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It is an immense privilege to have been appointed as the HKIE’s new Chief Executive and Secretary (CES).

My decision to take up the challenge of becoming the CES did not emerge out of nowhere. To those who have done me the honour of inquiring after the reasons behind this move, I would sometimes describe it as a logical continuation of my 40-year career in the civil service. Serving in multiple senior positions in the Government had taught me a great deal about administration and governance. When the time came for me to decide where else I could best apply my experience in the service of the common good, the institution came naturally to mind. Because of my long-time involvement with it—as the one-time Chairman of the Biomedical Division for example—I have been able to witness first-hand its benign influence on the profession and its practitioners. With Ir Hon’s departure from the post of the CES, I thought I could contribute my share by taking up where he left off.

I fully realised what a heavy responsibility it is that I was assuming in making this decision. At this juncture in the development of the engineering industry, we are confronted with some of the most pressing issues that have ever afflicted the profession. To name just one example that the Institution had already had occasion to draw the public’s attention to, in the next five years there will be an estimated shortage of around 3,000 engineers in the construction sector alone. In other sectors such as environmental engineering and information technology the manpower problem will be equally grave. Our success or failure in tackling this problem turns largely on how well we educate a new generation of successors and respond to the opportunities arising from Hong Kong’s continual growth into the preeminent innovation & technology hub in Asia. The tasks that the Institution has set itself are mostly those of assisting industry stakeholders, most of all our members, with making advancements in these areas.

Although I am still easing myself into the position of the CES, it has already become apparent to me that, thanks to the efforts of Presidents past and present, the Institution will be ready for the multiplicity and magnitude of the challenges ahead. Our long-term goals have been clearly defined by the Time to Change Roadmap (now in its third year of implementation) with its agenda of ‘Enhancing Services to Members’ and ‘Facilitating Innovation’. As for the immediate future, we shall follow through with the initiatives under President Ir Dr Barry Lee’s Presidential Theme “We Engineer, We Serve”, encompassing areas in which the Institution can provide members with the kind of auxiliary support that facilitates their self-improvement. More specifically, these initiatives will assist members with acquiring professional qualifications, conducting intellectual exchange and knowledge sharing, and seeking well-deserved membership benefits.

In this the second month of my tenure as the CES, I wish to make known my gratitude to all those who came before me, especially to Ir Hon, whose services and stewardship have ensured that the Secretariat remains a well-run and effective body. I would also like to welcome Ir Peter Si into our team as the new Director. With everything now in its proper place, it remains for me to ask humbly for our members’ continued support, without which nothing is possible, but with which everything is possible.
COUNCIL NEWS – JULY MEETING

Moving on to the 49th year of the Institution, the first Council meeting was held on 20 July 2023 with a photo session of the Council Members including some of our Past Presidents, who are Honorary Members of the Council.

Appointment to standing committees

Members’ involvement in the work of the Institution has been the major impetus to progress year on year. Appointment of members onto about 23 standing committees in areas of planning, administration, learned society, qualifications and accreditation business of the Institution as well as the 21 Discipline Advisory Panels constituted an important item of the first Council meeting at the beginning of a session to take forward the various initiatives and plans for the year. The Council has also appointed a panel from which Boards of Inquiry may be formed for the purpose of considering and making recommendations to the Council in regard to any case of improper conduct of a member in accordance with the Constitution.

Co-option onto the Council for Session 2023/2024

The Council resolved to co-opt two members onto the Council for Session 2023/2024 with reference to the provision of the Constitution and we are pleased to report that Ir Dr Jacob Kam Chak-pui and Ir Ricky Leung Wing-kee have been co-opted as co-opted members for the Session. We welcome them on board to join the Council for this Session.

The International Council on Electrical Engineering Conference 2023

The Institution successfully hosted the International Council on Electrical Engineering (ICEE) Conference 2023 on 2-6 July 2023 at The University of Hong Kong. It gathered over 400 electrical engineers from all over the world. The “Frontiers in Carbon Neutrality Power and Energy” themed five-day conference embraced many topical issues of interest to the electrical engineering community. More than 150 papers were presented.

The occasion was graced by the presence of Ir Prof The Hon Sun Dong, Secretary for Innovation, Technology and Industry of the HKSAR Government, as Guest of Honour at the Opening Ceremony. More on the Conference is reported in this issue on pages 32 and 33.
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City-wide IoT Smart Drainage - Flood Monitoring System

By the Drainage Services Department and the Electrical and Mechanical Services Department

Recent extreme weather conditions have brought flooding threats to Hong Kong, China, due to storm surges and overtopping waves. Since April 2019, the Drainage Services Department (DSD) of the government of Hong Kong Special Administrative Region of the People’s Republic of China has collaborated with the Electrical and Mechanical Services Department (EMSD) to install Internet of Things (IoT) sensors and develop the “Smart Drainage – Flood Monitoring System”, which runs on a native open platform - Government Wide IoT Network (GWIN) and is built in compliance with industrial open standard Long Range Wide Area Network (LoRaWAN) for consolidating and processing data collected. New types of IoT sensors could be quickly installed in areas susceptible to flooding so that DSD could monitor real-time changes in sea and water levels to apprehend possible flooding risks in advance, such that inter-departmental emergency measures could be carried out in a timely manner to protect life and property.

Role of DSD and EMSD

The Drainage Services Department (DSD) is dedicated to providing world-class wastewater and stormwater drainage services to enable Hong Kong’s sustainable development. Since its establishment in September 1989, DSD has strived to upgrade sewage treatment and flood protection levels in Hong Kong, and has achieved notable success.

As for stormwater drainage services, the completion of three drainage tunnels in Tsuen Wan, Lai Chi Kok and Hong Kong West, Happy Valley Underground Stormwater Storage Scheme, Regulation of Shenzhen River Stage IV, the Kai Tak River Improvement Works and the revitalisation works of Jordan Valley Nullah are examples of remarkable flood control achievements in recent years. Moreover, the Inter-Reservoirs Transfer Scheme (IRTS) - Water Tunnel between Kowloon Byewash Reservoir and Lower Shing Mun Reservoir which was commissioned in January 2023 marked the successful integration of flood prevention with water resources conservation. DSD will continue to implement various large-scale projects to uplift flood protection, alleviating flood risk in various areas of the city. This will also help meet climate change and district planning challenges.

The Electrical and Mechanical Services Department (EMSD) is committed to improving the quality of life for our community through continuous enhancement of its electrical and mechanical (E&M) engineering services as well as making Hong Kong a top-ranked world city in E&M safety and efficient energy use.

As one of the department’s core services, the EMSD has been providing quality engineering services to maintain electrical and mechanical (E&M) systems and enhance energy efficiency in over 8,000 government buildings, facilities and infrastructures in the territory. With the advancement of IoT technology in recent years, the EMSD has further improved the reliability of these E&M engineering services through development of wide area remote monitoring systems using IoT technology to provide near real-time monitoring of the E&M systems concerned. Over 400 major government buildings are now digitalised, and Regional Digital Control Centres (RDCC) have been built to empower real-time monitoring to enhance operational efficiency and performance of E&M assets. This has enabled relevant government departments to enhance public service delivery.
Climate crisis - To get prepared

Climate change affects all regions around the world. Human activities, in particular burning fossil fuels (such as coal, natural gas, and town gas), deforestation and animal husbandry, contribute to the increase in atmospheric carbon dioxide (CO₂) concentration, resulting in a rise in global temperature.

According to the World Meteorological Organisation, the warmest eight years were all after 2015, with 2016, 2019 and 2020 constituting the top three. Global warming has brought more extreme weather events, such as frequent heat waves, change in precipitation, rise in sea level, super typhoons, rainstorms, uneven distribution and scarcity of water resources, and disruption of ecological and environmental balances. Extreme weather conditions can cause serious crises and impacts in any part of the world.

Like other cities, Hong Kong faces problems such as rising temperatures and extreme weather phenomena. The scenes of the damage caused by Super Typhoon Hato (天鴿) in 2017 and Typhoon Mangkhut (山竹) (Figure 1) in 2018 to Hong Kong are still vivid in our minds. Their visits caused severe property and facility damage at many locations along Hong Kong’s coastline, such as Heng Fa Chuen and Tsing Kwan O. Hong Kong also suffered significant damage and economic losses from subsequent typhoons, such as Severe Tropical Storm Kompasu (圓規) in 2021, tropical cyclone Chaba (暹芭) and Ma-on (馬鞍) in 2022.

In addition, Hong Kong has the highest average annual rainfall among major Pacific Rim cities. High rainfall and dense urbanisation in Hong Kong result in extra high flood risk especially during summer from June to August which covers about 50% of annual rainfall. The annual total rainfall in 2022 was 2,205.4 millimetres, about nine percent below the 1991-2020 normal of 2,431.2 millimetres (Figure 2).

Considering the topographical features of different districts, DSD has formulated a “three-pronged flood prevention strategy” to combat flooding threats at various locations through stormwater interception, flood retention and drainage improvement. This helps to mitigate flooding risks resulting from torrential rain.

