for the past 19 years, pursued a career in the field of cathodic protection. ou are a what engineer?" asked an acquaintance one day, over coffee.

"A corrosion engineer," I answered some what dismissively.

"You deal with rust?" my new friend probed further.

"Yes! See those ugly looking brown flakes falling off this fence here?" I said, pointing to Exhibit A. "I deal with that."

While not many people can actually grasp the idea of what a corrosion engineer does, it has by far, been the most challenging, yet fulfilling part of my life and my career. My family and close friends have come to understand the demands of my job and how it has never failed to put a smile on my face.

We are that rare breed of people who live and breathe to combat a naturally occurring process called corrosion or basically, metal degradation. Rust is bad. Rust is ugly and it makes us cringe and hyperventilate to a certain extent and, yes, we know why and how your metal grille doors are rusty.

We value our possessions, which may range from offshore structures such as oil rigs, marine vessels and submarine pipelines to underground onshore structures such as cross-country oil and gas pipelines and water distribution pipes. Then there are hazardous petrochemical and power plants, aerospace lightweight alloys and composites and medical implants. Yes, the world is a playground for rust but we, the corrosion engineers, are here to prevent it.

So we can imagine a corrosion engineer having to travel to the remotest parts of the world – not exactly a five-star holiday nor a Trip Advisor reviewed site. We travel far and wide to solve corrosion issues. On a positive note, we amass a different level of travel experience altogether as part and parcel of the job. Every site we visit is a new challenge, and that is what drives us or at least, me.

Each year, corrosion engineers from around the world will gather in the US and spend a week to discuss methods to combat corrosion, from new technologies and new methodologies to exotic materials. Each problem has an individual signature attached, so two seemingly similar problems may be resolved in totally different ways. This is what makes our work scope so interesting.

From the beginning of my career to now being as an entrepreneur in the corrosion business for more than 14 years, I have come a long way but I have never lost my passion for what I do. Together with others in the same field, I strive to advocate for corrosion awareness, corrosion mitigation and corrosion management across all industry sectors, not just locally, but worldwide. It's our cup of tea and we are proud of it.

While the world of corrosion engineering may be dominated by men, a growing number



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FEATURE



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of women are taking up the challenge. While some had chosen to be a corrosion engineer out of interest, a few others chanced upon the industry by accident. But whatever the case, these women below have one

thing in common: Passion for the industry.

Dr Azzura Ismail, who is attached to Universiti Tun Hussein Onn, enjoys her role in working to solve material corrosion issues from offshore oil exploration to the medical world. At the same time, she hopes to serve the people around her with her passionate research towards a greener environment and reducing the cost of corrosion maintenance.

Corrosion is not just about what is occurring on the surface, but at the interface of materials.

As a young graduate, Sherine Wong stumbled upon corrosion engineering by accident. It was a job she accepted without hesitation. She said: "It is a challenging yet rewarding profession as it requires the knowledge of a chemical engineer, a chemist and a materials engineer to understand entire process

the entire prosystem, the chemistry behind the corrosion reaction and the metallurgy or properties of various steels".

Another young graduate, *Kamila bte Abdul Hamid*, has been in the corrosion industry for the past three years and has accumulated handson experience on more than 30 projects so far. As a female in a male-dominated world, she

found it very

challenging and said it required thinking out of the box. She said a corrosion engineer required one to be multidisciplined and a multitasker all the time.

> Nurul Asni Mohamed, who has been in the industry for 17 years, started her career as Maintenance Engineer with PETRONAS.

FEATURE

Today, she is Principal Engineer (Corrosion) with PETRONAS Group Technical Solutions, which sees her role elevated to policy making for PETRONAS in the

capacity of subject matter expert.

Elizah Samat, has worked 12 years with Shell Projects & Technology Group as Senior Materials & Corrosion Engineer. The Klanaborn engineer is married with three children and, despite her demanding career and schedule and enjoys cooking travelling with the family.



Like many of my peers, the world of corrosion engineering has

opened many doors of opportunity for me. It is a niche industry that gives one the opportunity to be part of the solution in whatever discipline of engineering you may have come from. It is by finding this niche that I have experienced a more fulfilling career, widened my network and made lifelong friends across the globe.

IEM DIARY OF EVENTS

Title: Talk on "Difficult to treat water and waste water, how tubular membranes can be the solution"

5 April 2016

Organised by	: Environmental Engineering Technica
	Division
Time	: 5.30 p.m. – 7.30 p.m.
CPD/PDP	:2

Title: Talk on "Wills, Estate Planning & Value Protection

6 April 2016

Organised by	: Senior Special Interest Group
Time	: 5.30 p.m. – 7.30 p.m.
CPD/PDP	: 0

Title: Technical Visit to Malaysia Automotive Institute

7 April 2016

Organised by	: Public Sector Engineers Special
	Interest Group
Time	: 9.30 a.m. – 12.30 p.m.
CPD/PDP	: 3

Title: Talk on "Typical Changes Leading to Cost Overruns, Delays and Claims in Infrastructure, Oil and Gas Projects"

7 April 2016

Organised by	: Oil, Gas and Mining Engineering
	Technical Division
Time	: 5.30 p.m. – 7.30 p.m.
CPD/PDP	: 2

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Techniques to Achieving Good Electrical Connections



Ir. Dr Ng Kok Chiang

Ir. Dr Ng Kok Chiang, B.Eng (Electrical & Electronics) (University of Western Australia) PhD (University of Nottingham, UK) He is Deputy Chairman for the Consulting Engineers Special Interest Group (CESIG) Technical Division, IEM. Currently he is the Chief Technology Officer of MyBig Sdn. Bhd. He has worked in the area of renewable energy and its storage.



Mr. Ng Choon Guan

Mr. Ng Choon Guan has been involved in various engineering works since 1969 related to electrical and engineering including electrical conductor jointing and termination products and tools.

EXECUTING A GOOD ELECTRICAL CONNECTION

A good electrical connection is one that conducts current safely at a low temperature, resulting in energy saving, and can last for many years (30 years or even longer).

There are generally three important factors in executing a good electrical connection:

- Type of Connectors
- Crimping Tools and Dies
- Workmanship (Quality of work)

TYPE OF CONNECTORS

Connectors are either made of copper or aluminium; both have their own respective attributes.

COPPER CONDUCTORS

Copper connectors are used to join or end a copper conductor. These connectors are made of copper that comes in a high conductivity copper tube of suitable thickness. A lug will have sufficient palm area and barrel length, while a link will have sufficient link length, and is plated with tin to prevent corrosion. Copper has many grades. For electrical purposes, Electrolytic Copper (E.Cu) with purity of 99.9% and conductivity of 99% I.A.C.S. is always used.

Using low quality, recycled copper is not recommended, as the conductivity is only

50% to 85%. Referring to the comparison chart between compliant and non-compliant cable lugs according to MS 1540:2002 (Chart 1), for the same size of cable lugs, when conductivity is low and the wall thickness is less, the current capacity of the cable lug is greatly affected.

In the example of the 300mm² cable lug, the current capacity for the compliant lug is 561A, as compared to 224A for a non-compliant lug. There is a 59.9% reduction in current capacity.

As for the 240mm² cable lug, the compliant lug registered a current capacity of 485A while the non-compliant lug at only 304A, a 37.2% less in the current capacity.

Currently, many types of cable connectors are imported, some of which are either not suitable for our use or are inferior in quality. These may result in high temperature (energy loss) at connections, or even burn the connectors. The only way to prevent this is to use a standard connector. With this in mind, the Malaysian Standard was developed and obtained in 2002 (MS1540 for Cable Lug) and in 2005 (MS1779 for Cable Link).

ALUMINIUM CONDUCTORS

Aluminium connectors are used to join or end terminal of aluminium conductors. Aluminium bi-metal connectors, on the other hand, are used solely to join or terminate to copper.

	Cable Lug Compliant to MS 1540:2002	Non-compliant Cable Lug	Cable Lug Compliant to MS 1540:2002	Non-compliant Cable Lug
Size	300r	mm²	240r	mm²
Max. PVC Wire Current Rating in 3 Phase	561 A		485	5 A
Weight	299 gram	215 gram (less 28.1%)	212 gram	137 gram (less 35.3%)
Length	110.1 mm	101.5 mm (less 7.8%)	103.7 mm	91.1 mm (less 12.1%)
Wall Thickness	3.9 mm	3.2 mm (less 17.9%)	3.3 mm	2.6 mm (less 21.2%)
Conductivity	99%	57% (less 42%)	99%	83% (less 16%)
Results	Current rating is 561 A	224 A (less 59.9%)	Current rating is 485 A	304 A (less 37.2%)

Chart 1: Comparison between Compliant and Non-compliant Cable Lugs

FEATURE



Optimal operation in harsh industrial and substation environments,SEL-3355 includes substation-rated components, such as error-correctingcode (ECC) RAM, single-level cell (SLC) solid-state drives (SSDs), and а state-of-the-art thermal management system. The unique thermal design of SEL computers allows them to dissipate heat quickly and eliminate problems associated with moving parts, such as fans, spinning drives, or vents. The power supplies are fanless and have a high mean time between failures (MTBF). The SEL-3355 Computer is also designed to be easily enhanced or upgraded, even in the field. SEL-3355 Computers withstand harsh environments of -40° to +75°C (-40° to +167°F) and are built with the highest-quality components available. To ensure the high quality of each unit, SEL subjects every SEL-3355 Computer to thorough environmental stress screening.

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Mining Electric Power Safer, Hare Reliable, and More Economical" SEL www.selinc.com The correct aluminium connectors to use are those with electrical grade aluminium raw material 1050 or 1350. It has purity level of 99.5%, and conductivity is at 60%. Its hardness is soft. Non-electrical grade aluminium, due to its low purity, only has conductivity of 40% to 50% or lower. Its hardness is also wrong, resulting in the aluminium cracking during the crimping process. Therefore it is important to check and insist on electrical grade material when purchasing aluminium connectors.

