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LEMBAGA TEKNOLOGIS MALAYSIA
MALAYSIA BOARD OF TECHNOLOGISTS

TECHIES

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Towards IR4.0 : The Creative Industry

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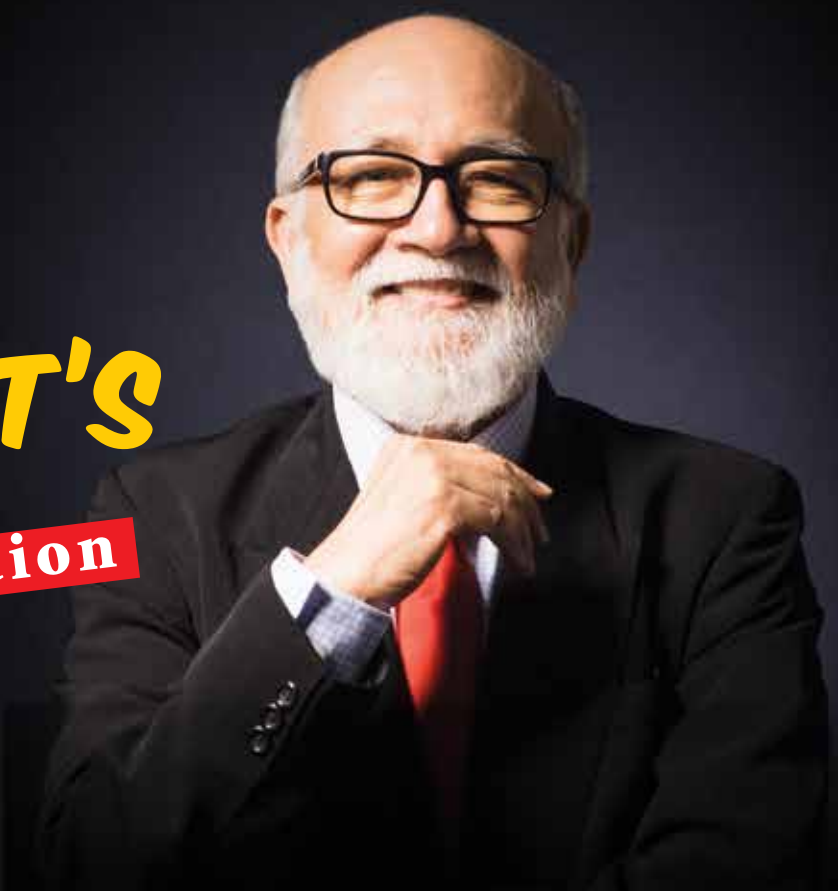

PRESIDENT'S NOTE

Techies 9th Edition

YBhg. Tan Sri Dato' Academician (Dr.)
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MBOT President.

The 2019 ended with some important milestones for the Malaysia Board of Technologists. Various achievements were carried out as a result of the extraordinary spirit and high commitment by the stakeholders of MBOT.

Since the establishment of MBOT in 2017, the total number of MBOT membership has reached 18, 053 by December 2019. This indicates more Technologists and Technicians are recognised as professionals as well as more registrants of graduates for entry-level membership.

Starting in November 2018, MBOT has paved the step by embarking on a professional assessment session to recognize Professional Technologists and Certified Technicians. A total number of 137 professional assessment sessions were carried out until December 2019. The professional assessments include outsourced assessment implemented by the Technology Expert Panels of MBOT. Additionally, MBOT has also organised a physical session of professional assessment in conjunction with the MBOT Townhall 2019.

The MBOT Townhall session was held on 25th November 2019 which was officiated by YB Dato ' Mahfuz bin Omar, Deputy Minister of Human Resources. The Townhall 2019 witnessed the close cooperation of the MBOT Technology Expert Panels, CyberSecurity Malaysia and Department of Skills Development. During the Townhall session, MBOT has conferred awards of three categories who have contributed and support in achieving MBOT's mission and vision.

MBOT has created our history by organising Smart Technology for Smart City Summit 2019, officiated by YAB Dato ' Seri Dr. Wan Azizah Dr. Wan Ismail, Deputy Prime Minister. The event received overwhelming responses from the MBOT stakeholders and received extensive media coverage.

To this day, MBOT has signed Memorandum of Understanding with 51 organisations, agencies, institutions and industry players. MBOT has also taken the initiative in providing channels for the graduates of DVM/DKM/DLKM programmes from various institutions of TVET provider to Bachelor Degree in 10 technology areas at Malaysian Technical University Network (MTUN).

This Techies 9th edition marks the first edition of MBOT Bulletin for 2020. What will 2020 look like? I assure you that there will be more challenges to meet such as bridging more linkages with industry players and recognizing more qualified Technologists and Technicians. With MBOT's stepping into another year of growth and more upcoming accomplishments, we are hoping to see more technological adoption in our life.

About MBOT

VISION

To be a world class professional body for technologists and technicians.

MISSION

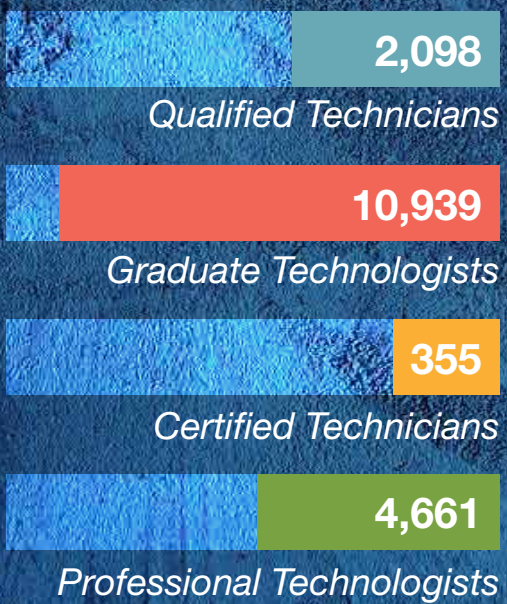
To elevate the standing, visibility and recognition of technologists and technicians.