Real-time water level measurement is essential to verify storm surge level prediction and facilitate real-time flood monitoring and reporting of low-lying coastal and windward locations, which are vulnerable to seawater inundation caused by extreme storm surges and/or intensive overtopping waves. The information can facilitate DSD’s early deployment of emergency teams for flood alleviation, emergency preparedness, and assistance to the public affected by flooding.

DSD has already employed over 110 conventional hydrological stations (Figure 3) across Hong Kong, China, to monitor real-time changes in sea and water levels to apprehend possible flooding risks in advance, such that inter-departmental emergency measures could be carried out timely to protect life and property. However, the need for more monitoring of locations susceptible to flooding and storm surges has become increasingly urgent in the event of extreme weather.

The need for more monitoring of locations susceptible to flooding and storm surges has become increasingly urgent in the event of extreme weather.
The challenges

Conventional gauging stations involve planning, design, construction, supply of furniture and equipment, laying of electricity and communication lines through extensive and costly excavation. Normally, building a conventional gauging station takes years and the average cost is half a million Hong Kong dollars. Apart from financial concern, the turnaround time involved in the installation process has prevented DSD from implementing it in all flooding-sensitive locations.

The Solution: Smart Drainage – Flood Monitoring System

To mitigate imminent threats from upcoming typhoons and rainstorms, DSD collaborated with EMSD to develop a Smart Drainage – Flood Monitoring System (the System) since 2019 by installing the IoT sensors at seven storm surge spots and overtopping wave spots in Hong Kong and connecting them to GWIN (EMSD, 2019) for real-time monitoring purposes. The System has expanded rapidly and has been implemented at 180 flooding sensitive locations with Long Range (LoRa) IoT sensors (Figure 4) within the past three years to cover more locations with more real-time water level measurement data in a dynamic manner with plans to add more stations.

System overview

The Smart Drainage – Flood Monitoring System is a real-time water level monitoring system utilising emerging environmental wireless Internet of Things (IoT) technologies and the patented LoRaWAN-based camera with GWIN which is a private common data sharing platform implemented and operated by EMSD.

Data about water levels, rainfall and flow rate collected by the sensors are transmitted wirelessly through GWIN to the System’s servers. The data are analysed and alerts are provided about flooding risks for DSD to take early actions in response to potential threats.

The System comprises the following core components:

(i) IoT sensors at outdoor monitoring locations;
(ii) GWIN; and
(iii) Central servers and browser applications

IoT Sensors and Instruments

The System employs a variety of sensors and instruments for collecting data about water level, flow rate and rainfall at strategic monitoring locations, including:

(i) Ultrasound/laser water level sensor. It emits high-frequency sound waves or lasers from the transducer. These sound waves or laser beams reflect off the liquid surface and return to the transducer. The sensor then measures the time the wave or laser took and converts the measured time into distance.
(ii) **Rain gauge.** It consists of a funnel that collects and channels the precipitation into a small seesaw-like container. After a pre-set amount of precipitation falls, the lever tips, dumping the collected water and sending an electrical signal. The amount of liquid precipitation over a period of time inside the predefined area of the funnel will be used for determining the rainfall amount.

(iii) **Float switch.** It detects the liquid level. It floats on top of the liquid surface and acts as a mechanical switch as the liquid level goes up or down.

(iv) **LoRaWAN-based camera “LoRaCam”.** The camera is configured to connect to the LoRaWAN network server via the LoRaWAN wireless network. It is also configured to receive commands from the image management server via the LoRaWAN network server. This is to capture, process and transmit digital images to the image management server.

**GWIN – Government IoT Network by EMSD**

GWIN is a government network of wireless sensors built by EMSD and installed throughout Hong Kong. It supports various smart applications for improving public service quality.

Traditional sensors require a third-party network such as a leased data line or 4G connection to connect to central servers. In the GWIN network, battery powered IoT sensors are connected to gateways via the low power and private Long Range (LoRa) network. This is to facilitate data consolidation and processing at a low bit rate over long-range communications. These gateways communicate with the central server through high speed wired or wireless networks. The LoRa-based communication network between IoT sensors and gateways is operated as a dedicated network with long range transmission capability.

LoRa—Long Range—is a physical radio communication technique. LoRaWAN, as defined in the ITU-T Y.4480 standard, defines a low power, wide area networking protocol and system architecture to support wireless connection of battery-operated devices to the internet. LoRaWAN data rates range from 0.3 kbps to 50 kbps per channel.

Low-power consumption networks reduce the cost and complexity of installing sensors, and improve the security of the system and data without using a third-party network.

In addition to the Smart Drainage – Flood Monitoring System, GWIN has also been deployed in improving maintenance and repairs of E&M equipment in buildings such as lifts, escalators, photovoltaic panels, and chillers; managing the utilisation of public facilities including meeting rooms of government offices, parking slots in carparks, and public toilets.
**Central servers and browser applications**
The System features an intuitive application that enables users to configure and monitor the system with minimal effort. The application (Figure 5) offers alert automation, analytics, and a cross-platform user interface for seamless interaction with the System. Additionally, handshaking protocols were developed for data exchange with other systems to ensure compatibility with both the legacy Hydrometric Information System and future monitoring systems.

**Highlights of the System**

(i) **Fast deployment and low power consumption.** The new real-time water level measurement system adopts emerging IoT wireless sensor and gateway technologies. By using edge processing functions and advanced data compression algorithms, sensors could reduce network bandwidth and energy usage. The new application also resolves the issue related to data transmission and long lead times for power & data cable laying. The capital and maintenance costs of the new IoT solution are only about 5% compared to conventional monitoring station.

(ii) **Scalable and wide coverage.** Signals from a sensor could be received by multiple IoT Gateways within line of sight (up to 10 km). LoRa IoT water level sensors are easy to install and maintain, which contributes greatly to the wider deployment of more devices across territories.

(iii) **Reliable and controllable.** The sensors not only monitor the real-time water level round the clock, but also support remote adjustment of the data sampling frequency (ranging from one to ten minutes) according to operational need, and continuously transmit the hydrological information of each monitoring spot to GWIN base stations for displaying the data on the dashboard accessible via handheld devices that could be accessed by all related parties. The new system has been running 24 hours a day 7 days a week for more than three years, providing consistent readings with additional resilience.

With the above advantages, LoRa IoT sensors can be installed at flooding sensitive locations in a more dynamic manner, particularly in remote areas due to easy sensor installation and wide coverage of the GWIN networks; and with the auto-intensification function of water level sensors, “Just-in-time” clearance can be arranged at more flooding sensitive locations in response to HKO’s rainstorm or typhoon signals.

**Further enhancement works**

(i) **Searching for additional IoT sensors types.** Apart from efforts in widening the coverage of the flood monitoring network through more installations of IoT sensors, DSD and EMSD have been exploring other additional IoT sensors types, which could help to collect additional hydrological data for assessment and for enhancing hydrological practices and to tackle different types of flooding scenarios. An example of a LoRa IoT float switch tailored by EMSD detects surges in water levels due to blockages at drainage inlets so that “Just-in-Time clearance” could be arranged in time to avoid upstream flooding.

(ii) **Mission made possible - Extending coverage to the underground drainage system.** There have been hurdles in setting up sensors for the underground drainage system because of the harsh environment. It is extremely difficult and expensive to install cables for power and data connection. To overcome the obstacles, EMSD has collaborated with the Department of Electronic Engineering of The Chinese University of Hong Kong (CUHK) to develop a new high-gain antenna specifically for the underground manhole environment [Wu et al.] to resolve the issue of severe radio signal fading in the underground environment which hinders the signal transmission from the wireless sensors under manholes or in the non-deterministic street environment.

EMSD and CUHK teams conducted an exhaustive investigation of the available antenna configurations, including monopole array antennas and cylindrical slot circularly polarised antennas, and settled on the quadrifilar helix antenna, for greater signal transmission capabilities with a circularly polarised radiation pattern, yet lightweight and no requirement for a large ground plane.
A customised lightweight, circularly polarised and high-performance quadrifilar helix antenna (Figure 6) working in Ultra High Frequency (UHF) band suitable for a reliable communication between IoT sensors under manhole covers. In laboratory testing, the quadrifilar helix antenna has a better Received Signal Strength Indication (RSSI) of at least six dB greater than a dipole antenna. This is critical for wireless signals transmitted through manhole covers and crucial for underground water level monitoring.

Installation of a LoRa IoT sensor with the quadrifilar helix antenna in the underground drainage system conducted at Chatham Road South in Tsim Sha Tsui (Figure 7), which is an existing flooding black spot in Hong Kong, was one of the pilot trials for flood monitoring. A LoRa IoT sensor was installed inside the existing nullah deck to provide real-time water level monitoring. To facilitate data transmission, a new IoT gateway was also installed at an adjacent government facility.

Post-event analysis was then carried out by comparing the recorded water level and the simulated water level from the hydraulic model with respect to two rainstorm events on 8 October 2021 and 25 March 2023 respectively. The post-event analysis indicated that the sensor monitoring data were in good agreement with the simulation results, giving us additional confidence in the hydraulic models. These demonstrate our hydraulic models are correctly applied, giving us more confidence in using the hydraulic model for formulation of improvement measures to the drainage system.