When it comes to conductivity, aluminium is the best alternative to copper in terms of commercial value and engineering properties. Compared to copper, the specific gravity of aluminium is only a third but its electrical conductivity is up to 60% of that of copper. Aluminium is also 70% cheaper than copper. Due to its lightweight and low cost relatively, aluminium conductors are widely used in electrical projects today.

However, when aluminium comes in contact with copper, it can cause corrosion in a short span of time, resulting in a damaged contact. Since aluminium and copper have different electrical potential and expansion ratios, the hot and cold cycle with exposure to air will increase resistance and corrode the contact. This phenomenon is known as the coupling effect.

In the past, many aluminium conductors installed broke down after a short period of use. This caused consultant engineers to shy away from approving the use of aluminium conductors, resulting in it being less popular for use in indoor electrical wiring.

However, the scenario changed with the introduction of friction welding type Bi-metal connectors. Used widely today, the Bi-metal connector is the best solution to the contact problem between aluminium and copper.

Aluminium and copper are fused in a process called friction welding. This is done by spinning aluminium and copper in a machine to allow the metals to rub against each other, producing high heat. During this stage, a strong force is applied to weld the two metals together. A good quality friction welding will seal the two metal surfaces perfectly without any air gap and this prevents corrosion on the contact. A good and sufficient welding area also contributes to the mechanical strength of the connection.

Quality Bi-metal connectors are mainly produced in Europe, with dimensions that are compliant with France standard NS 68-S-90 titled "Connection of Aluminium Conductor Insulated Cables by Deep Indentation" and type tested to IEC 61238-1 titled "Compression and Mechanical Connectors for Power Cable for Rated Voltages up to 30kV". TNB and Malaysia have also adopted the standard and the type test.

Many Bi-metal connectors are imported into Malaysia. Some are quality products but there are many inferior ones as well. Therefore it is important to select a Bi-metal connector that is compliant with the above standards and to type test it before it can be considered and accepted as safe to be installed in a project with aluminium conductors.

CRIMPING TOOLS AND DIES

The second important factor in executing a good electrical connection is to use the correct crimping tools and dies. A proper tool and die are necessary to perform a good connection. Simply buying an international branded tool is not good enough. One must consider a matching die before purchasing the tool.

The hexagon die is usually used for copper connectors. Having the right die is more important than the tools. The German "Din" standard die is not suitable for the Malaysian Standard applications. A customised die suitable for Malaysian connectors is required. Connector manufacturers will always recommend the right size of die and this is usually shown in the catalogue of connectors as illustrated in Chart 2 below:



Chart 2: Crimp Type for Hexagon and Indent Die

For aluminium connectors, an indent die is commonly used. There are three advantages in using a constant volume containing die.

- The connector will not bend after crimping
- The length of connector barrel is controlled after crimping
- Crimping position by index on the container

Selection of Crimping Tool and Die:

There are many type of crimping tools in the market today, which includes small mechanical tools, hand operated hydraulic tools and electric/battery operated tools. It is important to choose the right tools. Choosing a tool which can crimp from 16mm² to 1000² is not practical due to its weight, size and cost. The correct way is to select a small hand tool for 1.5mm² to 10mm² connectors, a mid-range hydraulic tool for 16mm² to 240mm² connectors and a big hydraulic tool for connectors up to 630mm². For big connectors that are 300mm² or larger, an electric pump is strongly recommended so that it is easier for the installer. It is also important to make sure the installer crimps the connectors according to instructions.



1.5mm² to 10mm² Hand Tool



16mm² to 240mm² Hydraulic Tool



185mm² to 630mm² Hydraulic Tool



16mm² to 240mm² Hydraulic Indent Tool



Battery Tool



300mm² to 630mm² Hydraulic Indent Tool

There are various schools of thought on whether the deep-indent type compression is superior to the hexagon type compression. However, results from scientific experiments show that there is absolutely no difference in using the hexagon die or deep-indent die, when matching connector and die are used. Countries like USA, Australia and Germany all use the hexagon die for aluminium connectors, while France, Italy and Malaysia use the indent die.

For copper connectors, current global trend favours indent dies for small conductors and hexagon dies for larger conductors. For aluminium connectors, deep-indent dies are used for all conductors. In fact, indent dies are getting more popular for aluminium connectors because of the advantages in using a containing die.

Manufacturers of electrical compression terminals and joints will have a good understanding of the best way to compress their own connectors; therefore it is recommended to approach them for advice when necessary.

WORKMANSHIP (QUALITY OF WORK)

The human factor is equally important in achieving a good electrical connection. It is vital that wiremen and electricians work according to the manufacturer's instructions. After removing the insulation and cleaning the conductor (if necessary), the wireman or electrician plays an important role in selecting the same size connector and die to execute a good full crimp by using the right crimping tool. For bigger connectors, crimping should be done more than once, or according to manufacturer's instructions as shown in the connector products catalogue.

In Malaysia, precise tools and dies are now easily available. Therefore, when quality connectors are selected, and work is carried out in compliance to standard procedure, all joints and terminations will easily achieve good electrical connections.

CONCLUSION

The Malaysian Standard on cable lugs and links is meant to standardise and prevent the use of inferior and unsuitable cable lugs in the connection of conductors to electrical equipment. The guidelines for overall installed cable lugs dimensions were drafted with due consideration to the current practices in the industry and the common usage of crimping tools and dies.

To avoid unnecessary problems, the Malaysian Standard should be specified when purchasing cable lugs or cable links. Engineers and planners have the responsibility to specify cable lugs or links that comply with the Malaysian Standard. Users too, should insist on buying the right cable lugs and links so that the connections will be at an optimum temperature. This will avoid dangerous applications and help ensure electrical installations are safe. The use of non-matching die for cable lugs, cable links, and sector copper conductor in electrical installation can be prevented if users are aware of the right standard equipment being used for standard Malaysian cable lugs, links and connector (either copper or aluminium).

Last but not least is workmanship, where the right procedure of crimping must be followed to ensure that the cable lugs, links, connectors and crimping equipment will result in achieving good if not excellent electrical connection.

IEM DIARY OF EVENTS

Title: Talk on Design & Construction of Stabilised Subgrades for Malaysian Roads

7 April 2016

Organised by	: Civil and Structural Engineering
Time	: 5.30 p.m. – 7.30 p.m.
CPD/PDP	:2

Title: Talk On "A Simplified Equation for Voltage Drop"

9 April 2016

: Electrical Engineering Technical
Division
: 9.00 a.m. – 1.00 p.m.
:0

Title: Professional Interview Workshop on Enhanced PI Process

9 April 2016

Organised by	: Standing Committee on Examination
Time	: 9.00 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.

PRESIDENT'S CORNER



Dato' Ir. Lim Chow Hock President, IEM

Y.Bhg. Dato' Ir. Lim Chow Hock is President of the Institution of Engineers, Malaysia for Sessions 2014/2015 and 2015/2016.

STEM Roadmap to Meet Growing Demand for Engineers in The Future

he Institution of Engineers, Malaysia (IEM) is aware of the declining number of science students which will affect the supply of engineers and technologists in the country in future.

Science students are the human resources from which universities produce engineers. With fewer science students in schools, there will be a corresponding limitation in the ability of universities to produce the number of engineers that the country needs. For the engineering profession, the declining interest in science subjects in schools will result in a dearth of students eligible to pursue engineering courses in universities.

The consequences are disastrous. It will mean an insufficient number of engineers to implement and maintain the many projects in the country which, in turn, will slow down the pace of national economic development. A shortage of engineers will definitely hinder the nation's target to achieve developed and high income status.

The Malaysian government places great importance on Science, Technology, Engineering and **Mathematics** (STFM) education and has set the target ratio of 60:40 Science and Technical versus Art stream. In 2011, only 45% of students graduated from Science stream, including technical and vocational programmes. The number of PMR students who qualified to study science but chose not to do so, increased by approximately 15%. This raises concerns about the education system's ability to produce sufficient STEM graduates for the nation.

The National Council for Scientific Research and Development estimates that we will need 493,830 scientist and engineers by 2020. However, the Ministry of Science, Technology and Innovation (MOSTI) estimates that there will be a shortfall of 236,000 people. As a professional body for engineers, IEM has a membership of approximately 40,000 members including graduates and students. There are several factors underlying the declining enrolment and interest in Science subjects. These include limited awareness about STEM, perceived difficulty of STEM subjects, content-heavy curriculum, inconsistent quality of teaching and learning as well as limited and outdated educational infrastructure.

To strengthen STEM education in Malaysia, the challenge lies in getting students to love science and to choose science classes. Science and mathematics subjects must be made interesting, easy to understand, more hands-on and exploratory.

IEM supports the various government agencies in building awareness on Science and Mathematics programmes. It is actively involved in conducting school career awareness talk, competitions and exhibitions about interesting projects on engineering to school children to promote greater interest in engineering. Engineering students are also encouraged to join IEM as Student Members which will enable them to access IEM's resources and join IEM's activities, talks and networking sessions.

IEM is a co-organiser (together with AAET, UTAR and MiGHT) for the Kuala Lumpur Engineering Science Fair (KLESF), an annual programme aimed at promoting interest in STEM among primary and secondary school children. This year the KLESF will be held at Mines from 4-6 November, 2016.

IEM is also of the opinion that career prospect is a major factor in the students' decision when considering study options. In order to educate the public on the diverse career opportunities in engineering, IEM and CIDB will organise the CIDB-IEM Construction Career Fair during International Construction Week 2016 on 12-14 April.

The prospect to reach top positions, appropriate remuneration as well as status recognition for engineers will help motivate school students to take up STEM Education



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and then pursue a career in engineering. Recognising the contribution of engineers and providing a structural pathway to the top position in the Civil Service will be a big motivator for students to pursue STEM education.