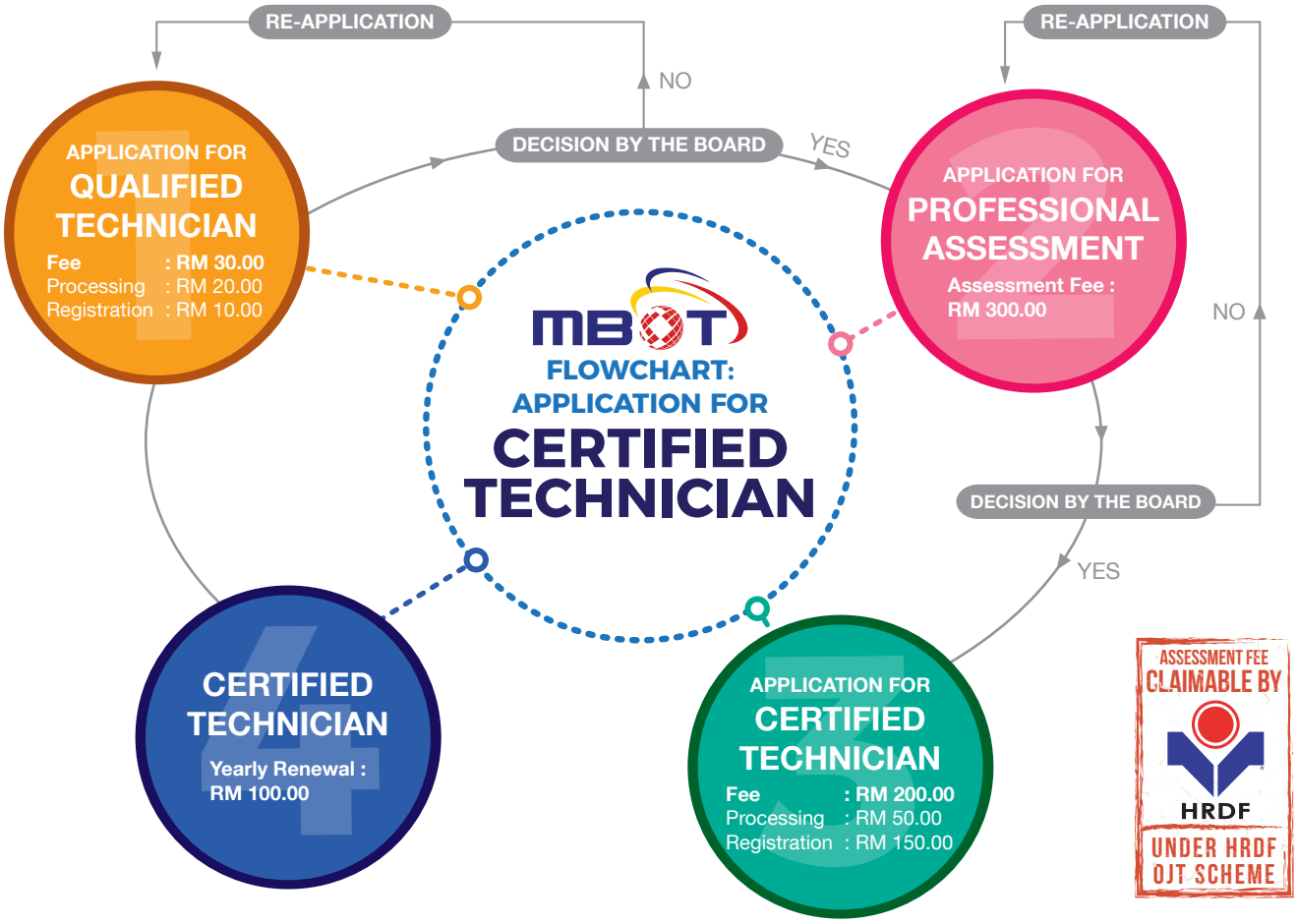
OBJECTIVE

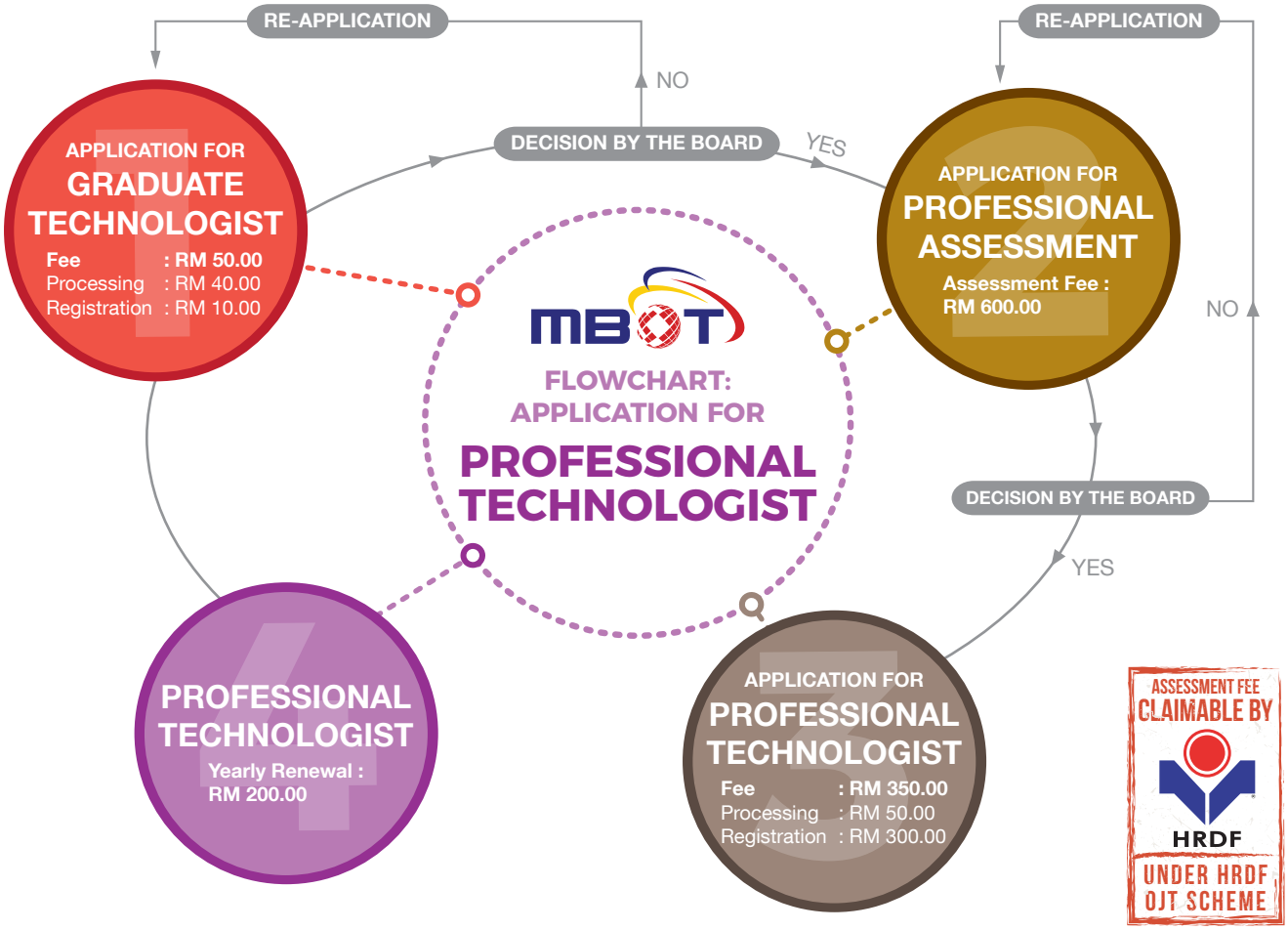
To increase the pool of skilled workforce required to attain a high income economy, and to protect public safety and health