With the data on rising water level trends and early flood warning alerts provided by the newly installed flood monitoring system, DSD colleagues can quickly assess the risk of flooding efficiently and communicate with all concerned parties for early deployment of emergency response teams to assist residents and handle flooding cases.

Besides the radio signal fading issue, the extreme environment of culverts is another barrier to implementing an underground smart drainage system. Since the culvert has limited ventilation, the aggregated corrosive gas will corrode the sensor probes of the IoT devices. A high salinity atmosphere would further shorten electronics life expectancy in some culverts close to the coast. Conventional IoT devices cannot monitor water levels long-term.

As a response to the above-mentioned, we are developing a compact, robust and durable radar-based IoT device for water level measurement in an underground drainage system. Radar chips for the automotive industry have become compact and low power consumption with high accuracy and a long detection range. This makes them an ideal electronic component for IoT devices. As a result of the radar module being fully enclosed in corrosive proof material, there will be no sensor probe exposed to extreme environmental conditions in culverts.
We are developing a compact, robust and durable radar-based IoT device for water level measurement in an underground drainage system.

By using signal processing algorithms and circuitry-level hardware customisations, the radar module is able to determine the water level as well as the flow rate of water surface in the culvert. With the newly designed IoT devices, operators will be able to collect comprehensive hydrological data for underground drainage systems.

Conclusion

The application of GWIN using LoRa technology enhances DSD’s flood monitoring system. LoRa’s advantages include wide coverage, low cost, low power consumption and easy installation and maintenance. Data transmission and long lead time requirements for power cable laying were resolved by the new application.

The Smart Drainage – Flood Monitoring System demonstrates the transformative potential of IoT technologies and innovative engineering in addressing critical urban infrastructure challenges. By leveraging real-time monitoring and analysis, this system offers a robust and scalable solution to mitigate flooding’s devastating impacts and protect the public in an increasingly uncertain climate. It aligns with the Smart City Blueprint 2.0 launched by the HKSAR Government.

Looking ahead, the new system will be further expanded by exploring big data analytics with machine learning methods and AI technologies in the coming years. This will strengthen DSD’s flood monitoring and prevention as well as realising the vision of smart living in the smart city of Hong Kong, China.

Acknowledgements

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References

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Propelling construction industry towards new industrialisation

Modular Integrated Construction (MiC) is recognised as an advanced off-site construction method that can transform the on-site construction of buildings into “integrated value-driven production and assembly of prefinished modules with the opportunity to realise enhanced quality, productivity, safety and sustainability.” Unlike site-based construction, where civil engineering plays a pivotal role, successful MiC implementation requires multi-disciplinary engineering knowledge, including manufacturing, industrial and systems (MIS) engineering.

From the system perspective

The fundamental principle of MiC is to migrate as many on-site construction processes to an off-site controlled factory environment as possible. Examples are off-site production of steel reinforcement bars and precast concrete. Yet, it is not as simple as having all construction workers perform their work inside a factory. How can modules that are “manufactured” meet all regulatory requirements and be assembled on-site without issue? How do we move materials to the “factory” and the prefabricated parts, from prefabricated steel reinforcing bars to 3D fully furnished modules that are volumetric and box like that contain everything needed (referred to as prefabricated modules in this article), to the construction site in a cost-effective way? All these require the professional knowledge of MIS engineers.

Like producing automobiles in a factory, manufacturing engineers play a critical role in the design and production of modular building components. Design for Manufacture and Assembly (DfMA) practices, standardisation on modules and quality control of components and joints, and so on, should be considered upfront. To cope with the increasing demand for sustainable constructions, the use of environmental-friendly materials, such as lightweight alloy, and production processes that allow modules to be produced more efficiently and faster should be considered.

The shift of on-site work to specialised off-site factories poses a challenge to Just-in-Time (JIT) solutions in production and transportation, as well as site planning and scheduling. This is where industry engineers can contribute. Industrial engineers make use of Lean tools like value stream mapping (VSM), Eliminate, Combine, Rearrange, and Simplify (ECRS), Systematic Layout Planning (SLP), Single-Minute Exchange of Die (SMED), Standardisation, Method Study, Value Added Analysis, Critical Path Analysis for streamlining construction processes, optimising the assembly and
installation of prefabricated parts, as well as managing the logistics of transporting and delivering raw materials and other prefabricated parts to off-site factories and the prefabricated modules to construction sites. Industrial engineering helps identify ways to improve the efficiency and accuracy of the assembling process at a construction site, reducing waste (time, space, and materials) and increase overall productivity.

**Consistent quality control and inspection**

Lean tools (for example, poka-yoke and Quality At Source) and advanced technologies (for example, x-ray, ultrasonic imaging, artificial intelligence) can be applied for quality control and inspection of modular building components, such as structural walls/floor/ceiling, piping, wiring, venting, windows, insulation and assembling anchors, ensuring such prefabricated modules meet regulatory and industry standards.

**Enhanced sustainability and greener construction**

The use of environmentally friendly materials (for example, recycled and recyclable materials) with advanced manufacturing processes can greatly reduce waste and energy consumption. For example, when a steel-based module is adopted, all modules can be detached and dis-assembled from one site and shipped to another site to re-assemble and continue their service life. In InnoCell, a residential project using MiC technology, study shows that over 80% of on-site construction debris was reduced and over 50% of the on-site material wastage was recycled and reused.

**Increased productivity and improved Overall Equipment Effectiveness (OEE)**

Robotics and automatic equipment can be used to fabricate modules, in a controlled factory environment, around the clock without jeopardising quality. Moreover, Lean tools, SMED and Total Productive Maintenance (TPM) can be applied to reduce machine downtime and idle time, and hence, improve the return on investment (ROI) in machinery equipment.

**Higher scalability and cost reduction**

By standardising the design and production of prefabricated parts, it is possible to replicate the process at multiple locations simultaneously and, hence, enable faster and...
more efficient construction of large-scale projects. With the adoption of the aforesaid process optimisation tools, overall construction costs can be reduced by minimising waste and reducing labour costs.

Improved safety
The risk of accidents and injuries can also be reduced by shifting on-site construction works to a controlled factory environment.

From the design perspective
From the design perspective, MiC benefits from MIS engineering and technology in several ways.

First, the use of computer-aided design (CAD) software such as BIM allows designers to create highly detailed and precise models of prefabricated parts. Such level of precision enables greater customisation and flexibility in the design process, allowing designers to create complex shapes and configurations that would be difficult or impossible to achieve using traditional construction methods.

Second, industrial and manufacturing engineering techniques are used to optimise the design of prefabricated parts for efficient and cost-effective production. For instance, advanced product development tools such as Failure Modes and Effects Analysis (FMEA), Statistical Process Control (SPC), Measurement Statistical Analysis (MSA), Process Capability Index (Cpk), DfMA and standardisation should be considered when designing prefabricated parts. This ensures product manufacturability with acceptable quality and desired yield. With careful calculation of quality parameters based on BS 6143 standard, MiC manufacturers’ operations and quality efficiency can be continuously monitored.

Third, system engineering and technology are used to improve collaboration between designers, engineers, and construction teams. Advanced software platforms and cloud-based tools allow designers and engineers to work together in real-time, sharing design files and collaborating on designs remotely.

Fourth, the use of prefabricated parts allows for greater flexibility in the design process. As prefabricated parts can easily be reconfigured or modified, designers can adapt their designs to changing requirements or site conditions without major redesigns.

Finally, the use of advanced materials and manufacturing processes allows for the creation of lightweight, strong and durable prefabricated parts. This enables designers to create buildings that are not only functional but also aesthetically pleasing, with complex shapes and forms that would be difficult to achieve using traditional construction methods.

To cope with the trend of an ageing workforce, high construction costs and increasing demand for sustainability, the development and implementation of MiC in the construction industry should be the right direction. The shift of the on-site construction process to an off-site controlled factory environment imposes challenges in product and process designs that require multi-disciplinary knowledge from MIS engineering to tackle. MIS offers an array of tools, methodologies, intelligent sensors, traceability records, analysing techniques and diagnostics systems for effective maintenance and enhanced reliability of MiC. In the long run, precursors can be developed to prevent failure through predictive maintenance and prognostic health management can even be applied to MiC projects. To uplift the industry standard in the delivery of high-quality MiC projects, contractors should appoint qualified and experienced MIS engineers who can be responsible for MiC production, just like a production or manufacturing engineer in a manufacturing plant. It can be foreseen that this wave of new industrialisation of the local construction industry should create a huge demand for professionals with MIS engineering backgrounds.

References
Innovative green infrastructure element – Air-quality Improvement Photovoltaic (AIPV)

Introduction

After the adoption of the 2030 Agenda for Sustainable Development at the United Nations (UN) Sustainable Development Summit (New York) in September 2015, all members of the UN have agreed to achieve the 17 Sustainable Development Goals (SDGs) before 2030. Since then, sustainability has been a key concern for numerous influential companies and organisations worldwide.