While it is important to produce more STEM students and engineering graduates to meet the national demand, it is also of paramount importance to address the quality of engineering graduates; this is an area where IEM is ready to assist.

IEM is of the opinion that, with the diversity of degree programmes offered by the increasing number of universities, there is a need for a standardised benchmarking system to test graduates on engineering fundamentals. IEM proposes to introduce Fundamental Engineering Examination (FEE) as a means to ensure that graduates entering the industry have minimum competency at least, in engineering fundamentals.

The Ministry of Education has acknowledged the importance of STEM as evinced in the Malaysia Education Blueprint 2013-2015. IEM fully supports the Malaysia Education Blueprint 2013-2025 and the roadmap to strengthen the delivery of STEM across the education system to improve technological innovations and make Malaysia a high income nation.

The press clippings published by various media on this article are available for viewing at the IEM Web portal at http://www.myiem.org.my/content/press_ release-305.aspx







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PRESIDENT'S CORNER





Engagement Safety Trainings: Part 1, The Journey



by Ir. Shum Keng Yan

Ir. Shum Keng Yan is a chemical engineer and a certified accident prevention and safety practitioner. He advises on EHS in the chemical, fast movina consumer goods. heavy metal manufacturing and building services industries across Asia Pacific and beyond. He regularly delivers talks at conferences, forums and universities

et us take a look at redesigning traditional safety trainings. The foundation is still technical training as we need solid technical knowledge before we can move on to engagement.

However, as we move towards ground level implementation and refresher trainings, traditional PowerPoint slides tend to be stale. e-learning fares no better. How often has an employee tried to click forward in an e-learning to get it over with?

In the last 2 articles, we looked at the 3As (Awareness, Acknowledgment and Acceptance) to gain ownership. Let us now use this concept to redesign trainings.

I will use an example to show the design concept.

DESIGN WITH A STORY

One of the most effective ways to remember something is through a story. I bet you can recall a favourite story or movie more easily than part of a textbook.

Let's work through an example. Let's have a role play of transporting an expensive item from location A to B by road. Weave a story around it by incorporating towns that you need to pass through, using realistic dates. Use towns where some of the participants come from. Select a realistic item as the precious cargo. Use information that the participants can relate to in order to achieve higher engagement. Let us call this activity: "Our Journey".

Here is a map of 2 random points to transport our precious item. You should select your own.

AWARENESS

Give some basic information pertaining to the route, time of the year and the condition that the item needs to get to point B intact and of course safely. This will create the initial Awareness of the expectations. Let the



participants figure out the logistics, equipment, etc. and provide you with a plan on how to get this done.

When the participants work through this exercise, these points will come up in the group discussion:

7. Weather

Licence

10. Insurance

- 1. Route planning
- 2. Type of vehicle(s)
- 3. Number of
- drivers
- 4. Rest areas
- 11. Vehicle Inspection

8. Driver's licence

9. Vehicle Permit /

- Method to secure the artefact
 Communication
- 12. Driver alertness

What else should we consider for this journey? More on the journey in the next article. Share with me at: pub@iem.org.my.

Even though it is nice to reach the end of the journey, perhaps it is the journey that matters in the end.

The safest risk is the one that you did not take. Often it is the gap in the risk perception that leads to a gap in risk control.



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Lean In Summit Malaysia #LISM2015

WOMEN ENGINEERS SECTION



reported by Ir. Mah Siew Kien Honorary Secretary, Women Engineers Section

Ir. Mah Siew Kien, Honorary Secretary of Women Engineers Section he inaugural Lean In Summit in Malaysia, organised by The Asia Women Circles @ LeanIn.Org was held on 5 December 2015 in Kuala Lumpur. More than 600 delegates, including working professionals from various industries, attended the summit.

Leanln.Org, was founded by Sheryl Sandberg, the Chief Operating Officer of Facebook and the author of Lean In: Women, Work And The Will To Lead. The Lean In movement seeks to empower women to pursue their ambitions professionally and personally as well as focus on what they can do. Inspired by Leanln, Sarah Chen and Abir Abdul Rahim cofounded Asia Women Circle in Malaysia, a nonprofit organisation supported by LeanIn.Org. The summit brought together men and women to discuss the key challenges facing society today, such as the high dropout rates of women from the work force in Malaysia and the declining numbers of women talent in senior management. Women engineers from IEM's Women Engineers Section moved into action to "Lean In" and support the event.

The Summit was officiated by YB Khairy Jamaluddin, Minister of Youth & Sports. In her keynote speech, H.E. Vicki Treadell, British High Commissioner to Malaysia, encouraged women to lean in to their ambitions. The summit also discussed the topic, "women pushing the boundaries-move past your limiting beliefs and don't leave before you



YB Khairy Jamaluddin taking a wefie with organisers and delegates.

FORUM



Women engineers of the IEM in action.

have to leave", which was about women cutting back on their ambitions.

Delegates were also entertained by Chef Abang Brian who shared a quick-fix healthy recipe. The power couple session featured two inspiring couples who spoke on making your partner a real partner.

YBhg. Dato' Sri Shahrizat Abdul Jalil, Adviser to the Prime Minister on the Development of Women Entrepreneurs and Professionals and Adviser to Lean In Summit, said the summit is a step forward for the nation in achieving at least 30 percent participation of women at decision making positions. Her closing speech inspired the delegates, regardless of gender, to lean in and support the change.

To all IEM male engineers, let's start leaning in to your family and leaning in to support women in the workplace as research shows that everyone benefits when men lean in together!

IEM DIARY OF EVENTS

Title: 2-Day Course on Recognized Good Practices of Project Management

19 - 20 April 2016

Organised by	: Environmental Engineering Technical
	Division
Time	: 8.30 a.m. – 5.00 p.m.
CPD/PDP	: 14

Title: Talk on "Open Source Application for IT/IP Infrastructure"

20 April 2016

Organised by	: Information and Communications
	Technology Special Interest Group
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.







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Young Woman Scientists (YWS) Camp, Daejeon, South Korea

WOMEN ENGINEERS SECTION



reported by Jamilah Abd Rahim Grad. IEM

Jamilah Abd Rahim is a PhD student in Structural and Material Engineering at Universiti Teknologi MARA (UiTM), Shah Alam.

She holds a B.Eng (Hons) Civil Engineering 2009 and Master of Science in Structure 2011 from Universiti Teknologi Mara (UITM). After completing her Master, she worked at Jurutera Perunding Maju as Civil and Structure Engineer for a year before continuing to do her PhD. n conjunction with the World Science & Technology Forum held on 19-23 October 2015, the Association of Korean Woman Scientists and Engineers (KWSE) organised a camp for woman scientists and engineers from around the world (but especially catering to those from Asia-Pacific nations) at the University of Science and Technology from 17-18 October 2015 at Daejeon, South Korea. It was funded by the Ministry of Science, ICT and Future Planning of Korea (MSIP). So far three similar camps have been held since 2012.

The main objective of holding the camp was to promote global competitiveness and to encourage international cooperation among the target groups. In this particular camp, about 100 participants from 11 countries attended. They came from Korea, Malaysia, Japan, Australia, India, Pakistan, Myanmar, Nepal, Vietnam, Taiwan and Mongolia as well as varied disciplines of science and engineering.

The author and another Ph.D candidate from Universiti Sains Malaysia represented Malaysia under Women Engineers, IEM, at the camp.

INTRODUCTION TO KWSE

KWSE aims to contribute to the enhancement of scientific capacity as well as to the statusuplifting of woman in industry, academy and research institutes.

KWSE is the first chair organisation of Asia and Pacific Nation Network (APNN) which is the first regional network of International Network of Woman Engineers and Scientists (INWES).

YWS CAMP ACTIVITIES

In brief, here is a list of six main activities organised at the two-day YWS camp.

Informative booths	Oral and Poster Presentation
 1 booths representing each participating country. The Malaysian booth showcased the Petronas Twin Tower and traditional Malay house replicas, dolls wearing traditional costumes, songket, batik and Malaysian currency. Best Booth Awards went to Australia and Pakistan. 	 Five papers were selected for oral presentation, namely papers from Australia, Sri Lanka, Japan, Myanmar and Mongolia. They were done alongside presentations made by the guest lecturers on the first day. The titles were : Power of Engineering: Attracting Girls into Engineering in an Australian Context A Study on Obesity and Related Factors: Female Undergraduates in Sri Lanka Rapid Age-Hardening of Al-Mg-Cu Alloy and Effect of Trace Addition of Ag Safety Analysis of Infant Formula Milk and Baby Food Locally Available in South Korea Static and Transient Calculation of Molten Salt Reactor Experiment using SERPENT-2/TRACE/ PARCS Code Simultaneously, poster presentations took place over the two days. The author's poster presentation was titled Failure of Expanded Polystyrene Lightweight Concrete (EPS-LWC) Wall Panel with Different

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	The Best Poster Award went to a postgraduate student from Japan.
Invited Lecturers	Group Work and Mentoring
Three inspiring women scientists and engineers were guest lecturers at the YWS Camp.	All participants spoke at this session to enhance their public speaking skills.
They were Ariunbolor Purvee, president of WESTEM Mongolia, Jun Hada, chair of WISE Nepal and Lin Jauyn Grace, professor, Center for Condensed Matter Science, National Taiwan University. Diverse titles presented included:	Participants were divided into 10 groups, each provided with a topic, from challenges of women engineers and scientists in the workplace, the toll from work culture and gender equality, to the influence of global women's voice infuture.
 Experiences of Leading Woman Scientists in Mongolia Promoting Gender Inclusion in Engineering through Conductive Workforce Diversity Policy Gender Mainstreaming in Science 	The end of the group discussions revealed that Malaysian women scientists and engineers had better opportunities to advance in their careers compared to those from India, Sri Lanka, Nepal and Vietnam.
and Technology at Taiwan	The main limitation came from the lack of family and spousal support. Most women scientists and engineers opted to leave their chosen careers when they started their families.
Dinner and Networking	K-Pop Dance
An opening dinner was held on the 17 October, 2015. It was a truly unique and heart-warming experience when all 100 participants showed up, dressed in their national costumes. Each country representative exhibited and explained the	An enjoyable session to burn extra calories took place on the second morning of the YWS Camp. The K-Pop dance session was led by Madam Choi Mina, Director of South Korea Association of Sports.