MEMBERSHIP

(As of February 2020)

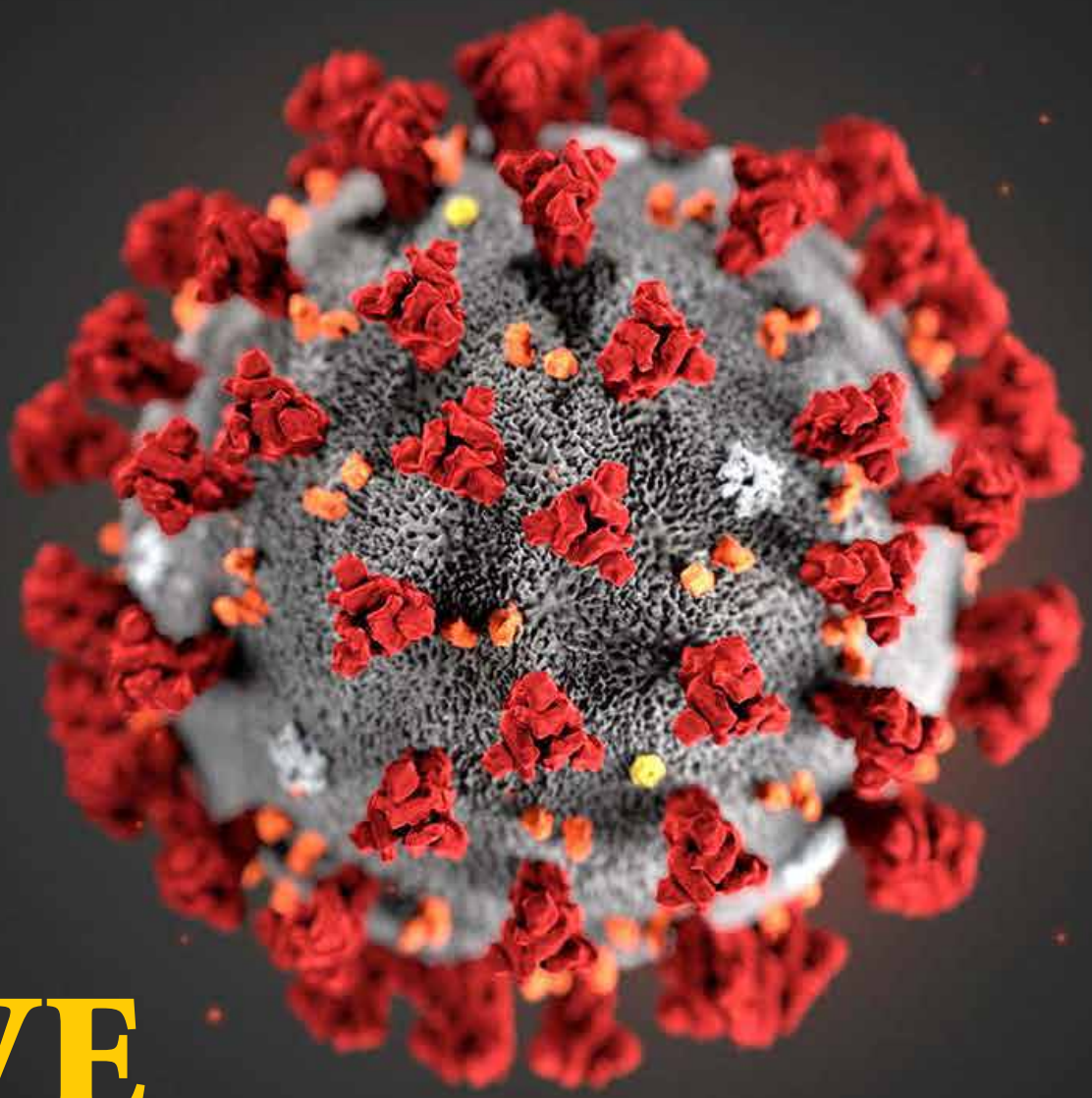






TECHNOLOGIST AND TECHNICIAN ACT 2015

TECHNOLOGIST AND TECHNICIAN (FEES) REGULATIONS 2017



FIVE HIGH TECH

Innovations that Help Fight Covid-19

By Prof. Madya Dr. Kushsairy Abdul Kadir

The world is in a state of shock regarding the outbreak of Covid-19. The virus, which started in the city of Wuhan, is now spreading very fast all across Asia. It also affects countries in Europe and North America. At the time of writing, there are 75748 confirmed cases and more than 2000 deaths, leading to the declaration of it being 'Public Health Emergency of International Concern'.

However, all hope is not loss. In the wake of this outbreak, there are five technological innovations that could help fight against the deadly virus.

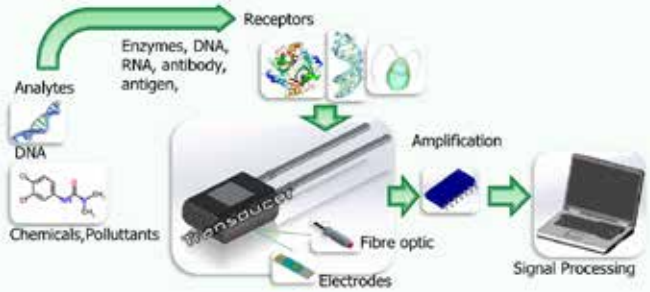
Thermal Camera

When one passes through KLIA and KLIA2, one cannot help but notice thermal cameras placed at strategic locations. The function of the thermal camera is to see whether travellers have signs of fever. So how does this camera work?

Thermal camera works by detecting infrared radiation or most commonly known as heat. The sensor of the camera creates a 2D composite image with different temperature levels. Lower temperatures often give blue or green colours, while higher temperatures are shown in red or orange. Hence, on the computer monitor, travellers with fever will appear more reddish or yellowish when compared to healthier travellers. Once a traveller who has elevated temperature is detected, the camera gives a warning in the form of alarm or a visual warning.

01.

Bio-Sensor



A biosensor is a biological detection system that consists of a biological component combined with a transducer to perform measurements of a biochemical quantity. The system translates molecular changes into electrical signals, which is then processed and displayed into measurable values using electronic circuitries.

02.

Bio-sensors can be the front-line screening for Covid-19 detection since they are user-friendly and compact. They are also highly sensitive and have rapid reaction time.

Video Conferencing

One aspect to help reduce the spreading of Covid-19 is to cut down or avoid big gatherings such as meetings, events, etc. Video conferencing is a tool that ensures that meetings can still take place no matter the seriousness of the situation out there.