The Air-quality Improvement Solar Photovoltaic (AIPV) panel introduced here is among the many innovative technologies employed by the private sectors and quasi-government bodies of Hong Kong, which can fulfil the 17 SDGs.

What are Air-quality Improvement Solar Photovoltaic (AIPV) panels?

As the whole world advances toward a clean energy future, renewable energy sources like solar energy will play an indispensable part in reducing greenhouse gases (GHGs) emissions in the process of energy production.

The ingeniously designed Air-quality Improvement Solar Photovoltaic (AIPV) panels have emerged to serve a dual purpose: electricity generation and air purification. They are made of thin-film cadmium telluride (CdTe), a stable compound used to make solar cells. CdTe technology is the most popular thin-film solar panel technology nowadays and its increasing competitiveness allows it to challenge traditional technologies like monocrystalline silicon (Mono-Si) PV panels.

GreenWalls Bioengineering Ltd, a company focusing on the application of green technologies, has taken a step further to scale up the utility of CdTe PV panels by developing a leading technique of surface treatment system that consists of multiple nano grade semiconducting catalysts being applied and integrated onto the tempered glass surface of the PV panels - as a coating - for the purposes of air purification, disinfection, anti-microbial and self-cleaning.

It effectively decomposes organic matter and therefore minimises air contamination in surrounding areas, as per ISO 22197-1:2016 standard. All treated glass surfaces become anti-static and super-hydrophilic, thus providing self-cleaning feature (as per BS EN 1096-5:2016 standard).

Mechanism of air-quality improvement

The nano coating on the surface of the PV panels contains semiconductor photocatalyst (光觸媒) which plays a vital role in pollutant treatment. Under sunlight illumination, electrons of the valent band (VB) of the photocatalyst will be excited by photons and migrate to the conductive band (CB) and react with the absorbed oxygen to form super reactive oxygen (•O₂⁻), which will react with water and hydrogen ion to produce hydrogen peroxide and oxygen. Moreover, hydrogen peroxide will be further transformed into hydroxyl radical (•OH).

This reductive reaction of photocatalytic effects can be summarised as the following chemical equations:

\[
e^- + \text{O}_2 \rightarrow •\text{O}_2^- \\
\text{O}_2^- + \text{H}_2\text{O} + \text{H}^+ \rightarrow \text{H}_2\text{O}_2 + \text{O}_2 \\
\text{H}_2\text{O}_2 \rightarrow 2 •\text{OH} \\
\]

On the other hand, jumping of electrons from VB to CB, will leave an electron hole (positively charged) in the VB, which will draw electrons from the nearby water molecule (H₂O) in the air to form hydroxyl radical (•OH). The photo-chemical reaction at the VB can be summarised as follows:

\[
h^+ + \text{H}_2\text{O} \rightarrow \text{H}^+ + •\text{OH} \\
2 h^+ + 2 \text{H}_2\text{O} \rightarrow 2 \text{H}^+ + \text{H}_2\text{O}_2 \\
\text{H}_2\text{O}_2 \rightarrow 2 •\text{OH} \\
\]

Both photo-chemical reactions at VB and CV produce unstable hydroxyl free radicals which will further react with organic pollutants near the surface of the photocatalyst. The hydroxyl free radicals will “grab” electrons from organic...
pollutants, for example formaldehyde (HCHO), 甲醛 in Chinese, to form harmless water and carbon dioxide ultimately.

Oxidation of organic pollutants by the hydroxyl free radical can be summarised as follows:

\[ \text{•OH} + \text{CH}_2\text{O} \rightarrow \text{H}_2\text{O} + \text{CO}_2 \]

The following image illustrates the overall photochemical reactions of pollutant treatment by a photocatalyst under sunlight.

Mechanism of disinfection and antimicrobial

When a positively charged metal ion in the nano particle semiconductor contacts with the bacteria negatively, both substances attract each other. This phenomenon is called oligodynamic effect (微動力效應). This oligodynamic between the metal ions and the microorganism will break the cell membrane of the microorganism which will damage the activeness of the biosynthetic enzyme and interfere with the synthetic DNA of the microorganism, hence prohibiting the cell multiplication and finally death of the microorganism.

Mechanism of self-cleaning

There are three special features of AIPV glass panels that enhance self-cleaning.

Firstly, organic contaminations are decomposed under sunlight which help to avoid the inorganic contamination sticking to the surface.

Secondly, the surface with anti-static property repels the inorganic pollutants which will be blown away by wind.

Finally, AIPV’s surface is super-hydrophilic by nature and water will spread out to form a water film. Dirt on the AIPV surface will be washed away evenly by rain.

Successful application of AIPV panels in Hong Kong

Hong Kong Land

Many international enterprises in Hong Kong have recognised their duty to protect the environment in a responsible manner. For example, Hongkong Land (HKL), a leader in the global market as well as a future-focused company, has recently adopted a new strategy “Sustainability Framework 2030” through which they are aspiring to become a leader in sustainability.

Hongkong Land supports the UN SDGs set in 2015 and aims at reducing their carbon footprint by 2030. As part of their efforts to achieve this mission by employing smart technologies, AIPV panels have been installed on the roof of Exchange Square, one of the iconic award-winning green buildings in their Central Portfolio. These panels generate solar power and improve the quality of the surrounding air by decomposing and removing organic air pollutants including automobile emissions, volatile organic compounds (VOCs) and particulate matter (PM) 2.5 particles.

This project was completed in December 2021, and involved the installation of 200-square-metres PV panels, with 28 kW power capacity.

AIPV panels on the walls and upper roof of Exchange Square

Construction Industry Council

Another project which has taken the advantage of using AIPV panels for both solar power generation and air improvement purposes can be found at the Construction Industry Council.
Industry Council’s CIC – Zero Carbon Park, Kowloon Bay, Hong Kong. It is home to Hong Kong’s first zero carbon building showcasing the latest in advanced low carbon construction technologies.

The AIPV Canopy, located at the park’s eco-café, demonstrates how AIPV panels are used to turn solar power into electricity to provide renewable energy to the café operation while decomposing harmful fine particulate matter in the air to improve air quality around the Canopy.

The project was completed in September 2019. 155-square-metres AIPV panels in different colours, like stained glass windows in churches, were installed on the Canopy, sheltering everything underneath. Sunlight can penetrate the panels which is then absorbed and transformed into electricity produced on-site, about eight KW per hour. This is a good example showing that AIPV can be successfully integrated into building structure without sacrificing building’s aesthetics.

AIPV panels have been used in different sectors in Hong Kong to raise public awareness of low carbon living, encourage the use of renewable energy and as a means to fight against the COVID-19 pandemic that has been disrupting the world for the past couple of years.

**Environmentally friendly**

A significant amount of land resource and energy are required during the mining of raw materials and the manufacturing of Mono-Si PV cell wafers, resulting in high pollution and carbon emission. Large amounts of energy are used for the production of metallurgical silicon in huge high temperature furnaces leading to carbon and sulphide emissions as well as high pollution by-products including silicon tetrachloride, which is produced during the chemical process necessary for obtaining crystalline silicon wafers. On the other hand, manufacturing AIPV thin-film involves a physical vapour transport deposition technique which results in significantly lower embedded carbon and water footprint. CdTe modules also have the least amount of harmful air emissions and heavy metal emissions among other major PV module types.

When Mono-Si PV panels break or are decommissioned, all the parts except the silicon wafers can be recycled. Silicon wafers are the major cause of carbon and pollution emissions as they are difficult to recycle and may only be incinerated or left to the landfill sites, causing probable secondary pollution. However, all major components of AIPV panels have a high recycling value. More than 90% of the materials in AIPV panels, including PV cells, glass and laminates, can be recycled and reused.

**Building Integration Application**

The homogeneous appearance of AIPV panels makes them aesthetically pleasing - especially for building integration. The surface can be made opaque or fabricated with up to 75% transparency to allow light to pass through the panels evenly and without tile shading. The sizes and shapes of AIPV panels can be tailor-made to suit architects’ designs or owners’ preferences. Moreover, the panels can be tinted with different colours, making CdTe PV panels suitable for windows, canopies, protective balustrades, skylights, curtain walls and cladding.

**AIPV panel has the following advantages over conventional Mono-Si PV panel:**

**Power generation**

AIPV panels have a longer lifespan and are well aligned with the sun’s light spectrum, capturing energy at shorter wavelengths - even absorbing low light intensity in foggy, smoggy and cloudy conditions. Additionally, the CdTe PV cells are protected by double tempered glass, making them durable and weather-resistant. The CdTe PV cells are less affected by high temperature and yield more energy in warmer climates. An outdoor field test carried out by National Renewable Energy Laboratory (NREL) in December 2020 on CdTe PV installed in 1995 revealed that the long-term degradation of the studied modules was 0.5% a year with an efficiency of around 88% of the original panel performance after 25 years. This figure, if compared to about 17% of degradation of 9-year-old Mono-Si PV panels real field test in Malaysia, is quite encouraging.