It was a minor snapshot of her soon-

to-be-completed Ph.D work at UiTM

Shah Alam.

The Best Traditional Costume Award went to Mongolia.

customary fashion.

Apart from the three awards given out earlier (Best Booths, Best Poster, and Best Traditional Costume), the Best Friendly Award went to Reena Pandey from Nepal.

She was a member of The Association of South Korean Women Scientist Engineers (KWSE) and is currently pursuing Ph.D in Materials and Life Science at South Korea Institute of Science and Technology (KIST). Her bubbly character, talkativeness, and helpful character warmed everyone to her at YWS camp.

WORLD SCIENCE & TECHNOLOGY FORUM

World science experts gathered at the World Science & Technology Forum to share their findings and to formulate policies relating to science and technology in the next 10 years by focusing on sustainable economic growth and solutions to global challenges.

FORUM

Nobel Prize winners, CEOs from science and technology (S&T) communities, ministers and vice ministers from OECD and ASEAN member states congregated here to chart the S&T landscape. The meeting was conducted in three sections: The OECD Ministerial Meeting Daejeon, the World Science & Technology Forum and the OECD Committee for Scientific and Technological Policy.

South Korean President Park Geun-hye graced the opening session.

Special Acknowledgement

- 1. The Association of South Korean Women Scientists and Engineers (KWSE)
- 2. Women Engineers, The Institution of Engineers Malaysia (IEM)
- 3. Faculty of Civil Engineering, UiTM Shah Alam
- 4. Ph.D supervisor Prof. Ir. Dr Siti Hawa Hamzah, UiTM Shah Alam

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(TCMSS)	Tapered Column Multi - Span Single Slope	20m - 160m	3.5m - 12m and over
	Clear-Span		
(SS)	Straight Column Single Slope	4.5m - 22m	3m - 9m
5	Straight Column Lean To	3m - 22m	2.4m - 9m
(scs)	Straight Column Clear Span	6m - 22m	3m - 9m
(TCS)	Tapered Column Clear Span	6m - 30m	3.5m - 12m and over
(TCS)	Tapered Column Clear Span - Two Piece Rafter	12m - 85m	3.5m - 12m and over
(TCS)	Tapered Column Clear Span - Three Piece Rafter	12m - 85m	3.5m - 12m and over

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WOMEN ENGINEERS SECTION



reported by Datin Ir. Hjh Nor Asiah Othman

Datin Ir. Hjh Nor Asiah Othman is currently acommittee member of Women Engineers Section. She is actively involved in Highway construction.



t was a beautiful Monday morning. On 23 Nov, 2015, in conjunction with CAFEO 33 held in Penang, ASEAN Women Engineers delegates made a trip to the 2nd Penang Bridge. All 34 participants were greeted by the Managing Director of Jambatan Kedua Sendirian Berhad (JKSB), Dato Ir. Dr Ismail Mohamed Taib.

We were presented with a video clip on Megastructures, produced by National Geographic Channel, on the construction of the bridge. It was truly informative and we learned how the project started, the unpredicted challenges the team encountered during the construction of the bridge as well as various aspects of bridge design as well as major civil and construction works.

The 2nd Penang Bridge, known as Sultan Abdul Halim Muadzam Shah Bridge, is named after the present Yang Di-Pertuan Agong. Built at a cost of RM4.5 billion, it has a dual carriageway, with 2 traffic lanes and 1 motorcycle lane in each direction. Spanning 24km (16.9km over water), it is the longest bridge in South East Asia and its design is based on the double 'S' curvy concept, for geological reasons.



Dato Ir. Ismail said he is proud of the environmental sustainability aspects in the design and construction of the bridge. It is currently the longest bridge in the world installed with High Damping Natural Rubber (HDNR) Bearing, an effective seismic isolation system that enables the bridge to with stand an earthquake with a magnitude of 7.5 on the Richter scale.

Another innovative feature is the design and construction of the toll plaza at the bridge

FORUM



which has a Gold rating of 80% on the Green Building Index (GBI). This measure is aimed at promoting energy efficiency, internal environmental quality and sustainability in operating the toll plaza. The bridge project had received three international accolades for outstanding civil engineering achievement, the latest being Brunel Medal Award from ICE UK.

The women engineers were also given the opportunity to visit JKSB Integrated Transport Information System (ITIS) control room with its live traffic webcams to monitor traffic movement on huge screens.

After the briefing, we took a boat ride to view the underside of the bridge, a highlight of the visit. It was a breezy cruise that took us up close to the bridge, so that we could see the massive piers and box girders. The skyline view of the main span cable-stayed bridge with its 93metre tall pylons and semi-fan layout stay cables system, resembled the sails of a sailing boat when viewed from our boat. We were happily clicking our cameras non-stop throughout the entire boat ride.

We then proceeded to nearby Pulau Aman for a delicious seafood lunch hosted by JKSB. Pulau Aman (Island Of Peace) is a fishing village where boats are moored along the many wooden jetties and some of the wooden houses are built on stilts, right over the sea.

At the end of the visit, we left with sweet memories and a greater knowledge of bridge construction. We wish to record our appreciation Dato Ir. Dr Ismail Mohamed Taib and JKSB for making this trip so memorable for the AFEO delegates of ASEAN Women Engineers.



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METD-EETD to Lead IEM Presence at ASEAN M&E Show 2016



Participants attending a forum at the ASEAN M&E Show Exhibition

hen the curtains are raised at the coming premier ASEAN Mechanical and Electrical Engineering Show 2016 on 23 May, 2016, IEM's participation will be felt through a series of forums which will be conducted by the two technical divisions: METD and EETD. In conjunction with the event, the two divisions will be conducting two parallel streams of forums over three days.

The first stream will showcase the themes of the show. On the first day, the forum will feature Green "ENERGY", which will include green technology and renewable energy. The next day, the theme is "TENAGA" and the panel speakers will comprise prominent players in the Power and Electrical industry. On the final day, several papers on developing technology have been lined up for the theme "REVAC" (Refrigeration, Ventilation and Air-Conditioning).

Participants will also have the option of attending forums in the second stream, with lined-up events within the framework of:

- Development in Code and Standards
- M&E Infrastructure
- Safety and Risk Control

The second stream is a platform to feature developments and changes in the industry. Some of these changes will have a profound effect on current engineering practices. Among the sessions on day one are OSC 3.0 (the submitting procedure to government agencies under the One-Stop-Centre third edition), the new Uniform Building-By Law (the subtle changes for M&E Engineers) and the IEM M&E Form of Contract. The second day will offer a mix of systems that have seen M&E innovations in, for instance, railway, power plant and water treatment industries.

On May 25, current M&E engineering hot topics and concerns will be discussed. Engr. Raghib Azmi an expert on lifts and escalators, will talk about some of today's safety concerns and what is being done by engineers. M&E engineers not only need to make good designs but they also have to understand how risks are managed by their installations. Concerns on dust hazards, explosive atmospheres and chemical identification will be presented as well.



Visitors to the ASEAN M&E Show Exhibition

The IEM organising committee, led by Ir. Loo Chee Kin and Ir. Dr Cheong Thiam Fook from the IEM Mechanical Engineering Technical Division (METD), will collaborate with UBM (United Business Media) at the biennial show. To support the ASEAN M&E Show, IEM is encouraging its members to attend the 3-in-1 exhibition and forum at the Kuala Lumpur Convention Centre.

This will be the second time that METD is collaborating with UBM, since 2014. This time, METD has invited the Electrical Engineering Technical Division (EETD) to join forces with them to provide a series of forums that will benefit engineers as well as visitors to the show.

The ASEAN M&E Show is considered Southeast Asia's largest industry platform and this year's 6th edition will be a combination of three top events: "TENAGA Expo & Forum – Power & Electrical Industry Show", "Green Energy Asia Exhibition and Conference – Green Technology & Renewable Energy Show" and "REVAC Show & Symposium – Refrigeration, Ventilation and Air-Conditioning Show".

More than 350 companies will take part in the show which is expected to attract more than 10,500 trade professionals, decision-makers and potential buyers from 51 countries and regions. In addition to the forums, IEM will also set up a booth to promote IEM's membership.

Through ASEAN M&E 2016, IEM is laying the path for all engineers to excel, not only on local grounds but also internationally, by engaging with ASEAN engineering associations. Its forums are designed to foster closer working relationships among engineers and to raise awareness among its members on the latest developments in technology, issues and legislation related to engineering, including mechanical and electrical.

Brochures with more details on the forums will be circulated with the April issue of IEM Jurutera as well as be uploaded on the IEM website for members to register. Engineers who attend these forums will be granted CPD hours.







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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.



We are pleased to announce that a travel coffee-table book, published by IEM, is now available for purchase at the Secretariat:

"A Globe-Trotting Engineer's Footprints" by Ir. Chin Mee Poon

The selling price is as follows: Members : RM50 Non-Members : RM55

All proceeds will go to the IEM Building Fund.

For more information, kindly contact IEM Secretariat via telephone 03-7968 4001 and email address at : sec@iem.org.my

Thank you.

fter a lapse of more than 40 years, I visited Brunei again at the end of July 2015. My first visit to the tiny sultanate took place shortly after I graduated from university. I went to Kuala Belait, popularly known as the Shell town, for, yes, you guessed it, a job interview with Shell Brunei. Not only did the company pay all my expenses but I even received a stipend from them during my stay there. However, I did not get the job.