Organisations all around the world have now, more than ever, moved to online meetings. This is especially necessary if the meetings involve those under government quarantine or self-imposed quarantine, using platforms such as zoom video conferencing or google hang out. These platforms have been available for a while now, but they become particularly helpful these days, as they enable people to communicate remotely and at the same time reduce the risk of exposure to the Covid-19 virus.

03.

Mobile Apps Technology

04.

With the advancement of smartphones, the mobile apps sector is booming. Practically everyone has used or at least heard of Facebook, Twitter, Instagram, and the latest crave, TikTok.

Mobile apps are another technology that comes in handy in the wake of the Covid-19. Many companies have now developed work-from-home apps. DingTalk by Alibaba and Lark. App by Bytedance are some examples that help reduce the spreading of the virus by enabling people to have discussions without having to meet face-to-face.

Another example is the “close contact detector” apps, which is launched in China, that can track people and alert them if they have been in “close contact with someone who is infected” with the virus. There are also some interactive apps that give real-time updates on the Covid-19, whereby users can then use the information to avoid going to areas where the virus is prevalent.

Artificial Intelligent (AI)

05.

AI is another technological tool that can be used against the Covid-19 outbreak. AI-powered diagnostic tools are used to scan CT images of a patient’s lungs to check for signs of Covid-19.

Another area where AI can be of tremendous help is to use it for drug discovery research. Here, AI platform is used to speed up the process to find entirely new molecules or to mine through large databases of approved drugs in order to identify ones that might work against the Covid-19.

Reflections of an OSH Professional

By Azhar Rifaie, Chairperson of NRGSHE, February 2020.

This year marks 25 years of my career in the field of environmental, health and safety. I have been fortunate to have gained valuable experience through employment with several multinational companies where I travelled to many countries and collaborated with various nationalities and personalities. They have opened my eyes, enriched my career and made me a better person. In this article, I briefly share my perspectives on the OSH profession through my personal encounters and observations.

Who are OSH professionals?

OSH professionals are different from OSH practitioners. Regardless of their paper qualifications, OSH professionals acquire and demonstrate certain characteristics and qualities, and are leaders in their own occupational settings. They do not necessarily hold high positions, but they drive the progress of the organisations they belong to. Pro-active and strategic in their approach, they possess creativity and innovation when solving business challenges, gaining them the trust of stakeholders. OSH professionals are risk takers and change agents who come out of their comfort zones to explore their potential, influence their colleagues, and elevate the OSH profession. Above all, they perform their roles with high integrity and ethics.

Why do we need OSH professionals?

They do the right things the right way. Naturally, OSH professionals are business enablers who have the passion to motivate others and bring positive impact wherever they go. As such, they add value through genuine and meaningful engagements, and are essentially the bedrock of organisational sustainability.

What challenges do OSH professionals face?

In today's competitive world, every organisation has issues to deal with every day. There are times when the demand to get things done faster and cheaper conflicts with OSH objectives, rendering OSH professionals to deal with the pressure of "supporting" and becoming a "team player". In actual fact, many organisations do not really recognise the importance of OSH. Hence, coupled with the usual lack of top management attention, OSH professionals are sometimes forced to drop or delay keeping abreast with changes that are fast happening out there in the world.

How do we help OSH professionals?

At work and beyond, the right climate must be created so that OSH professionals become visible and are looked up to. The government, the industry, academics and the public should play bigger and more aggressive roles to promote OSH as a noble profession, at par with engineers, architects, etc. A support system must be established to enhance their knowledge and skillsets, and those with vast experience and expertise should be encouraged to volunteer coaching new-comers and be their mentors.

What is the way forward for OSH professionals?

Every professional must evolve to stay relevant, and more so OSH professionals. Their strength and competence must be enhanced, requiring them to contemplate and plan their self-development strategies. It is critical to connect with the right people via networking and active participation in OSH societies.

Let's look at this analogy; diamond and graphite are made of the same element – carbon. What they go through over the years differentiate their appearance and status. Diamond goes through high temperatures and pressures for a long time, making it strong, valuable, and beautiful too. For OSH professionals to be like diamond, they must weather various challenges and hardships over a long period of time. For there is no short cut to true success.

I would like to dedicate this article to my late friend, Allahyarham Lukman Wan Mat Daud - a tireless OSH promoter and educator, who penned the blog, "OSH The Journey". Many are inspired by his works through the blog.

Occupational Diseases - Is Compensating Enough?

By Dr Ahmad Syarifuddin Ramlan and Dr Mohd Nizam Jamaluddin
(Social Security Organization Of Malaysia - SOCSO)

In the 2018 SOCSO report, occupational musculoskeletal disorder (MSD) is the highest form of disease compensated for in terms of temporary and permanent disability in the year 2017. Similar scenarios are reported elsewhere in the world, more so among developed industrialised nations. Spine problems, especially lumbar vertebrae disorder and carpal tunnel syndrome, are the two most commonly compensated MSD reported.

As in the Employees' Social Security Act 1969, 'occupational disease' is described as any disease contracted as a result of exposure to risk factors arising from work activity, and its occurrence should be compensated.

Work-related MSD is a group of painful disorders which may affect muscles, tendons, ligaments, nerves and joints resulting from overuse. They happen when a worker does frequent and repetitive activities involving weightlifting, or having prolonged fixed or awkward postures.

In SOCSO's Guidelines on the Diagnosis of Occupational Diseases (2nd Edition), carpal tunnel syndrome, tenosynovitis, epicondylitis, rotator cuff tendinopathies

and thoracic outlet syndrome are occupational disorders affecting the upper limb, whereas patella bursitis and tarsal tunnel syndrome affect the lower limb. Meanwhile, spine-related problems remain under discussion.

Diagnosing an illness or injury requires a substantial amount of workplace and job task investigation and experience in the related job sector. The frequency, intensity and exposure of relevant risks that lead to the development of a particular disease must be studied thoroughly. Hence, assessing and determining an occupational disease can only be done by specially appointed medical boards that consist of trained occupational health physicians, medical specialists and consultants from relevant fields. Not all diseases are compensable, unless their occupational-relatedness is well established.

In 2017, some 4881 cases were reported under the Occupational Disease Scheme, of which MSD topped the list with 1354 cases, followed by noise-induced hearing loss (NIHL), occupational respiratory disease, and occupational skin disease. The same trend ensued the subsequent year, with a total number of 4,836. On average, 13 cases (or 7 out of every 10,000 SOCSO-insured persons) were compensated per day.

However, these compensated cases do not represent an accurate picture of occupational disease reported in Malaysia. Many cases are underreported – due to low awareness of the disease's identification and recognition. To add, there is more emphasis on treatment rather than on the identification of causative factors or risks that lead to the development of occupational diseases. This scenario is the same around the globe.

Compensation is merely a social justice and not the ultimate solution. Hence, SOCSO pursues three core pillars, namely, prevention, rehabilitation and compensation. As cliché as it sounds, prevention is always better than cure, thus, SOCSO adopts 'Vision Zero' initiative. Developed by the International Social Security Association, the initiative aims to prevent accidents, injuries and diseases at the workplace. It is a transformational approach that integrates the three dimensions of safety, health and well-being at all levels of work.