Tinted AIPV Glass Canopy in CIC – Zero Carbon Park’s eco-café, Kowloon Bay, Kowloon, Hong Kong
Outlook

Durable AIPV panels, which are a safer and more environmentally friendly option (100% recyclable) than traditional Mono-Si panels, are less costly to produce (with the fastest payback period) and they can generate a greater amount of energy but are far less affected by heat or high temperature. As AIPV panels are aesthetically pleasing, in addition to being light weight, portable, and cheaper to maintain, they can be installed on the top, outside or inside of buildings with many advantages over Multi- or Mono-Si PV panels. It is expected that AIPV panels will become an increasingly popular alternative for power generation with their value-added features which can make sustainability an achievable goal as they are used in buildings both locally and worldwide to bring us a better and sustainable tomorrow.

Acknowledgments

GreenWalls Bioengineering Ltd would like to thank Hongkong Land and Construction Industry Council for using the innovative AIPV in the pursuance of green construction, sustainable development, and healthy living environment.

This article was prepared by Ir Thomson Chan Hei-leung, Ir Dr William Au Yeung, Mr Brian Cheng and Mr Frankie Fan, all of them from GreenWalls Bioengineering Ltd.

References

Towngas is composed of
~50% Hydrogen

Towngas Composition (average value)

- $\text{H}_2$ ~49%
- $\text{CH}_4$ ~29%
- $\text{CO}_2, \text{N}_2, \text{O}_2$ ~22%

Pressure Swing Adsorption Technology
- Easily extract $\text{H}_2$ from Towngas
- ~99.97% purity (ISO 14687: 2019 Grade D)

Towngas Network over 3,700km

Advantages of using Towngas Network for $\text{H}_2$ Supply

- Stable, Reliable, Endless supply
- Direct extract from Towngas network
- Avoid transportation for $\text{H}_2$ delivery
- Not be affected by weather and traffic conditions
Boosting net-zero transition in Hong Kong: Integration of IFC green biodiversity finance framework

By Mr YU Hon Chuk and Ir Dr Alex E GBAGUIDI

Against drastic climate change with biodiversity destruction and nature loss, green biodiversity finance has emerged as one of the fast-growing areas in green finance with increasing interest from investors and issuers globally. It highly values biodiversity, and helps address pressing climate challenges by supporting green production; contributing to economic growth, livelihoods improvement and protection of ecosystems; deploying nature-based climate solutions; and ensuring a bio-capacity balance.

With regard to the high ecological footprint in Hong Kong, a sustainable development with solid climate resilience will certainly emerge from new strategies that seriously work on green biodiversity finance. However, clear financial investment guidance on green biodiversity criteria constitutes a critical issue on the market. The International Finance Corporation (IFC) therefore issued the Biodiversity Finance Reference Guide in 2022 to address the gap.

Integrating IFC green biodiversity finance framework into the current sustainable finance momentum in Hong Kong is essential to citizens’ lives through provision of quality ecosystem services, green food, oxygen, bio-capacity balance and climate regulation. The concept of bio-capacity tracks the capacity of ecosystems to produce renewable resources, ecological services for human needs.

According to World Wildlife Fund (WWF), Hong Kong’s demand for ecological resources and services exceeds 150 times the local bio-capacity. As such, setting a participatory holistic vision of financial strategies for green innovation and ecosystems valuation, as recommended in the IFC framework, is an urgent imperative for boosting the net-zero transition in Hong Kong.

While some of the potential biodiversity-beneficial projects (such as upgrading wastewater treatment plants and ecotourism ventures in reference to the IFC Guide) were incorporated into the existing Hong Kong’s Green Bond Framework (GBF), a new framework on biodiversity finance that fully integrates the IFC framework would be necessary to achieve successful net-zero transition in Hong Kong.

Concretely, combining GBF with IFC framework will undoubtedly boost the multidisciplinary green biodiversity design with further granularity, technological innovation and enhanced sustainability mindset throughout the financial investment processes in Hong Kong. Such integration provides investors and practitioners with opportunities to qualitatively improve the assessment, tracking and reporting of biodiversity valorisation strategies; and enhance knowledge and capability in green biodiversity finance project implementation.
Grand debut of the President’s Protégés in Session 2023/2024

Each year, from among interested Graduate and Corporate Members, the President for the Session would handpick some talented young engineers who promise to achieve great things to become the President’s Protégés. They would then shadow him, gaining the kind of experience otherwise rare for newcomers to the profession.

In line with his slogan “Be the Change”, President Ir Dr Barry Lee’s choice of this Session’s Protégés was thought-provoking. For the diversity of their background, personality, and strengths, these fledglings offer a refreshing and promising view of what the engineering landscape will be like in about ten years, when they will fully come into their own as experienced professionals.

But readers itching to get to know them in greater depth will have to wait for the next issue—when the Protégés will introduce themselves in their own words. For now, may the following brief sketch satisfy their curiosity:

Of the 12 Protégés, five are men and seven are women, which in a way reflects the heartening rise of female engineers in a profession wrongfully stereotyped as being predominately male. Claudia, Michelle and Ray are civil engineers working for CEDD, Binnies and Hip Hing respectively; Eddie and Kenneth, employed by ARUP and ATAL respectively, both have aspirations in the environmental discipline; Briana, Christy, Ivan and Tony, through their services in CLP, MTR, HK Electric and DSD under electrical, mechanical, electronic and E&M disciplines respectively, are devoted to public utilities; while Annie, Daphne and Venus—three women engineers in logistics & transportation, building services, and geotechnical disciplines respectively—are making their way in the profession with budding careers in Cathay Pacific, WSP and Atkins.

If this brief sketch strikes one as perhaps a little bland, the remedy is forthcoming. Let us stay tuned for what the Protégés have to say for themselves in the next issue.
Diary of visits to the Institution

3 July  MON

中國電機工程學會(CSEE)

到訪者

王 剛先生，秘書長
趙建軍先生，國際部主任
劉 敏女士，國際部主任助理
梁曦東教授，學術工作委員會委員、清華大學教授

21 July  FRI

重慶市工程師協會

到訪者

王力軍先生，重慶市工程師協會理事長
劉 婭女士，重慶市工程師協會秘書長
黃書凱先生，重慶市工程師協會知識產權專委會主任
暨重慶強大知識產權集團總經理
張憶梅女士，重慶市工程師協會繼續教育專委會主任
暨博眾城市發展管理研究院院務辦公室主任
黃 麗女士，重慶市拓誠職業學院理事、副院長
The Forty-Eighth Annual General Meeting

The 48th Annual General Meeting was held at Room S421, L4, Hong Kong Convention and Exhibition Centre, 1 Harbour Road, Wanchai, Hong Kong at 7:00pm on Wednesday, 28 June 2023.

48.0 Official opening of the 48th Annual General Meeting

The President, Ir Aaron BOK Kwok Ming, having ascertained that a quorum of 60 Corporate Members was present, called the 48th Annual General Meeting to order.

The President then asked the Chief Executive and Secretary to read out the Notice of the Meeting. The Chief Executive and Secretary confirmed that the Notice to members had been distributed in accordance with the requirements of the Constitution, which should be taken as read.

48.1 Confirmation of the Minutes of the 47th Annual General Meeting

Ir Aaron BOK Kwok Ming, the President, proposed that the Minutes of the 47th Annual General Meeting held on Wednesday, 24 August 2022, printed in the October 2022 issue of the Hong Kong Engineer be adopted as a true record. This was seconded by Ir Edmund LEUNG Kwong Ho. The motion was carried.

48.2 Confirmation of the Minutes of the Special General Meeting

Ir Aaron BOK Kwok Ming, the President, proposed that the Minutes of the Special General Meeting held on Wednesday, 24 August 2022, printed in the October 2022 issue of the Hong Kong Engineer be adopted as a true record. This was seconded by Ir TANG Whai Tak. The motion was carried.

48.3 Audited Statement of Accounts for the year ending 31 March 2023

The President stated that copies of the accounts had been sent to members in compliance with the Constitution and invited the Chief Executive and Secretary to highlight the main points on the Statement of Accounts. The Chief Executive and Secretary reported that the Institution continued to sustain a healthy financial and cash position with a surplus of HKD5.2 million for the financial year ending 31 March 2023. The main reasons for the surplus are the better-than-expected savings from Institution’s various functions and events; subsidy received under Government’s Employment Support Scheme; and deferred payments arising from repackaging of digitalisation projects etc. The net assets also show some steady and healthy growth, and a 4% growth was recorded for the year under review. He also highlighted that the Institution had successfully organised the unprecedented 2023 Hong Kong Engineers Week with a balanced budget. There was a small amount of credit due to sufficient sponsors so raised. The Meeting noted that there was a potential threat to the financial health in the coming years. There was currently a decelerating trend of membership growth, and this should be viewed as a challenge for the whole HKIE to overcome in the time to come. Regarding the Benevolent Fund of the Institution, the net expenditure for the year was in the amount of HKD99,000 and the overall accumulation was HKD4.26 million.

Ir James BLAKE then proposed and Ir Ringo YU Shek Man seconded the motion that the audited Statement of Accounts for the year ending 31 March 2023 be adopted. The motion was carried.