This time, my wife and I were back-packing in Sarawak. We had just got back to Miri from Mulu National Park and took a taxi to the longdistance bus station to catch the 3.45 p.m. bus for Brunei. Three and a half hours later, we were in Bandar Seri Begawan, the capital of Brunei Darulsalam.

We spent the next day visiting the sprawling water village and other tourist attractions. Known simply as Kampong Ayer, the water village is undoubtedly Brunei's No. 1 tourist attraction. However it is not one village; it comprises 40 villages linked by wooden bridges and roads. It is divided into 6 mukim for ease of administration and has a total population of about 40,000 people, i.e. almost 10% of the population of Brunei. It is in fact, the largest settlement on stilts in the world.

In the past, the Brunei government had attempted to resettle the villagers on land but failed. Most of the villagers preferred to live the traditional way of life which, according to historical records, had been passed down the generations for over one millennium. Today, the government has preserved the water village as a national heritage. It has built

modern amenities like schools, clinics, mosques, community halls and water taxi jetties as well as supplied electricity and piped water. Even the tourist information office is now located in the water village itself and has expanded to become a Tourism Gallery with an air-conditioned exhibition hall on the history of the water village and the life, traditions, customs and trades of the villagers.

Brunei itself has little written record on the history of the water village. Most information is gleaned from the annals of traders and navigators who visited Brunei over the centuries, especially during its hey days in the 14th to 17th centuries when the empire ruled over all of present-day Sabah and Sarawak as well as the southern part of the Philippines and was an important trading post between Indonesia to the east and China, Siam and Champa to the west. Zhao Rushi (赵汝适), a Song Dynasty official from China, referred to Brunei and the water village in his two-volume book known as zhufanzhi (诸蕃志). Antonio Pigafetta, an Italian scholar and explorer who joined Ferdinand Magellan's circumnavigating fleet, visited the village in 1521 and dubbed it "Venice of the East".

GLOBE TREKKING

My wife and I started our exploration from the majestic Omar Ali Saifuddien Mosque on the waterfront. A boardwalk with a high-level overhead footbridge to allow the passage of water taxis linked the nearest water village to the mainland. About 500 metres away, another boardwalk linked to a second village.After spending some time in the village, we boarded a water taxi to return to the mainland for lunch before continuing our visit to other parts of the water village, including the Tourism Gallery. Water taxis are motorised sampans offering convenient and cheap transportation. Each trip only costs B\$0.50. No wonder the long boardwalks linking the villages to the mainland are rarely used and most are in a dilapidated state.

The water village is an interesting place to visit but, like Pulau Ketam off the coast of Selangor, garbage disposal is a big problem and vast amounts of floating garbage tarnish the image of the otherwise beautiful coastline of Brunei Bay and the water village itself.









TEMUDUGA PROFESIONAL

MOHD SYAHRIN AMRI BIN MOHD BE HONS (UTM) (ELECTRICAL, 1997)

Tarikh: 14 March 2016

To All Members,

SENARAI CALON-CALON YANG LAYAK MENDUDUKI TEMUDUGA PROFESIONAL **TAHUN 2016**

Berikut adalah senarai calon yang layak untuk menduduki Temuduga Profesional bagi tahun 2016.

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 2016.

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. Yam Teong Sian

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44129 HASHIMAH BINTI HASHIM BE HONS (UNITEN) (ELECTRICAL & FLECTRONICS, 2000) MSC (UKM) (MICROELECTRONIC, 2002) PhD (LA TROBE) (2013)

Usage of "Engr." Title

e Institution of Engineers Malaysia (IEM) introduced "Engr." title to be used by members of IEM who are Professional Engineers since 2006. The use of the e "Engr." gives a sense of pride and confidence to Engineering Graduates as their degrees had been ted and recognised by the Institution. In addition, usage of 'Engr' was overwhelmingly received and ported by our young members who proudly used it members in the engineering fraternity at large.

However, the Board of Engineers, Malaysia (BEM) ws the usage of "Engr." title by IEM members as ntravening "Clause 7 (1) (aa)" of the Registration of gineers Act 1967 (Incorporating amendments up 2015). IEM had been steadfast in maintaining our sition in the interpretation of the use of "Engr." and s matter had been deliberated with BEM for many ars

IEM had sought the intervention of the Minister Works with regard to the usage of the "Engr.". On January 2016, the Minister called a meeting with A and BEM to discuss this issue. In the meeting, Minister after hearing the presentation from both es decided that his office will seek the opinion of the orney General (AG) with regard to the usage of the e "Engr.". He also advised that IEM members should use the title "Engr." until we receive a decision from AG's office. IEM Council at its 401st Meeting on 21 March 2016 agreed to abide by the Minister's decision until we receive the outcome from the AG's office before deciding on the next course of action.

In the meantime, IEM Members are advised not to use the "Engr." title pending the decision from the AG's office.

	LIM HUI YIN	1ST YEAR (UNITEN)
	LIM MENG KAI	(CIVIE) 1ST YEAR (UNITEN)
79650		
10035	LIM SU SHEN, JOEHANES	3RD YEAR (UTAR) (CIVIL)
	LIM YIN JOON	1ST YEAR (UNITEN) (CIVIL)
	LOGARAJAN MUTHU	3RD YEAR (SWINBURNE) (CIVIL)
78703	LOGASUNDAARI A/P P.MOHAN	2ND YEAR (UMP) (CIVIL)
	LOO CHEE FENG	3RD YEAR (UTAR) (CIVIL)
78656	LOO KIAN LOON	2ND YEAR (UMP) (CIVIL)
78672		2ND YEAR (UMP) (CIVIL)
		3RD TEAR (UTAR) (CIVIL)
	LOU WEDI SEN	3PD YEAR (UTAR) (CIVIL)
		3RD YEAR (LITAR) (CIVIL)
78711	LOW WELKEAT	4TH YEAR (UMP) (CIVIL)
78724	LOW YEE HWA	4TH YEAR (UMP) (CIVIL)
78780	LYDIAIZNA BT ADAM	4TH YEAR (UMP) (CIVIL)
	MAHRAN RAISAH	1ST YEAR (UNITEN)
	BINTI MOHD. SIRI	(CIVIL)
78790	MANGAIBAGAN A/L RAJANDRAN	3RD YEAR (UMP) (CIVIL)
	MELISSA LINDSAY BINTI GULTIN	4TH YEAR (UMS)(CIVIL)
	MELSIE ENN JIMMUS	1ST YEAR (UMS)(CIVIL)
	MERVIN NAIR A/L	1ST YEAR (UNITEN)
70700	RAMESH KARNAN	(CIVIL)
78738	MIEERRA JASSMIN BT MOHD ZAINUADDIN	4TH YEAR (UMP) (CIVIL)
78742	MIMI SYAHIDA BINTI MUHAMAD	4TH YEAR (UMP) (CIVIL)
78716	MISNAWATI BT BOHARI	4TH YEAR (UMP) (CIVIL)
	MOHAMAD AHMAD DABLEH	4TH YEAR (IUKL) (CIVIL)
	MOHD. ARSHAD	(CIVIL)
78805	MOHAMAD FARHAN BIN ABU SAMAH	4TH YEAR (UMP) (CIVIL)
	MOHAMAD NUR SYIHABUDDIN B. MOHD YUSOFF	1ST YEAR (UTHM) (CIVIL)
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	MOHAMAD ZACHROY ANAZFITRY BIN MISDIN	1ST YEAR (UNITEN) (CIVIL)
	MOHAMAD ZULHILMI BIN JAAFAR	1ST YEAR (UTHM) (CIVIL)
	MOHAMMAD FAEZ BIN MASROM	1ST YEAR (UTHM) (CIVIL)
	MOHAMMAD FARIS ZUHAIRI BIN ANUAR	1ST YEAR (UMS)(CIVIL)
	MOHAMMAD OMAR HAMID WAGIEALLA	1ST YEAR (UNITEN) (CIVIL)
	MOHAMMAD SALMAN BIN SAZLI	1ST YEAR (UNITEN) (CIVIL)
	MOHD AFIQ	1ST YEAR (UMS)(CIVIL)
	ZULFAIZIE BIN JAPRI	
	BIN MAHADY	1ST YEAR (UTHM) (CIVIL)
78761	MOHD KHAIRUL AZAM B. MD KHAIRUDIN	3RD YEAR (UMP) (CIVIL)
	MOHD KHAIRULIZZAT BIN MOHD BISI	1ST YEAR (UMS)(CIVIL)
	MOHD SHAHID BIN ABDUL RANIT	4TH YEAR (UMS) (CIVIL)
	MOHD ZARIF NASHRIQ BIN MOHD NOR	1ST YEAR (UNITEN) (CIVIL)
	MOK YI YONG	3RD YEAR (UTAR) (CIVIL)
78744	MUHAMAD AIDIL BIN SA'AIDI	4TH YEAR (UMP) (CIVIL)
	MUHAMAD AMIRULFITRY BIN ROUSTUM SHAH	1ST YEAR (UNITEN) (CIVIL)
	MUHAMAD FARID B. MUSTAFA	1ST YEAR (UTHM) (CIVIL)
	MUHAMAD NAIM BIN ZAKARIAH	1ST YEAR (UNITEN)
	MUHAMAD SYAFIQ	1ST YEAR (UTHM) (CIVIL)
	HAFIZ BIN MAASAH MUHAMAD SYAZNI	1ST YEAR (UMS)(CIVIL)
	ASYRAF BIN SAKKA MUHAMAD ZAKI R	1ST YEAR (UTHM) (CIVIL)
	MUHAMAD YUSUF	1ST YEAR (UTHM) (CIVIL)
	ABDULL AZIZ	