Besides being legal and moral concerns, occupational safety and health provides the return of investment to companies and also to the country. As such, it should be managed properly, with proper assessment, training and continuous education at the workplace. Hazard identification and a multitude of control measures must be advocated, and prevention plans must be promoted at all times in order to circumvent the development of new occupational diseases and to dodge the worsening of existing ones.

Design of ORV with Human Operators in Mind

Dr Ummi Noor Nazahiah Abdullah (Universiti Malaysia Perlis)

An ORV (off-road vehicle) is an automobile used in difficult terrains like mining areas, container terminals, construction sites, and farms just to name a few. Figure 1 shows examples of ORVs. Of late, ORVs are increasingly transformed from being human-operated to automated systems. This evolution is encouraged by many factors including a shortage of skilled operators, cost reduction, performance improvement, and health and safety issues. As such, remote-operation stations (ROS) that control ORV remotely, are now commonplace.

(a)

(b)

Examples of ORV (a) automated stacking crane (ASC) and (b) automated rubber-tired gantry (A-RTG)

Of course, human factors must be considered when designing these giant contraptions, because after all, humans are the ones operating them whether from near or afar. While remote operation has many benefits, it has been reported that ROS operators complain of a lack of direct motion feeling when doing their job. Put it another way, operating the vehicle remotely results in a loss of physical operating experience like the sensation of vibration when on the seat of a moving OVR. The operator has to depend solely on limited monitor views to control the movement of gigantic cranes, leading to potentially unsafe manoeuvrings, hence endangering other people, equipment and vehicles in the vicinity.

When looking at relevant researches done to-date, it is found that most studies on ORV tend to focus on the technical development and improvement of software, hardware and physical operations, and not on user experience (UX) that should be incorporated during the ORV design phase, especially that of direct motion feeling in remote-operations. Given the fact that direct motion feeling relates directly to the temporal, ecological and human-machine interaction context of remote-operated operations, this gap in the literature is quite alarming.

Hence, it is imperative that research be carried out to help ORV designers develop ORVs that take human-machine interactions into full account, and to propose methods that can be used to explore OVR operators' feedback. For that, a study was designed, whereby a Finnish OVR manufacturer and test participants comprising ORV operators working at seaport terminals were interviewed.

Figure 2 Remote operator station (ROS) for remote-operated crane operation

In particular, the aim of the study was to show that UX is very much needed in ORV design processes. It intended to assess influencing factors and usability of haptic feedback interfaces in ROS environments. It was hoped that a novel method to investigate UX in human-machine interaction for remote-operated ORV interface applications is developed and that a list of design metrics based on UX goals is obtained using virtual environments and real-time simulators, where ORV operators are enabled to feel as if they are directly manipulating and touching the remote environment.

The underlying principles of the study were UX, ethnography, engineering design and haptics. UX is a part of user-centred design (UCD), where the design solution should meet the exact needs of the customer without fuss or bother. The rule is governed by user involvement concept, user-machine interaction, and measurable UX.

As for ethnography, it is an account of the knowledge of sociology in empirical detail. Engineering design incorporates design specifications, quality function deployment, technical models and morphology charts to analyse UX results and to set more understandable criteria and measurable parameters according to engineering definitions. Meanwhile, haptics relates to a sense of touch that provides intuitive control through sensory feedback in multimodal environments. Haptic feedback is investigated by applying force or vibration to the user's touch sensory, which is the skin.

The research process contained three design approaches, namely, user centred-design approach, engineering design approach, and user testing. Figure 3 shows the control and handling interface or joystick interface used in the study.

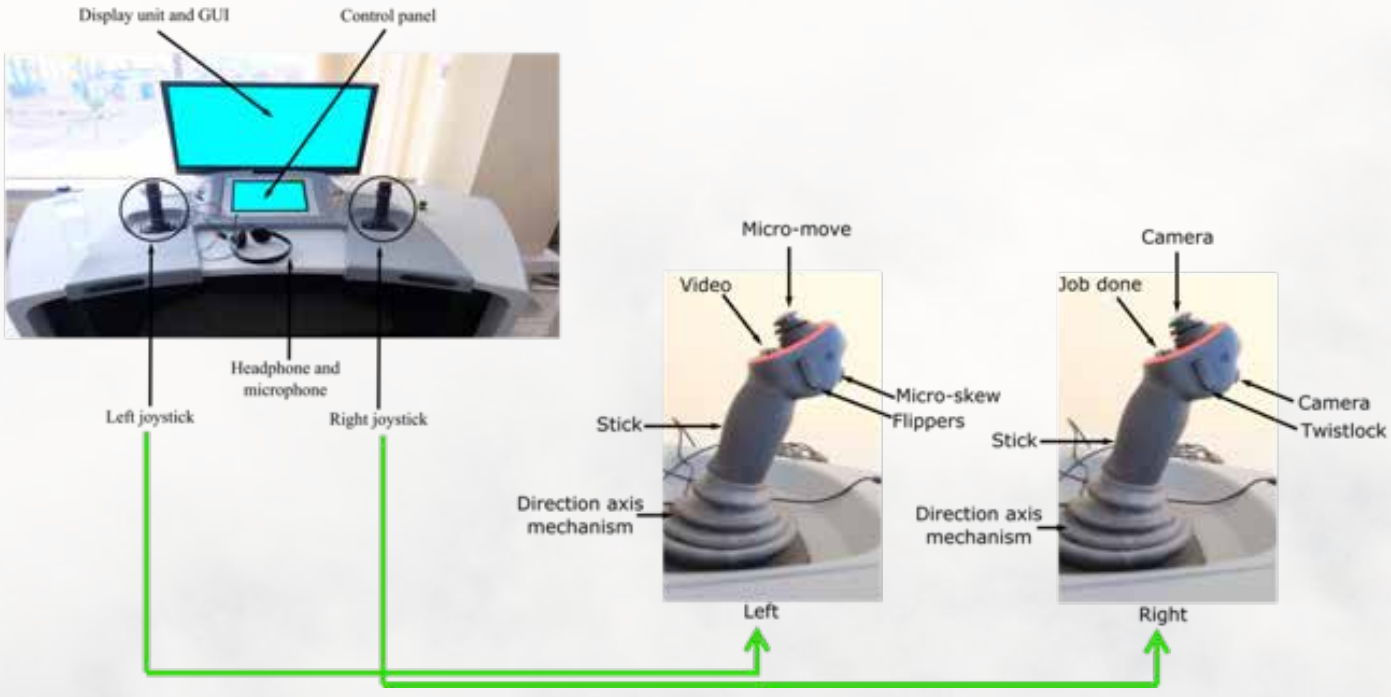


Figure 3 Joystick as remote-operated control and handling interface

After three years of research in this area, the hierarchy of the importance of UX goals were identified, as shown in Table 1. As can be seen, reduction in time delays, problem detection, and communication options were the most important aspects when undertaking UX studies. Based on this hierarchy, a list of design metrics (in the form of technical descriptions and technological solutions) for communication options and problem detection was developed.