48.4 Appointment of the Auditor for 2023/2024

On the recommendation of the Council, Ir James KWAN Yuk Choi proposed and Ir SZETO Ka Sing seconded the motion that Deloitte Touche Tohmatsu be re-appointed as the Auditor of the Institution for 2023/2024. The motion was carried.

48.5 Annual Report for Session 2022/2023

The President said that the Annual Report for Session 2022/2023 had been sent to members and he highlighted the Institution’s achievements under his Presidential Theme in the following main areas: production of “Proud to be Engineers” pin and theme song “Proud to be Engineers 傲程”; organisation of the “Hong Kong Engineers Week 2023” and “The Second Greater Bay Area Engineers Forum”; development of “Engineers on Campus 工程伴理行” as well as establishment of Collaboration Agreement with Cyberport, etc.
48.6 Re-election of the incumbent Vice Presidents as Vice Presidents

48.7 Election of a new Vice President nominated by the Council

On the invitation of the President, Vice Presidents Ir Dr Barry LEE Chi Hong, Ir Eric MA Siu Cheung and Ir Alice CHOW Kin Tak briefed members on the work of the Administration Board, Qualification and Membership Board and the Learned Society Board in this Session respectively.

Ir Alfred LEUNG then proposed and Ir Dr LO Wai Kwok seconded the motion that the Annual Report for Session 2022/2023 be adopted. The motion was carried.

For the re-election of the incumbent Vice Presidents

Incumbent Vice President
Ir Eric MA Siu Cheung

Voting result:

| Total no. of valid votes | : 1,116 |
| Total no. of invalid votes | : 84 |
| Total no. of ballot papers | : 1,200 |

| Support | 977 |
| Against | 139 |

Incumbent Vice President
Ir Alice CHOW Kin Tak

Voting result:

| Total no. of valid votes | : 1,089 |
| Total no. of invalid votes | : 108 |
| Total no. of ballot papers | : 1,197 |

| Support | 941 |
| Against | 148 |

Ir Frank CHAN Fan was declared duly elected as the new Vice President.

On the invitation of the President, Vice Presidents Ir Dr Barry LEE Chi Hong, Ir Eric MA Siu Cheung and Ir Alice CHOW Kin Tak briefed members on the work of the Administration Board, Qualification and Membership Board and the Learned Society Board in this Session respectively.

Ir Alfred LEUNG then proposed and Ir Dr LO Wai Kwok seconded the motion that the Annual Report for Session 2022/2023 be adopted. The motion was carried.

For the re-election of the incumbent Vice Presidents

Incumbent Vice President
Ir Eric MA Siu Cheung

Voting result:

| Total no. of valid votes | : 1,116 |
| Total no. of invalid votes | : 84 |
| Total no. of ballot papers | : 1,200 |

| Support | 977 |
| Against | 139 |

Incumbent Vice President
Ir Alice CHOW Kin Tak

Voting result:

| Total no. of valid votes | : 1,089 |
| Total no. of invalid votes | : 108 |
| Total no. of ballot papers | : 1,197 |

| Support | 941 |
| Against | 148 |

Ir Frank CHAN Fan was declared duly elected as the new Vice President.

For the election of a new Vice President

Candidate
Ir Frank CHAN Fan

Voting results:

| Total no. of valid votes | : 1,187 |
| Total no. of invalid votes | : 14 |
| Total no. of ballot papers | : 1,201 |

| Support | 1,114 |
| Against | 73 |

Ir Frank CHAN Fan was declared duly elected as the new Vice President.)
**48.8 Election of Elected Ordinary Members of the Council**

The President announced that there were seven candidates for the five vacancies of Elected Ordinary Members of the Council. The ten candidates in order of their poll numbers were as follows:

- Ir Charles SO Hung Tak
- Ir Prof LOCK Hung Kee
- Ir CHING Ming Tat
- Ir CHIANG Tung Keung
- Ir Gloria TANG Yuk Yee
- Ir ZHOU Yan
- Ir Johnson LEE Kwun Chung

(Post-meeting note: The voting results, having been checked and scrutinised by the Scrutineers, Ir Ambrose CHEN Hao Ting, Mr Thomas LAM Chun Ho, Ir Kenneth CHEUNG Kwan Wing, Mr Indi WONG Wing Fai, Ir Norman CHENG Chun Ping, Ir Chris LEE Tsz Leung and Ir Leo CHAN Hei Yim were as follows:

<table>
<thead>
<tr>
<th>Total no. of valid votes</th>
<th>1,190</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total no. of invalid votes</td>
<td>15</td>
</tr>
<tr>
<td>Total no. of ballot papers</td>
<td>1,205</td>
</tr>
</tbody>
</table>

**Voting results:**

<table>
<thead>
<tr>
<th>Candidates</th>
<th>Total Votes</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ir Charles SO Hung Tak</td>
<td>492</td>
<td>5</td>
</tr>
<tr>
<td>Ir Prof LOCK Hung Kee</td>
<td>845</td>
<td>3</td>
</tr>
<tr>
<td>Ir CHING Ming Tat</td>
<td>249</td>
<td>6</td>
</tr>
<tr>
<td>Ir CHIANG Tung Keung</td>
<td>900</td>
<td>1</td>
</tr>
<tr>
<td>Ir Gloria TANG Yuk Yee</td>
<td>573</td>
<td>4</td>
</tr>
<tr>
<td>Ir ZHOU Yan</td>
<td>150</td>
<td>7</td>
</tr>
<tr>
<td>Ir Johnson LEE Kwun Chung</td>
<td>893</td>
<td>2</td>
</tr>
</tbody>
</table>

The five candidates who received the most votes were:

- Ir CHIANG Tung Keung
- Ir Johnson LEE Kwun Chung
- Ir Prof LOCK Hung Kee
- Ir Gloria TANG Yuk Yee
- Ir Charles SO Hung Tak

They were declared duly elected.)

**48.9 Election of the President for Session 2023/2024 by the Council**

The President announced that in accordance with the Constitution, the Council had elected Ir Dr Barry LEE Chi Hong as the President for Session 2023/2024.

**48.10 Installation of incoming President**

The President was pleased to install the incoming President Ir Dr Barry LEE Chi Hong and passed onto him the Medal of Office.

**48.11 Presentation of Past President’s Medallion**

Ir Dr Barry LEE Chi Hong, the newly installed President, presented the Past President’s Medallion to the Immediate Past President, Ir Aaron BOK Kwok Ming. Ir Dr Barry LEE Chi Hong then delivered a speech to members.

Ir Dr LEE stated that it was truly his honour to have been elected as the President for Session 2023/2024. In the year ahead, Ir Dr LEE had chosen “We engineer, we serve” (知行合一 成就專業) as the theme of his Presidency. Ir Dr LEE highlighted his work plan for the year ahead, which would centre around four areas:

- “assisting qualification acquisition”,
- “promoting knowledge sharing”,
- “enhancing membership values and benefits”,
- “driving membership growth”. He had put down “Be the Change” (不一樣) as the slogan of the new Session.

He expressed that he would devote all his efforts and time during his presidency and appealed to members to join him to create a “Different” Institution.

There being no other business, Ir Aaron BOK Kwok Ming declared the 48th Annual General Meeting closed at 7:40pm.
INSTITUTION & DIVISION ACTIVITIES

August 2023  I  Hong Kong Engineer

Members casting their votes

Ir Dr Barry C. H Lee (centre), presenting the Annual Report for Session 2022/2023

Ir Dr Barry C. H Lee (L), the newly-installed President, and Ir Aaron K M Bok (R), the Immediate Past President

The Annual General Meeting in session

Members voting for the motion

Members congratulating Ir Dr Barry C. H Lee on his presidency of the HKIE

Photo with the newly-installed President after the Annual General Meeting
A group photo of the Council Members for Session 2023/2024 was taken at their first meeting on Thursday, 20 July 2023.


3rd row (L to R): Ir Calvin Fu, Ir John Chan, Ir Dr Ng Chak-man, Ir Tony Ho, Ir Alex Lal, Ir Norman Chan, Ir Edmond Fong, Ir Dr Fiona Tsui, Ir Tam Wing-shing, Ir Cheng Yeung-ming, Ir Prof Wong Sze-chun, Ir Dr Mak Shu-lun, Ir Donny Chan, Ir Lam King-kong, Ir Dr Herbert Zheng

Note: Ir Prof Christopher Chao, Ir Chen Hao-ting, Ir Michael Fong, Ir Alexis Lee, Ir Horace Lee, Ir Prof Irene Lo, Ir William Luk, Ir Eagle Mo, Ir David Wong were not available for the photo session. Ir Dr Jacob C P Kam and Ir Ricky W K Leung were appointed after the photo session.
New faces on Council

Ir Chiang Tung Keung
Elected Ordinary Member

Ir Johnson K C Lee
Elected Ordinary Member

Ir Prof Eddie H K Lock
Elected Ordinary Member

Ir Charles H T So
Elected Ordinary Member

Ir Gloria Y Y Tang
Elected Ordinary Member

Ir Norman S W Chan
Council Member (Division)

Ir Cheng Yeung Ming
Council Member (Division)

Ir Tony Y K Ho
Council Member (Division)

Ir Prof Irene M C Lo
Council Member (Division)

Ir Dr Mak Shu Lun
Council Member (Division)

Ir Dr Ng Chak Man
Council Member (Division)

Ir Dr Fiona S C Tsui
Council Member (Division)

Mr Otto W H Mak
Ex-officio Member, Chairman of the AMC

Ir Cheung Tin King
Ex-officio Member, Chairman of the YMC

Ir Dr Jacob C P Kam
Co-opted Member

Ir Ricky W K Leung
Co-opted Member
EngHub Opened in Kwun Tong!