MUHAMMAD AFIQ BIN ROSLAN	1ST YEAR (UTHM) (CIVIL)
MUHAMMAD AFIQ SYAHMI BIN MOHD ADHA	1ST YEAR (UNITEN) (CIVIL)
MUHAMMAD AIMAN B MAT NASIR	1ST YEAR (UNITEN) (CIVIL)
MUHAMMAD AIMAN BIN RAMLE	1ST YEAR (UTHM) (CIVIL)
MUHAMMAD AKMAL BIN ABDUL RASHID	1ST YEAR (UNITEN) (CIVIL)
MUHAMMAD AMMAR ASHRAFF BIN MOHD. FARIS	1ST YEAR (UTHM) (CIVIL)
MUHAMMAD AQIL FARHAN BIN VO HASAN	1ST YEAR (UNITEN) (CIVIL)
MUHAMMAD ASYRAF BIN MASRI	2ND YEAR (UTM) (CIVIL)
MUHAMMAD AZIM ANAS BIN ABDUL AZIZ	1ST YEAR (UNITEN) (CIVIL)
MUHAMMAD AZRUL IZZANI	1ST YEAR (UNITEN) (CIVIL)
MUHAMMAD FAHMI B. ABD RAHMAN	1ST YEAR (UTHM) (CIVIL)
MUHAMMAD FAIZ BIN ZAHARUDDIN	4TH YEAR (UNISEL) (CIVIL)
MUHAMMAD FIKRIL AZIM BIN ABDUL SANI	1ST YEAR (UNITEN) (CIVIL)
MUHAMMAD HAIDHAR BIN ROSLI	1ST YEAR (UNITEN)
	1ST YEAR (UNITEN)
MUHAMMAD HAZIQ B.	1ST YEAR (UTHM) (CIVIL)
MUHAMMAD HAZWAN	1ST YEAR (UTHM) (CIVIL)
MUHAMMAD HIDAYAH 'ASMAWI BIN AWANG	4TH YEAR (UMS)(CIVIL)
MUHAMMAD IZUAN BIN EDWIN CABASAG	1ST YEAR (UNITEN) (CIVIL)
MUHAMMAD KHAIRUL	1ST YEAR (UTHM) (CIVIL)
MUHAMMAD LUQMAN	1ST YEAR (UMS)(CIVIL)
BIN BAHRIN MUHAMMAD	1ST YEAR (UTHM) (CIVIL)
SAIFUDDIN BIN SULAIMAN	
MUHAMMAD SHAFIQ BIN ABDUL JALIL	1ST YEAR (UTHM) (CIVIL)
MUHAMMAD SULHI B. ZAINUDIN	1ST YEAR (UTHM) (CIVIL)
MUHAMMAD TAUFIQ LI ZULKIFLI LI	1ST YEAR (UMS)(CIVIL)
MUHAMMAD ZAHIN BIN NOR SAH @ NOOR SHAH	1ST YEAR (UNITEN) (CIVIL)
MUHAMMAD ZAKWAN BIN HAMIZI	1ST YEAR (UTHM) (CIVIL)
MUHAMMAD ZARIF SYAZWAN BIN SUHAINI	1ST YEAR (UTHM) (CIVIL)
MUHAMMAD ZIQRIE BIN AZMI	1ST YEAR (UTHM) (CIVIL)
MU'IZZUDDIN BIN HERMAN	1ST YEAR (UTHM) (CIVIL)
NAASIHA BINTI IDERIS	3RD YEAR (UMP) (CIVIL)
NABILA FAIQAH BINTI JASMIN	1ST YEAR (UTHM) (CIVIL)
NABILAH BINTI MAMAT	4TH YEAR (UMP) (CIVIL)
NABILAH UNAISAH	2ND YEAR (UMS)(CIVIL)
	1ST YEAR (UTHM) (CIVIL)
NAILI HANEESA BINTI	1ST YEAR (UNITEN)
NAJWA NABILLA BINTI	1ST YEAR (UMS)(CIVIL)
NATASHA AMIRA	1ST YEAR (UTHM) (CIVIL)
NG HUI PING	1ST YEAR (UMP) (CIVIL)
NG JIA WEI	1ST YEAR (UNITEN) (CIVIL)
NG JIA WEI NGAN LIK HENG	1ST YEAR (UTAR)(CIVIL) 3RD YEAR (UTAR) (CIVIL)
	1ST YEAR (UTHM) (CIVIL)
NIK NUR AISYAH	4TH YEAR (UMP) (CIVIL)
NOOR FADZILAH	1ST YEAR (UNITEN)
AYUB NOOR FAHIZA BINTI	(CIVIL) 4TH YEAR (UMP) (CIVIL)
MAT DIN	

78769	NOORHAYA BT KASA	3RD YEAR (UMP) (CIVIL)
78775	NOR ASMAQ BINTI BAHAROM	4TH YEAR (UMP) (CIVIL)
78760	NOR BAHIAH BINTI	4TH YEAR (UMP) (CIVIL)
	NOR FADZILAH BT	1ST YEAR (UNITEN)
78740	NOR FAEZAH BINTI	4TH YEAR (UMP) (CIVIL)
	AFFRI NOR FATIHAH BINTI	1ST YEAR (UNITEN)
	IBRAHIM	(CIVIL)
70744	HASAN NORDIN	
/8/41	ABDULLAH	4TH YEAR (UMP) (CIVIL)
	NOR HASLINDA BINTI ABDULLAH	2ND YEAR (UMS)(CIVIL)
	NOR HIDAYAH BINTI MOHD ISA	4TH YEAR (UMP) (CIVIL)
78781	NOR HIDAYAH BINTI MUHAMAD ASRI	4TH YEAR (UMP) (CIVIL)
	NOR SYAHIRAH BT AZMAN	1ST YEAR (UNITEN) (CIVIL)
78811	NOR ZARIEFA BINTI ZAHARI	3RD YEAR (UMP) (CIVIL)
	NORAYSHAH BINTI	1ST YEAR (UNITEN)
	NORAZILA BINTI	1ST YEAR (UNITEN)
	NORFARA IDAYU BTE	1ST YEAR (UNITEN)
	OTHMAN NORFARAZIELA BINTI	(CIVIL) 1ST YEAR (UNITEN)
	RADZUAN NORFAZRINAH BINTI	(CIVIL) 1ST YEAR (UMS)(CIVIL)
	AB.RAHMAN NORHAFIZAH BINTI	1ST YEAR (UMS)(CIVIL)
78810	PARLIN	
10010		
	JALALUDDIN	(CIVIL)
	KAMARUZAMAN	1ST YEAR (UTHM) (CIVIL
	NUR AIN BT MUSTAFFA	1ST YEAR (UNITEN) (CIVIL)
78735	NUR AIN BT NIK MAZLAN	3RD YEAR (UMP) (CIVIL)
	NUR AISYAH BT ABD RASHID	1ST YEAR (UNITEN) (CIVIL)
	NUR AIZA BINTI DARNAK	1ST YEAR (UTHM) (CIVIL
78773	NUR ALIYANA BINTI	4TH YEAR (UMP) (CIVIL)
78784	NUR AQILAH BINTI	4TH YEAR (UMP) (CIVIL)
	NUR ARIFF BIN	1ST YEAR (UTHM) (CIVIL
	NUR ARIFFAH BT	3RD YEAR (UITM) (CIVIL)
78758	ASAUDI NUR ASMA' BINTI	4TH YEAR (UMP) (CIVIL)
	SUHAIMEE NUR ATIKAH BINTI	1ST YEAR (UTHM) (CIVIL
	KASIM NUR ATIQAH BT	1ST YEAR (UTHM) (CIVIL
78759	ZULLKIFFLE NUR AUNIE BINTI	4TH YEAR (UMP) (CIVIL)
	MALEKI NUR AZIEMAH BINTI	1ST YEAR (UTHM) (CIVIL
78743	MOHAMAD ZIN NUR AZIRA AYUNI BT	4TH YEAR (UMP) (CIVIL)
78801		
70001	BT MOHD NASIR	
	NOR FARAHAIN BINTI NASIR	1ST YEAR (UMS)(CIVIL)
	ABDUL GHAFAR	(CIVIL)
	NUR FARRAH ATIQAH BT. MD DZAHIR	1ST YEAR (UTHM) (CIVIL
	NUR FARRAH BINTI SM BAKRI	1ST YEAR (UTHM) (CIVIL
	NUR FATIHAH BINTI ISMAR	2ND YEAR (UMS)(CIVIL)
	NUR FAZLIDA ASHIKIN BT	1ST YEAR (UTHM) (CIVIL
78770	MAKHTAR	
78777	MOHD SHAFEE	
	OTHRAN	
	ZAHIRUDDIN MARICAN	(CIVIL)
		1ST YEAR (UTHM) (CIVIL
	FAUZI	