Table 1 Aspects in user experience studies

UX Goals	Frequency of Answers			Percentage	Hierarchy
	Problems	Suggestions	Total	(%)	
Reduce time delays	9	1	10	19.23	2
Problem detection	8	2	10	19.23	2
Communication options	6	7	13	25.00	1
Reduce visual limitations	5	0	5	9.62	4
handling smoothness	4	1	5	9.62	4
Ergonomics	3	6	9	17.31	3
			52		

In the second phase of the research, haptic feedback is investigated in order to propose haptic technology as a solution to communication options and problem detection issues. It was found that haptic joystick usage increases users' performance, irrespective of the gender of the user. However, there is a significant difference in force between age groups, whereby, older users (above 30 years old) respond more to higher haptic force compared to younger ones.

While these findings are useful to incorporate into future ORV design processes, it must be noted that the simple tasks given to the operators during the running of the test may be insufficient to prove that the usage of haptic joystick improves the performance of the user. The operators' circumstances (age, health, focus issues, etc.) also result in a difference in effectiveness and efficiency between haptic joystick usage and normal joystick usage. Although not yet firmly concluded, this difference may mean that haptic joystick usage is more usable and can increase user performance when used in complex remote control and handling operations.

In short, this study successfully produced a list of design metrics for remote-control interfaces, and found that the haptic feedback force is closely related to users' age. It was also found that autonomous control interface with haptic feedback improves safety aspects in remote operations, and that, in general, user satisfaction, confidence, stress, and feelings among subjects are positive when it comes to the use of haptic joysticks.

While the study has somewhat extended what is already known about the dynamics of human-machine interaction in ORV design, more detailed investigations are called for. For example, more complex operational setups utilising multiple groups of operators of differing age and health is suggested in order to search for haptic feedback effectiveness and efficiency improvements for a wide range of ORV handlers and other target groups. Indeed, research of this kind is important, given the fact that more and more remote operations are required in the near and far future.

Ergonomics from OSH Perspective

Dr Ahmad Faiz Azhari Noor, Occupational Health Doctor, DOSH

Since the industrialisation era, ergonomics has been an evolving science that studies the complex relationships between human, machine and the surrounding environment. The dynamics of this interaction vary according to different work settings.

The International Ergonomic Association looks at ergonomics in three categories - physical, cognitive and organisation. Awkward posture, forceful exertion, repetitive movement, contact stress and vibration are common physical ergonomic signs frequently reported, that are related to musculoskeletal disorder (MSD). However, there is a tendency to neglect other factors that may contribute to MSD like organisational, cognitive and individual factors. Working conditions, working environments, resting/break periods, workflow processes and workplace policies are some examples of organisational factors, while worker workload, job performance, human-machine interaction and worker's skill level when performing a given task constitute cognitive factors to take into account. Individual factors such as smoking habits, body-mass index, external problems, and mental conditions should also be taken into consideration. All these are important because ergonomic issues lead workers to overexertion, lethargy, stress, and having a high tendency to perform unsafe acts.

According to the World Health Organisation and the International Labour Organisation, MSD involves muscles, bones, joints and tissues such as tendons and ligaments at acute or chronic settings. MSD typically presents itself as pain and limitation in mobility and bodily functions, and can result in the decline of work capability. It can also affect workers' participation in social roles and functions. The United State Bureau of Labour Statistics extends the definition by adding bodily reactions (bending, climbing, crawling, reaching, twisting), overexertion, and repetitive motion as the initial events that precede the onset of MSD symptoms.

In Malaysia, MSD cases are on the rise. The Social Organisation Security (SOCSO) reported of 645 and 791 compensated cases in 2016 and 2017, respectively. To add, according to the Department of Occupational Safety and Health (DOSH), in 2017, there were approximately 126 confirmed cases of MSD. The number was 188 in September 2018. In other parts of the world, MSD prevalence varies. The Safety and Health Executive United Kingdom stated that in 2019, 498000 cases of MSD were reported, with the highest contributor being workers in skilled trade occupations, in process plants and machine operatives. The United States Occupational Safety and Health Administration (OSHA) published in 2013 that 33% of workers' injury and illness were related to MSD. Similarly, in Europe, the European Occupational Disease Statistic (EODS) in 2005 reported that the percentage of MSD was 39%. The literature indicates that backache, tenosynovitis of hand and wrist, elbow epicondylitis and arthritis are most common.

MSD affects workers, societies, and the economy. It necessitates spending much in medical expenses, rehab, back-to-work programmes, loss of productivity, loss of workdays due to absenteeism, civil suit claims, etc. In 2005, the EODS reported that 7 million work-days were loss, costing 701 million Euros of economic contribution growth. Liberty Mutual - the largest workers' compensation insurance provider in the United States - stated that in 2001, overexertion injuries from work involving lifting, pushing, pulling, holding, carrying and throwing of objects cost employers $13.4 billion annually.

MSD symptoms vary in terms of the intensity of work, type of work, recovery period and individual perceptions. With proper intervention and adequate recovery time, symptoms can be resolved. However, sometimes workers neglect early symptoms, hence missing the reversibility window, and ending up with permanent MSD. Thus, early identification of ergonomic risks and recognition of MSD symptoms are crucial.

In Malaysia, ergonomic-related legislations are developed to safeguard worker safety, health, and well-being. Indeed, healthy workers lead to increased work efficiency, which then result in better productivity and quality. The limit of heavy lifting is emphasised in Section 12 of the Factory and Machinery Act (FMA) 1967, while the Regulation on Safety, Health and Welfare 1970 points to ergonomic details, for instance:

- Regulation 23 - housekeeping
- Regulation 24 - work station area (at least 400 cubic feet and 10 feet in height)
- Regulation 25 - air ventilation
- Regulation 28 - ambient temperature
- Regulation 29 - lighting
- Regulations 30 and 31 - benches and chairs for sitting

In 1994, the Occupational Safety and Health Act (OSHA) was gazetted, supplementing the existing FMA 1967 and its regulations. In OSHA 1994 Section 4, work conditions that safeguard worker safety, health, and well-being in physiology and psychology are spelt out, indicating that ergonomic risk is not a laughing matter. In Sect 15 (2) (b) of the Act, employers are tasked to making adequate arrangements for safety and ensuring the absence of health risks. Apart from employers, the Act also calls for employees to understand the risks they face, to minimise exposure to the risks, and to follow all safety directives imposed by the employer.