The HKIE celebrated the opening of our new facility EngHub 工程薈 at NEO in Kwun Tong with a lively and festive opening ceremony on 14 July 2023. The new location will provide members with a relaxed and collaborative environment to promote interaction between members and stakeholders of the engineering profession.

We were delighted to have Ir Lam Sai-hung, Secretary for Transport and Logistics of the HKSAR, to be our Guest of Honour in officiating the opening of EngHub together with President Ir Dr Barry Lee. The occasion was witnessed by fellow guests, members and sponsors, who gathered to celebrate the Institution’s expansion and toast to its continued success. “One of our ongoing pursuits is to enhance member service, and to this end, our new facility on the Kowloon side is going to be a convenient option for our members. We hope that will enhance the cohesiveness among members and the engineering community,” said Ir Dr Barry Lee.

The name EngHub, and in Chinese 工程薈, were selected by members voting. With a floor area of about 2,000 square feet, the new facility will offer a space with a more engaging atmosphere for Divisions, Disciplines and Committees to organise members activities. In addition to members’ support, our gratitude is sincerely extended to sponsors who backed the opening of the facility.
Hosted by the HKIE and jointly organised with the Chinese Society for Electrical Engineering (CSEE), the Institute of Electrical Engineers of Japan (IEEJ) and the Korean Institute of Electrical Engineers (KIEE), the ICEE Conference 2023 was successfully held from 2 to 6 July 2023 at The University of Hong Kong. The ICEE Conference aims to provide a forum for sharing knowledge, experience and creative ideas among international electrical engineers with a focus in Asia to contribute to technical development in electrical engineering.

With the theme of “Frontiers in Carbon Neutrality Power and Energy”, the ICEE Conference 2023 was well attended by more than 400 delegates from Hong Kong (213), China (34), Japan (85), Korea (83) and other regions (3).

The event started on 2 July with the Council Meeting, which was attended by key representatives from the HKIE and other three co-organisers. Chaired by the Conference Chairman Ir Prof C C Chan, representatives of the HKIE shared the experience of organising the ICEE Conference 2023. Representatives also discussed the way forward for the future ICEE Conference.

The Opening Ceremony was held on 3 July, officiated by Guest of Honour Ir Prof The Hon Sun Dong, Secretary for Innovation, Technology and Industry of the HKSAR Government. The four-day technical programme featured five keynote presentations, a tutorial session, two special technical sessions, a total of 151 oral and poster presentations, and a technical visit. This year, the Conference was honoured by the presence of the following prominent keynote speakers:

• Prof Saifur Rahman, Joseph Loring Professor & Director, Advanced Research Institute, Virginia Tech, USA and 2023 IEEE President & CEO;
• Prof Max Z J Shen, Vice-President and Pro-Vice-Chancellor (Research) and Chair Professor in Logistics and Supply Chain Management, The University of Hong Kong (Represented by Dr Lin Shao Chong);
• Dr Li Peng, Chief Expert, China Southern Power Grid;
• Dr Hitoshi Hayashiya, Division Senior Manager, Electrical System Integration Office, East Japan Railway Company and President of Industry Application Society, The Institute of Electrical Engineers of Japan; and
• Dr Kim Seul Ki, Executive Director of the Smart Grid Research Division, The Korea Electrotechnology Research Institute

The technical visit to O-Park 1 on 6 July provided delegates a chance to learn about the treatment of the food waste and how food waste can be converted to biogas and compost which can be used for electricity generation and soil enrichment.

The Conference Dinner was held on 4 July evening, featuring traditional cultural booths, including flour doll making, chinese paper cutting and chinese brush writing on fan. The occasion facilitated perfect networking among delegates, the organisers and sponsors, also graced by the saxophone performance by Ir Dr The Hon Lo Wai Kwok, Legislative Councillor of Engineering Functional Constituency. We trust our guests and delegates from the Mainland and overseas would bring back home with fond memories and most fulfilling time spent with the ICEE Conference 2023 during their stay in Hong Kong.

A special thanks to the EL Division who led the programme committee and the organising committee which made the ICEE Conference 2023 a successful event. The next ICEE Conference will be hosted by the Institute of Electrical Engineers of Japan from 30 June to 4 July 2024 in Kitakyushu, Japan.
Prominent Keynote Speakers and Conference Chairman; (L to R) Prof Max Z J Shen (Represented by Dr Lin Shao Chong), Dr Li Peng, Prof Saifur Rahman, Ir Prof C C Chan, Dr Hitoshi Hayashiya and Dr Kim Seul Ki

The Conference was well attended by more than 400 delegates from Hong Kong, Mainland, Japan, Korea and other regions

The sand painting performance by young electrical engineers at the Opening Ceremony

Saxophone performance by Ir Dr The Hon Lo Wai Kwok brought the atmosphere of the night to the climax

Industrial Visit to O-Park 1 on 6 July 2023

The HKIE President Ir Dr Barry C H Lee (2nd right) and ICEE Conference 2023 Chairman (1st right) passing the flag to the representatives of the host of the ICEE Conference 2024, Prof Keiichiro Yasuda (1st left) and Dr Yoshinobu Ueda (2nd left) of the IEEJ

Toasting at the Conference Dinner on 4 July 2023
Webinar on Hong Kong’s export of quality granite in the 19th and 20th century
By Ir Paris WONG

A webinar presenting the history of quarrying and the export of Hong Kong’s granite in the 19th and 20th century was conducted by Ir Dr Poon Sun-wah on 16 May 2023.

Ir Dr Poon explained that, as a result of Hong Kong’s geology, quality granite was abundant in the territory and could be found on Hong Kong Island, the Kowloon Peninsula and the western New Territories. The granite industry was in existence long before the arrival of the British. In 1844, granite was shipped to China as recorded by the colonial government. During the 1850s and 60s, granite blocks were transported to China, New South Wales, San Francisco and Siam (now Thailand) as building materials and paving slabs. Between 1928 and 1933, Hong Kong granite was used for the Mausoleum in Nanjing, the Memorial Auditorium and the Memorial Cenotaph in Guangzhou in remembrance of Dr Sun Yat-sen.

Ir Dr Poon mentioned that a square, stone well built in the Song Dynasty was unearthed on the construction site of the Shatin to Central Link at Sung Wong Toi Station in 2014. The well was carefully preserved and protected at the site for later presentation to visitors.

Ir Dr Poon also discussed the history of Murray House, which is a Victorian-era building in Stanley, Hong Kong. The building was originally erected in the business district of Central in 1846 as officers’ quarters in the Murray Barracks. It required 36 workers to transport a granite column at that time. It was moved to Stanley during the 2000s. This building has become an iconic landmark in Hong Kong as one of the historical buildings designed in a classical architecture style.

Towards the end of the webinar, Ir Dr Poon shared two short videos showing the development of the quarry industry in Hong Kong and the quarry workers’ hard life in the past. Hong Kong was not just a small fishing village, but also a well-known world-class source of good quality granite.

On behalf of the BD Division, we would like to convey our sincere gratitude to Ir Dr Poon for sharing the history of the granite quarry in Hong Kong and the iconic granite buildings in Hong Kong and other countries with us.

Ir Dr Poon delivered an informative and interesting presentation of granite history

Building Services

Chairman’s message
By Ir Keith W P YUE

It is my great honour to be elected Chairman of the BS Division for Session 2023/2024. I would like to take this opportunity to thank all Past Chairmen for their distinguished leadership, and also our Committee Members, Observers and helpers for their many contributions to our Division.

After three years of challenging conditions, Hong Kong is now back on the right track. We are resuming normalcy in our daily activities and are once again seamlessly connected to the Mainland. Thanks must be given to all the building services professionals for their continuous efforts in combating the effects of COVID-19.

Looking ahead, we are facing a shortage of manpower in the construction market due to the upcoming implementation of measures involving long-term housing supply and
A “New Era” has arrived! Thanks to Ir William Luk, our Immediate Past Chairman, the CV Division has gone through an era of success. The coming years will be full of opportunities and challenges for development. Echoing our President Ir Dr Barry Lee’s Presidential Theme, the CV Division will continue to serve our members better and better. The key to success will be how effectively we utilise our resources. We are very lucky to have Committee Members who are always devoted to carrying out seven important tasks under respective teams:

(1) Innovation Team - for producing videos to boost great civil engineering works, (2) Professional Image Team - for enriching the image of engineers through our KOLs

(3) Nurturing the Young Team - for nurturing students through programmes like the “One School One Engineer” programme in the current Session (4) Multi-discipline Collaboration Team - for encouraging cooperation with others (5) China Connection Team - for strengthening our bonds with our Mainland counterparts, (6) Engineering in Practice Team - for sharing new construction techniques and technologies (7) Technical Seminars Team - for maintaining regular talks with our members.