KEAHLIAN

	NUR IZZATI BT MOHD NAZRI	1ST YEAR (UNITEN) (CIVIL)
	NUR IZZATY BINTI AZNI	1ST YEAR (UTHM) (CIVIL)
78718	NUR JULAIKHA BINTI A.RAZAK @ AZIZ	4TH YEAR (UMP) (CIVIL)
	NUR RAHMANIYAH BT BAHARUDIN	1ST YEAR (UNITEN) (CIVIL)
	NUR RAZIN BIN NOR 'AINI	1ST YEAR (UTHM) (CIVIL)
	NUR SAFIQQAH BT NAZARI	1ST YEAR (UTHM) (CIVIL)
	NUR SHAQEENAH BINTI ZAINUDIN	1ST YEAR (UNITEN)
	NUR SYAHIRAH BT BORHAN	2ND YEAR (UMS)(CIVIL)
78771	NUR SYAMIMI BINTI AZLI	3RD YEAR (UMP) (CIVIL)
78734	NUR ZAMIRA BINTI MOHAMAD ZAKER	4TH YEAR (UMP) (CIVIL)
78787	NURAIN ZAHIDAH BINTI NAZARUDIN	4TH YEAR (UMP) (CIVIL)
78762	NURAMALINA BT. SHAMSUDIN	4TH YEAR (UMP) (CIVIL)
	NURAZIZY BIN YUSOF	1ST YEAR (UTHM) (CIVIL)
	NURFATIN AMANINA BT MOHAMED NOH	1ST YEAR (UNITEN) (CIVIL)
	NURHAFIDZ BIN ABD RAHAMAN	1ST YEAR (UTHM) (CIVIL)
	NURHANANI BINTI ABD. AZIZ	1ST YEAR (UNITEN) (CIVIL)
	NURHANANIA BINTI NORAZUWA	1ST YEAR (UNITEN) (CIVIL)
78719	NURHIDAYAH BINTI MOHD ZAINAL	4TH YEAR (UMP) (CIVIL)
	NURSAFIQAH BINTI ABD RAHIM	1ST YEAR (UNITEN) (CIVIL)
	NURSAKMAWANI BINTI ABDUL RAFAR	1ST YEAR (UTHM) (CIVIL)
	NURSYADZATUL TASNIM BT ROSLIN	1ST YEAR (UNITEN) (CIVIL)
	NURSYAMIM ADILA BT SELAMAT	1ST YEAR (UNITEN)
	NURSYAZLIN SYAFIQAH BINTI	2ND YEAR (UMS)(CIVIL)
78776	MOHAMAD ZABIDI NURSYAZWANI BINTI	4TH YEAR (UMP) (CIVIL)
78793	MAT LAZIM NURTIKA NABILAH	3RD YEAR (UMP) (CIVIL)
78708	BINTI ABDUL SINEE NURUL AIN	2ND YEAR (UMP) (CIVIL)
	SYAZWANI BT AHMAD AZMAN	
78772	NURUL AINA BINTI HUSAINI	4TH YEAR (UMP) (CIVIL)
	NURUL AKMALIZA BINTI OTHMAN	1ST YEAR (UTHM) (CIVIL)
	NURUL AMIRAH BT ABDUL MALIK	1ST YEAR (UNITEN) (CIVIL)
	NURUL ASHIKIN BINTI MD SUHAINI	1ST YEAR (UTHM) (CIVIL)
78788	NURUL ATIKAH BINTI AHMAD KHAN	3RD YEAR (UMP) (CIVIL)
78710	NURUL ATIKHA BINTI KHARIUL ABIDIN	2ND YEAR (UMP) (CIVIL)
	NURUL DIANA SYAKILA BT	1ST YEAR (UTHM) (CIVIL)
78661	NURUL FAJRINA HAZIRAH BINTI	2ND YEAR (UMP) (CIVIL)
	NURUL HAZIRAH AFIQAH BINTI ABU HABIDAH	1ST YEAR (UTHM) (CIVIL)
	NURUL HAZWANI BINTI MOHD JAMALUDIN	1ST YEAR (UNITEN) (CIVIL)
	NURUL HIKMAH BINTI ARIS	1ST YEAR (UTHM) (CIVIL)
78430	NURUL HUSNA BINTI ABDULLAH	2ND YEAR (UTM) (CIVIL)
78806	NURUL LYANA BT AL-ZAHABA	4TH YEAR (UMP) (CIVIL)
78763	NURUL MASLIANA BT KHAIRIL ANUAR	4TH YEAR (UMP) (CIVIL)
78783	NURUL MURSHIDA BT MOHD SABRI	4TH YEAR (UMP) (CIVIL)
	NURUL NADHIRA BINTI HAMZAH	1ST YEAR (UTHM) (CIVIL)
78753	NURUL NADIA BINTI MOHTAR	3RD YEAR (UMP) (CIVIL)
	NURUL NATASHA NABILA BINTI NAIM	1ST YEAR (UNITEN) (CIVIL)
78782	NURUL ZAFIRAH	4TH YEAR (UMP) (CIVIL)

	NURZIANA BINTI ABD MALIKI
	OH CHEN HOE
	ONN HUI YUAN
78712	OOI CHUN SHU POORNASUTHRA A/P
	SUBRAMANIAM
	BIN WAHID
	ABD KARIM
	PUTRI NUR IMAN BINTI KHAIRUDDIN
	QUADRA REGANOLD JOIRUH
78707	RAHAMAH WATI BINTI SULAEMAN
	RAJA EZZAH SHAMIMI
78802	RAJA NORHAYATI BT
	RAJA SULAIMAN RANJGHINI A/P
	BALASUBRAMANIAM RASHIKA BINTI
78666	SAFNIH RATHEY A/P
78000	PARAMASIVAM
	MARDHIYAH BINTI
	RAZIE NUR ELYN
	BINTI MOHD RAZAK RAZMINUR 'AINA BT.
	AHMAD RAZI ZA'BA
	VEGURGAMA
78687	RUSAIDI BIN JAMAL RUBENI A/P RAJA
	RUSZAIMI BIN KAMSAH
	SARAH IZATI BT.
	SARAH LAONG ANAK
	MEDANG SEAMUS SHENTON
	MUDIN BIN SHAIK
	SHANMUGAN
	SHANNEN JAINI
	SHARIFAH ZAFIRAH BT SYED ZAINAL
	ABIDIN JAMALULLIL
	S.CHANDIRAN
78732	SHARMILA A/P SEWAJJE
	SHIA CHIA KIET
78675	SIM MEI CHEE
78755	SITI AISHAH BINTI
	MOHD ALKAMAL SITI ASYIAH BINTI
	MUKASIM SITI BARKEH BINTI
	YAHYA
	BADRUDDIN
78720	SITI HAJAR BT SA'ADIN
78812	SITI NAFISAH BT SALLEH
	SITI NURWALA
78706	SOLAHUDDIN BIN
78677	SOONG HUI YING
	STANLEY SALIS
	STEFAN LAMBERT ANAK SINANG
	SUHADAH BINTI
	SWEE KEH GYE
	SWEE MAIN GYE
78765	SYAMIM NADIAH BT
78700	MOHD NAJIB
10122	RAZALI

ABD	1ST YEAR (UTHM) (CIVIL)
	2ND YEAR (UTAR)(CIVIL) 1ST YEAR (UNITEN)
A A/P	(CIVIL) 4TH YEAR (UMP) (CIVIL) 1ST YEAR (UNITEN)
R	(CIVIL) 1ST YEAR (UNITEN)
	(CIVIL)
	IST TEAR (UTHM) (CIVIL)
N NN IOLD	1ST YEAR (UNITEN) (CIVIL) 4TH YEAR (UMS)(CIVIL)
BINTI	2ND YEAR (UMP) (CIVIL)
AMIMI	1ST YEAR (UNITEN)
Z TIBT	(CIVIL) 4TH YEAR (UMP) (CIVIL)
	1ST YEAR (UNITEN)
MAII	(CIVIL) 1ST YEAR (UNITEN)
	(CIVIL) 2ND YEAR (UMP) (CIVIL)
ті	IST TEAR (UTHM) (CIVIE)
1 7AK	1ST YEAR (UNITEN)
BT.	1ST YEAR (UNITEN)
DA	1ST YEAR (UTHM) (CIVIL)
ЛAL	4TH YEAR (UTM) (CIVIL)
A	2ND YEAR (UMP) (CIVIL) 1ST YEAR (UMS)(CIVIL)
	1ST YEAR (UNITEN)
NAK	(CIVIL)
	(CIVIL)
	(CIVIL)
AD K	(CIVIL)
	1ST YEAR (UNITEN)
RAH	1ST YEAR (UMS)(CIVIL) 1ST YEAR (UNITEN)
LIL	(CIVIL)
	(CIVIL)
	SRD FEAR (UMP) (CIVIE)
	(CIVIL)
	2ND YEAR (UMP) (CIVIL) 4TH YEAR (UMP) (CIVIL)
ТΙ	4TH YEAR (UMP) (CIVIL)
ГІ	2ND YEAR (UMS)(CIVIL)
ITI	1ST YEAR (UTHM) (CIVIL)
ITI	1ST YEAR (UTHM) (CIVIL)
	3RD YEAR (UMP) (CIVIL)
	4TH YEAR (UMP) (CIVIL)
	1ST YEAR (UNITEN)
N	2ND YEAR (UMP) (CIVIL)
G	2ND YEAR (UMP) (CIVIL)
	1ST YEAR (UNITEN) (CIVIL)
RT	1ST YEAR (UNITEN) (CIVIL)
	1ST YEAR (UTHM) (CIVIL)
	1ST YEAR (UNITEN) (CIVIL)
	2ND YEAR (UNITEN) (CIVIL)
BT	4TH YEAR (UMP) (CIVIL)
INTI	3RD YEAR (UMP) (CIVIL)

78674	TAN SIEW LENG	2ND YEAR (UMP) (CIVIL)
78747	TAN SOON TECK	4TH YEAR (UMP) (CIVIL)
	TAN WEI KIONG	3RD YEAR (UTAR) (CIVIL)
78654	TAN WOON HAN	2ND YEAR (UMP) (CIVIL)
78799	TAN YEONG YU	4TH YEAR (UMP) (CIVIL)
	TANG WAI HON	1ST YEAR (UNITEN) (CIVIL)
	TEE HUI EU	3RD YEAR (UTAR) (CIVIL)
	TEE TZER KAI	3RD YEAR (UTAR) (CIVIL)
78756	TEH AFZHAN BINTI ZAKARIA	4TH YEAR (UMP) (CIVIL)
78786	TENGKU MUHAMMAD HASIF B TENGKU M. SALIM	3RD YEAR (UMP) (CIVIL)
	TEO ZHEN BIN	3RD YEAR (UTAR) (CIVIL)
	TEY PENG LIU	3RD YEAR (UTAR) (CIVIL)
78665	THARUSHINI A/P THIAGARAJAN	2ND YEAR (UMP) (CIVIL)
	THOMSON LUNSIN	2ND YEAR (UMS) (CIVIL)
	THUNG MUN HENG	2ND YEAR (UTAR)(CIVIL)
78745	TING LI CHAO	4TH YEAR (UMP) (CIVIL)
	TING SIE JUN	3RD YEAR (UTAR) (CIVIL)
	TIO JIA LUN	2ND YEAR (UTAR)(CIVIL)
	TOH ZING HUI, VINCENT	3RD YEAR (SWINBURNE) (CIVIL)
	UDEYATARSHINIY A/P UDEYASURIAN	1ST YEAR (UNITEN) (CIVIL)
	UMMI SURAYA BINTI MD YATIM MUSTAFA	1ST YEAR (UTHM) (CIVIL)
78803	UMMU RABIATUL ADAWIYAH BINTI MOHD ROSDI	4TH YEAR (UMP) (CIVIL)
	VOON SOON LOON	4TH YEAR (SWINBURNE) (CIVIL)
	WAFFA BINTI ADNAN	1ST YEAR (UNITEN) (CIVIL)
	WAN FATIN AFIFAH BT WAN MOHD FAUZI	1ST YEAR (UTHM) (CIVIL)

SYAZWANI BINTI ZAMZAM

SHANON

78746

78749

TAN CHENG YUAN,

TAN CHUANG MING

TAN HOCK HEE

TAN JENG WEI

TAN KAI WEN

TAN KANG YU

TAN KIAN SHEN

TAN KIM GUAN

TAN KIM YONG, EDWARD

Note: Remaining list would be published in the May 2016 issue. For the list of approved "ADMISSION TO THE GRADE OF STUDENT", please refer to IEM web portal at http://www.myiem.org.my.