Of late, DOSH has been publishing a number of documents such as the Guideline on Initial Ergonomic Assessment at Workplace, Guideline for Manual Handling at Workplace, Guideline on Occupational Vibration, Guideline on Occupational Safety and Health for Seating or Standing at Work and Guideline on Occupational Safety and Health for working with Video Display Units. Besides that, many non-governmental organisations have been holding courses on various aspects of ergonomics in order to educate employers and employees alike.

In today's fast-paced industrial growth age, new ergonomic risks are uncovered every day. As Malaysia becomes a developed country, challenges such as long working hours, limited rest, and employees taking advantage of work-related compensation opportunities become rampant. This may further complicate the prevention of MSD. Hence, a more constructive approach should be opted to accommodate these issues. The question is - who should be put to task? I will leave it to the tripartite coalition of employer-employee-government to make the next move.

Towards IR4.0 : The Creative INDUSTRY

With Prof. Datuk Ts. Dr. Ahmad Rafi bin Mohamed Eshaq

Prof. Datuk Ts. Dr. Ahmad Rafi has been appointed as President of Multimedia University (MMU) since February 2016. He graduated from University of Strathclyde, Glasgow, Scotland with a Bachelor Degree in Architecture (Hons.) in 1994 and later earned a Master of Science in Computer-Aided Building Design and PhD. specialising in architectural animation and virtual reality in 1998. He embarked on a career in education as a lecturer at Faculty of Creative Multimedia (FCM), MMU from its inception and later appointed as the Dean of the faculty.

He is currently the Deputy Chairman 2 of Creative Content Industry Guild (CCIG) and a certified Multimedia Professional. He has published significant numbers of internationally multi-disciplinary refereed journal articles, conference papers and books. His research areas include virtual reality, virtual heritage, 3D animation, architectural visualisation, educational technology and multimedia.

Prof. Datuk Ts. Dr. Ahmad Rafi has pioneered into development of Bachelor, Master of Multimedia and PhD. degree programmes in the country targeted for producing world-class 'content developers' in the Multimedia Super Corridor (MSC), Malaysia over the last 19 years.

On the 3rd September 2019, we interviewed Yang Berbahagia Prof. Datuk Ts. Dr. Ahmad Rafi, President of Multimedia University (MMU) to understand further on the importance of creative multimedia and the history behind his involvement in promoting and developing the industry.

“I started in architecture. During that time, we did not have creative multimedia,” Datuk Rafi said.

After completing his diploma, he pursued his first degree in architecture, Datuk Rafi then started his career in interior design technology. He emphasized that during the beginning process of interior designing, coding was very much required, as well as the need for a good grasp in simulation technology. Datuk Rafi has been involved in many 3D designs and building simulations. The physics of the building and interior structure had to be mastered during those times.

“It is now known as ***creative multimedia*** but during that time, it is in the area of architecture,” Datuk Rafi further commented.

Datuk Rafi also holds a Masters degree and a Ph.D. in animation and virtual reality, which is one of his many distinguished specialities.

On the question of the major difference between architecture and creative multimedia, Datuk Rafi highlighted that architecture is more about building design and planning. Whereas, creative multimedia has an extensive and broader application, be it in education, entertainment, or design. Fundamentally, architecture has not changed much over the past decades.

“The fundamental is still the same because architecture and creative multimedia are considered as a design professional or in the design domain,” Datuk Rafi further explained.

Datuk Rafi is honoured to have obtained his Professional Technologist (Ts.) certification with MBOT. Asked about his view on recognising creative multimedia as a professional fraternity,

“Earlier, we only have these five professions which are of course architecture (Ar.), engineering (Ir.), law for the legal profession, accountancy and of course medicine, which is for the medical profession. As far as creative multimedia being recognised as a Ts. is concerned, it was not considered as a profession. In fact, it was declared as a professional domain,” he highlighted.

Datuk Rafi decided to be associated with a certification from MBOT, after seeing an opportunity to advance, since creative multimedia has begun to be widely accepted as a professional career.

Touching on how he thinks he can contribute better as a Professional Technologist, Datuk Rafi describes that he will not only contribute as a certified professional in this line of work but he would also create a high standard for this profession, which has to be quantifiable and measurable. Datuk Rafi emphasizes that with a Ts., the profession will have a better chance of enhancing its credibility and professionalism that in turn could minimize the misrepresentation and negative connotation associated with certain quarters abusing the qualification.

On another question on his preference of the area of expertise other than creative multimedia and architecture, he has expressed his liking towards Artificial Intelligence (AI). He further pointed out that our daily activities, work, and even life, wrap around the boundless nature of AI. Everyone should and would be exposed to the fundamentals of AI at the very least. In the past, the advancement of technologies had often been hindered by computational limitations. However, nowadays, with the emergence of the internet and cloud technology, a lot of advanced and creative solutions are being made possible.

Datuk Rafi proposes that people should be utilizing the internet in a more optimized manner. The world-wide-web presents an abundance of opportunities. with loads of useful information, and endless communication avenues. It has allowed people to spend less time on physical engagement including travelling, and essentially allowing more time to be more productive. In addition, mobile communication technology has also been supported by various technological advancements in other peripheral technologies such as speed, connectivity and usability. All of which are essential ingredients for businesses to become even more agile and robust.

When asked about the progress of technologies in the education sector in relation to the Fourth Industrial Revolution (FIR), Datuk Rafi feels that graduates and teachers alike must embrace the tenets of FIR in the context of creative multimedia, art, and design. One important approach that can be introduced is by humanizing technology. In particular, creativity and technology must complement each other to harness the benefits of FIR in education, the industry, and society. He gave the example of the use of voices in robots, which brings the robotic technology to life; distinguishing it from a mere lifeless robot that can only communicate by using 1’s and 0’s values.

Further, on robotics and education, Datuk Rafi emphasised that the government has introduced various initiatives in the effort to increase the interest of students involved in the robotic technology. Ending the interview, Datuk Rafi envisions a high degree of confluence between education and technology in the next 10 years, which will enhance the value that it brings to the society.

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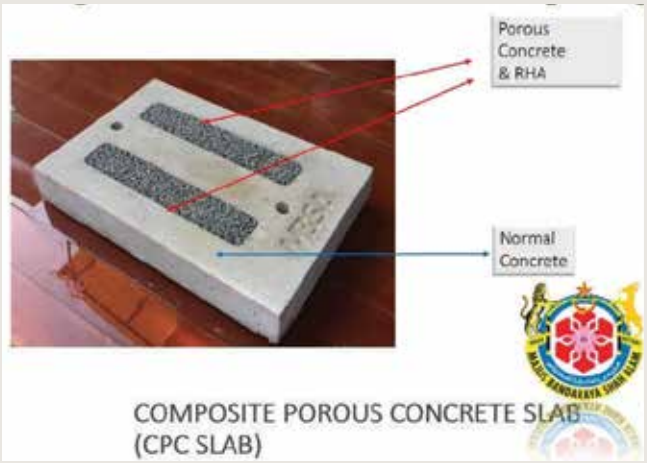
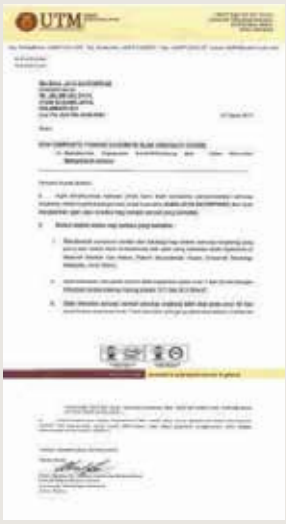
DRAINAGE COVER

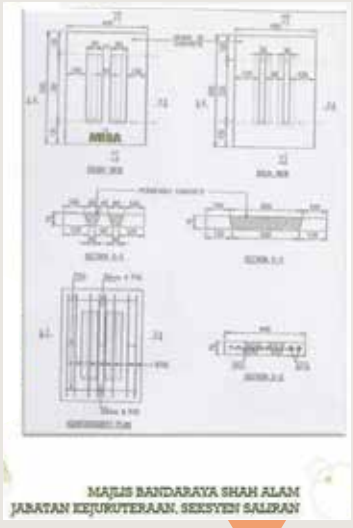
COMPOSITE POROUS CONCRETE

RICE HUSK ASH (RHA) - MATERIAL

INNOVATION - C.P.C SLAB







PRODUCTION

MAINIZA MANTAP SDN BHD

MAINIZA MANTAP SDN.BHD TELAH DITUBUHKAN PADA 16 NOVEMBER 2006, SYARIKAT INI MERUPAKAN SEBUAH SYARIKAT MILIKAN PERKONGSIAN IAITU DIMILIKI SEPENUHNYA OLEH YBHG DATUK HAJI MD.ZAINI BIN HAJI MOHD LAZIM DAN YBHG DATIN PUAN HAJAH MAINI BT JALI SYARIKAT SECARA KHUSUSNYA TELAH BERDAFTAR SECARA RASMINYA DENGAN PUSAT KHIDMAT KONTRAKTOR KELAS (D) DAN KEMENTERIAN KEWANGAN MALAYSIA (MOF) DALAM KERJA-KERJA PEMBERSIHAN, KUTIPAN, LANSKAP KERJA-KERJA JALAN, KEJURUTERAAN DAN SEBAGAINYA YANG BERKAITAN.

NO.32-3 BLOK D, JALAN ATMOSPHERE 6
PUSAT PERNIAGAAN THE ATMOSPHERE
JALAN PUTRA PERMAI, 43300 SERI KEMBANGAN
SELANGOR DARUL EHSAN

JASIN HERITAGE GOLF CLUB
D'HERITAGE HOTEL JASIN

JASIN HERITAGE GOLF CLUB TELAH DIRASMIKAN PADA 21 MEI 2017 OLEH GABENOR NEGERI MELAKA IAITU TYT TUN DATUK SERI UTAMA DR. MUHAMAD KHALIL YAAKOB. JASIN HERITAGE GOLF CLUB DIBANGUNKAN DIATAS TANAH SELUAS 15 EKAR YANG MEMPUNYAI ENAM LUBANG DAN DALAM PERANCANGAN UNTUK MENAMBAH LEBIH BANYAK LUBANG MENJADIKANNYA SEMBILAN LUBANG DI MASA AKAN DATANG.

JASIN HERITAGE GOLF CLUB & D'HERITAGE HOTEL
JALAN JASIN HEIGHTS UTAMA, TAMAN JASIN HEIGHTS
77000 JASIN MELAKA.

D' MAINIZA BOUTIQUE

D'MAINIZA BUTIK DIASASKAN OLEH DATIN HAJAH MAINI BT JALI DIBANDAR KINRARA SEPANG DAN K.SELANGOR MENYEDIAKAN PERHIDMATAN JAHITAN,CATERING, WEDING PLANNER DAN CAFE.

D' MAINIZA BOUTIQUE
B-G-24 KINRARA NIAGA 2, JALAN BK 5A/2C
BANDAR KINRARA, 47180 PUCHONG SELANGOR

MAINIZA AGRO SDN BHD TELAH TELAH DITUBUHKAN PADA 11 SEPTEMBER 2017, SYARIKAT INI MERUPAKAN SEBUAH SYARIKAT MILIKAN PERKONGSIAN IAITU DIMILIKI SEPENUHNYA OLEH YBHG DATUK HAJI MD.ZAINI BIN HAJI MOHD LAZIM DAN ENCIK ENCIK AMIR WAFIK BIN SARINGAT. SYARIKAT SEDANG BERUSAHA UNTUK MENEMBUSI PERNIAGAAN YG LEBIH LUAS DI DALAM INDUSTRI PENTERNAKAN TERUTAMANYA TERUTAMANYA DALAM MEMASARKAN PRODUK DAGING TERUS DARI LADANG YANG BERKUALITI TINGGI DENGAN PENGHASILAN BAKA INDUK YANG YANG TERBAIK UNTUK PENDUDUK DI SEKITAR SELANGOR KHUSUSNYA.

LOT 3147 JALAN PT8 KAMPUNG API-API
45700 BUKIT ROTAN SELANGOR DARUL EHSAN

LEMBAGA TEKNOLOGIS MALAYSIA
MALAYSIA BOARD OF TECHNOLOGISTS

23 FIELDS OF TECHNOLOGY

What is MBOT's Recognized Technology Fields?

To-date, MBOT has recognized 23 Technology and Technical Fields. These technology fields are not permanent and will dynamically change based on the rapid growth of technology. Each Technology Fields has gone through rigorous verification and requirements study before it was being approved by the Board and recognised as MBOT Technology and Technical Fields.

Each Technology and Technical fields was defined by MBOT's Technology Expert Panel which consists of representative for the industry, relevant government agency and academia.

The Key Area for each Technology and Technical Fields was also defined properly to cover the wide angle of Technology Fields and its implementation in the industry.


Electrical and Electronic Technology (EE)


Information and Computing Technology (IT)


Chemical Technology (CM)


Telecommunication and Broadcasting Technology (TB)


Biotechnology (BT)


Building and Construction Technology (BC)


Resource Based, Survey and Geomatics Technology (RB)


Manufacturing and Industrial Technology (ME)


Agro-based Technology (AF)


Cyber Security Technology (CS)


Transportation and Logistic Technology (TL)


Material Technology (MT)


Marine Technology (MR)


Maritime Technology (MI)


Atmospheric Science and Environment Technology (AC)


Green Technology (GT)


Oil and Gas Technology (OG)


Automotive Technology (AT)


Aviation and Aerospace Technology (AV)


Food Technology (FT)


Nano Technology (NT)


Nuclear and Radiological Technology (NR)


Art Design and Creative Multimedia (AM)