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 Januari 2016 adalah seperti jadual di bawah:

10.	NO. AHLI	NAMA
1	18355	ABAS BIN ABDULLAH
2	27548	ABDUL AZIZ BIN ABDUL RAMAN



1ST YEAR (UTHM) (CIVIL)

1ST YEAR (UTAR)(CIVIL)

3RD YEAR (UTAR) (CIVIL)

4TH YEAR (UMP) (CIVIL)

2ND YEAR (UTAR)(CIVIL)

1ST YEAR (UTAR)(CIVIL)

3RD YEAR (UTAR) (CIVIL)

1ST YEAR (UTAR)(CIVIL)

4TH YEAR (UMP) (CIVIL)

1ST YEAR (CURTIN) (CIVIL)

KEAHLIAN

3	35572	ABDUL AZIZ BIN ABDULLAH	39	14484	KHAIRUDIN BIN AHMAD	75		PERUNDING KCT SDN BHD
4	15970	ABDUL RAZAK BIN MAT YUNUS	40	16659	KHAZALI BIN HAMID	76	57130	POH WEE HOON
5	19438	ADNAN BIN MD ZAIN	41	02601	KHOO HENG KEONG	77	62159	RAJA ZAHILAH BINTI RAJA MOHD. RADZI
6	74390	AHMAD FAUZI BIN FUDZIN	42	23101	KUEK HANN YIH, KELVIN	78	14979	RAYMON MANGALARAJ
7	03394	AHMAD HUSAINI BIN SULAIMAN	43	02290	LAU KA TING	79	05722	RAZALI BIN MUDA
8	22055	AHMAD SHAMSOL BIN JUSOH	44	09834	LEE CHIN CHAI	80	15114	ROSLAN BIN OMAR
9	11078	AHMAD ZAKIYUDDIN BIN ABD. RAHMAN	45	15344	LEE ENG WAH	81	70355	ROSLY BIN PENGIRAN
10	01650	AIK SIAW KONG	46	02382	LEE HEUK PING	82	27138	ROSMADI BIN ZAMRI
11	39090	ALI AHMAD BIN HAMID	47	13793	LEE KUAN KAM	83	26970	S. VEERAKUMAR A/L S.
12	04961	ASOK KUMAR S/O HARILAL HIRA	48	79579	LEE WEI SZER	84	26989	SHAHRUL AFFENDY BIN MAHAT
13	23694	AUGUSTINE MARIA AROKIASAMY	49	20090	LEE YEE SENG	05	25550	SHARIFAH FATIMAH BINTI TUANKU HJ
14	10057	BOEY HOR MENG	50	66535	LEONG HENG ONN	65	30009	ABDULLAH
15	10801	BOEY WELLIN	51	04152	LEONG KEE CHAN	86	07029	SIA CHAY THIAM
16	09427		52	12626	LEONG MUN YEAN	87	36992	SONG YOKE CHIN
10	42000		53	24138	LEONG YEK LOONG	88	45798	SUBRAMANIAM A/L ANPUALAGAN
17	43906		54	27491	LIEW GUAN DUT	89	53831	TAY KHO JIM
18	03838	CHEAH BOON HWA	55	06765	LIEW YAN SIN	90	20099	TEE BENG HOCK
19	21162	CHEW TAT SEN	56	07526	LIM CHIN KEAT	91	05327	TEH PIAW NGI
20	06828	CHIN THAU CHON	57	04979	LIM OOI JOO, PAUL	92	14400	TEO JIN ANN
21	06600	CHUA KON YIN	58	06216	LOKE HOON BOO	93	18906	TEOH TEONG LIANG
22	03650	CHUA LEE BOON	59	23672	LOURDES RAJ A/L DHOMNIC	94	07537	TIONG HONG HEE
23	34413	DR. HOW YOU CHUAN	60	79276	MGT. NASARUDDIN BIN MGT.	95	49376	VISHNUVARTTAN A/L PUSHPANATHAN
24	12809	DR. MOHD SABRI BIN ABDULLAH	61	25250		96	13448	WAN KOA YIT
25	06580	FAUZI BIN ABDULLAH	01	20200		97	03036	WONG CHEE ON
26	29705	GAN HONG TENG	02	43516		98	17560	WONG SU KEN
27	02737	GOH KIM SING	63	01974	MOHAMED ALI BIN YUSOFF	99	36316	WONG YONG MING
28	03457	HARBANS SINGH S/O KISHAN SINGH	64	16323		100	06424	WONG, RORY KIM
29	05955	HONG LING YEAN	65	13578	MOHD AZAHAR BIN DON	101	30640	YONG POH HING, HENRY
30	25557	HONG WAI CHIN	66	38714	MOHD NASHARUDDIN BIN HASHIM	102	09351	YONG VOON YUI
31	60074	HOR KOK LUEN	67	06789	MOHD. FAZLI BIN OSMAN	103	04531	YONG YEW WEI
32	17508	HOW CHI WEI	68	07943	MUHAMMAD BUSHRO BIN MAT JOHOR	104	02163	YONG YUN FUI
33	16069	HUSAINI BIN HUSIN	69	06004	NEW CHENG SWEE	105	19403	YU CHING LIN, AGATHA
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36	06451	JAMES PONNIAH JOSEPH	72	28999	NURUL HUDA BIN ROMLI	108	15913	ZAINAL FITHRI BIN MAT ZAHARI
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38	75464	KAMALRUL ARIFFIN BIN YUSOF	74	14275	OOI CHIN KEONG			

CONTRIBUTIONS TO WISMA IEM BUILDING FUND



RM 2,795,553.45 contributed by IEM Members and Committees RM 744,332.19 contributed by Private Organisations TOTAL RM 3,539,885.64 (ANOTHER RM 3,286,918.43 IS NEEDED)

The Institution would like to thank all contributors for donating generously towards the IEM Building Fund HELP US TO PROVIDE BETTER SERVICES TO YOU AND TO THE FUTURE GENERATION

BULETIN BULANAN IEM



JURUTERA

THE MONTHLY BULLETIN OF THE INSTITUTION OF ENGINEERS, MALAYSIA

Circulation and Readership Profile

Our esteemed readership consists of certified engineers, decision making corporate leaders, CEOs, government officials, project directors, entrepreneurs, project consultants, engineering consulting firms and companies involved with engineering products and services.

JURUTERA is circulated to more than **36,000 registered members** of The Institution of Engineers, Malaysia (IEM), with an **estimated readership of 144,000** professionals.

Advertising Benefits

Our business partners can be assured that their products and services will be given the circulation and exposure it deserves, thus maintaining a sustained advertising presence to our core readers of decision-making engineers and technical experts. Our website offers an even wider market reach, with added international presence, aided by our international affiliation with official engineering bodies all over the world. Our online and offline advertising features such as banner advertising, article sponsorship and direct e-mail announcements have proven to be successful marketing strategies that will set the businesses of our partners apart from their competition.









DISPLAY ADVERTISING RATES

DRICES DER INSERTION IN RINGGIT MALAVSIA (RM)

	PRICES PER INSERTION IN RINGGIT MALAYSIA (RIVI)										
SPECIFIED POSITION (Full color ad)	1 INSERTION	3 INSERTIONS	6 INSERTIONS	9 INSERTIONS	12 INSERTIONS						
Outside Back Cover (OBC)	7,800	7,050	6,750	6,450	6,150						
Inside Front Cover (IFC)	7,250	6,650	6,350	6,050	5,750						
Inside Back Cover (IBC)	6,750	6,250	5,950	5,650	5,350						
Page 1	6,650	6,150	5,850	5,550	5,250						
Facing Inside Back Cover (FIBC)	6,150	5,850	5,550	5,250	4,950						
Facing Cover Note (FCN)	5,850	5,300	5,100	4,900	4,700						
Facing Contents Page (FCP)	5,700	5,150	4,950	4,750	4,550						
Centre Spread	11,200	9,500	9,000	8,500	8,000						
ROP Full Page	4,900	4,500	4,300	4,100	3,900						
ROP Half Page	2,900	2,650	2,550	2,450	2,350						
ROP 1/3 Page	2,200	2,000	1,900	1,850	1,800						
ROP 1/4 Page	1,950	1,750	1,650	1,600	1,550						

Special Position: +15% Overseas Advertiser: +25% (Full Advance Payment Required) All prices shown above exclude Computer to Plate (CTP) charges. *Please note that the above prices exclude the 6% GST (Tax rate will be subjected to government changes) *The above prices exclude 15% advertising agency commission

For advertising enquiries, please contact:



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