Time has been changing. Albeit I have been serving the CV Division for nearly ten years, I feel that it is our lifetime mission to push ahead with the above. However, without your support, we can hardly achieve anything.

What we need to do is to collaborate closely with our members to contribute to all the goals above. Our Immediate Past President, Ir Aaron Bok, has set a new standard for us to follow and we will carry on maintaining our good spirit and using our resources effectively to serve the community.
I am proud to be a professional civil engineer and I look forward to the forthcoming Hong Kong Engineers Week 2024. We should let people know that we are the ones who serve Hong Kong and engineer its future to provide better lives for the community!

Please take a moment to visit our website (www.hkie-cv.org) and share your views with us. Stay tuned!

Technical visit to Central Kowloon Route – Kai Tak East

By Mr Matthew HUI

The CV Division and the Institute of Materials, Minerals and Mining (IOM3) jointly organised the captioned visit on 29 April 2023.

The event began with a warm welcome by the organisers, Arup-Mott MacDonald Joint Venture and Alchmex-Paul Y Joint Venture, who were excited to conduct the visit. The organisers then led the attendees on a tour of the site and provided them with an informative introduction to the design of the Central Kowloon Route (CKR), the construction of the bridges and the associated civil infrastructure on the site.

The Kai Tak East (KTE) project is positioned strategically at the exit of the CKR in Kowloon East to connect Kowloon Bay, Kwun Tong and Kai Tak Development Area together and link with the future Trunk Road T2. KTE is the first New Engineering Contract (NEC) among the eight main CKR contracts.

Visitors were impressed by the amount of detail and expertise that went into the construction of the site. They were amazed by the engineering feats that were achieved in constructing the bridge and the deep civil structure.

The feedback from visitors was positive, with many expressing how much they enjoyed the site visit. They appreciated the opportunity to see the project up close and learn more about the engineering behind it. The visit was a great way for the attendees to gain insight into the intricacies of the project and have a better understanding of how the project would benefit the community.

The visit was a resounding success, and the organisers were thrilled to have the opportunity to showcase the CKR project in person. The physical site visit provided attendees with a unique opportunity to learn more about the project and gain a deeper understanding of the engineering involved.

The CV Division and IOM3 expressed their gratitude for the attendees’ interest and emphasised their commitment to continued community involvement in shaping the future of Hong Kong.

The attendees at the site
Control, Automation & Instrumentation

Chairman’s message
By Ir Prof Louis LOCK

It was a great honour to be elected Chairman of the CA Division for Session 2023/2024.

Following the success of the CA Division 22/23 Summit including half-day technical visits to the Schneider Electric Innovation Hub and the Legislative Council Complex on 2 and 3 May 2023, we anticipated that the 23/24 Summit would be successfully held similarly under the leadership of Ir Dr Tony Lee, the Chairman of the Organising Committee of the CA Division 23/24 Summit.

Consistently, we have received invitations from our counterparts in the Mainland for collaboration on learned society activities. These include the Guangdong Mechanical Engineering Society (GDMES), Guangdong Automation Association (GDAA), Guangdong Measurement Control Technology and Equipment Application Promotion Association (GDMCTEAPA), Shenzhen Engineers Association (SZEA), Guizhou Province Association for Science and Technology (GZSTA).

At this stage, we are planning to have delegations to entertain the requested collaborations in the hope that our related technical know-how could be updated and our connections with relevant counterparts, professionals and academics could be enhanced as well.

For the CA Division Annual Dinner, we are pleased that Ir Ray Choi has agreed to be the Chairman of the Organising Committee. As far as the “Paper Award” is concerned, Ir Dr S L Mak is going to head the event as usual. He is also going to follow up the issues of cooperation with GDMES and GDAA.

For regular seminars at the HKIE, Ir Louis Yiu is going to be our Seminar Convenor as in past sessions. As disclosed at our Committee Meeting on 7 July 2023, we believe that this Session will be a busy one as there are more delegations to be addressed and the directive from President Ir Dr Barry Lee for the Innovative Competition must be followed with care. The Division will also work closely with the CAI Discipline Advisory Panel for a synergistic outcome.

Last but not least, I would like to use this golden opportunity to express my heartfelt gratitude to our Committee Members including the Observer/Convenors, in the hope that all the said activities and issues can be achieved to a standard in order that we can better serve our members, profession and society at large.

Subsequent to the sharing by President Ir Dr Barry Lee as recounted in the Journal’s July 2023 issue, Mr Nan Sun, Consultant for Shenzhen Association of Science and Technology and Prof Y H Liu, Chairman of Guangdong Automation Association, delivered their keynote addresses. Mr C K Wu, the Legislative Assembly Member for the Macau SAR and President of The Macau Institute of Engineers (AEM), offered his congratulations on the Summit’s success via a video presentation.

A panel discussion of 科普、科技、自動化、創新、 大灣區、中國夢 was then facilitated by Ir Prof Louis Lock. VIP guests from the Mainland, such as Prof X D Yang (Vice Principal of Shunde Polytechnic), Ir P K Lee, JP, Chairman of Association of Engineering Professionals in Society (AES) and Ir Dr Tony Lee, Organising Committee Deputy Chairman (Academic) were invited to share their ideas and experiences relating to the innovation and technology developments in the Greater Bay Area. During the discussion, Prof Yang gave his views on the applications of AI in smart manufacturing in Foshan, which was much appreciated by the audience.

After a short break, Prof Alfred Wong (Interim College Master, Cheng Yu Tung College, University of Macau) spoke on...
It is my honour to serve as Chairman of the EL Division. I would like to express my heartfelt gratitude to our Immediate Past Chairlady, Ir Mandy Leung, who has shown her excellent leadership and full commitment to serving our members. I have been serving the Division since 2013 and I am really grateful to be a part of the team, which will continue to be fully devoted to serving our members. This culture advocates that the EL Division is one of the most well-organised Divisions of the HKIE and I will surely do my best to continue this tradition and lead our Division to discover new horizons.

The outbreak of COVID-19 dealt us all a heavy blow, but it did not and will not stop us from boosting our professional status through a number of Division activities.

Young engineers and engineering students are the most valuable resource for our industry and for society as a whole. So, in addition to boosting our professionalism to help make young talent proud to be engineers, we also need to engage them at different stages of their school life to encourage them to become competent engineers in the future.

Over the years, the EL Division has created a platform to build close connections with young engineers and engineering students. We will continue with this engagement and nurture them to become the next generation of electrical engineers.

As we continue to get “back to normal”, we will hold a number of local signature events in this Session. One example is our highlight event, the International Council on Electrical Engineering (ICEE) Conference 2023, already held from 2 to 6 July. This was our first fully on-site event after three years of COVID and enabled us to meet and bond once again with delegates from the Mainland, Japan and Korea right here in Hong Kong.

We will also resume our overseas and mainland technical visits to help our members exchange their knowledge with fellow engineers around the world.

Last but not least, I would like to solicit your continuous support and active participation in our activities – without your support, nothing could be achieved!
Webinar on gas engines in energy transition to net zero

By Ir Dr K F WONG

Transition to net carbon zero is one of the most important topics in the energy and power industry these days and gas-fuel reciprocating engines can help to provide sustainable and economical power for a greener future.

The EL Division organised the captioned webinar on 16 May 2023. About 200 participants joined the seminar online. Mr Yanjia Sun from Jenbacher China, who was the speaker, introduced our members to a distributed generation of gas engines.

Mr Sun, who has over 20 years of professional experience in energy solutions and industrial automation, first explained the definition of distribution energy as generation units in different locations of an electrical distribution system and close to the end users. He then compared its advantages, such as flexibility, reliability and higher transmission efficiency, to the centralised ones.

Mr Sun then explained in detail the gas-fuelled distributed combined heat and power (CHP) generation. While it combusts fuel gas to drive a prime mover to generate electricity, it simultaneously recovers energy from hot exhaust gas to produce steam and hot water. Apart from natural gas, fuel gas is also available from renewable sources such as biogas, sewage gas, landfill gas and hydrogen. CHP also has advantages of high overall efficiency and low black-start requirements. Mr Sun highlighted several applications of CHP in government projects that utilise biogas and sewage gas.

Mr Sun mentioned that China aims to achieve carbon neutrality before 2060. The route to decarbonisation will take both energy security and available sources of energy into account. The use of coal in energy generation will decline rapidly in the coming decades, while the use of renewable energy will rise to 60% in 2060. Because of the intermittent nature of energy generation by renewable sources, Mr Sun believed that excess energy can be stored in the form of hydrogen for CHP engines.

The webinar was wrapped up with a question-and-answer session. Participants actively raised questions about CHP and hydrogen fuel. The EL Division would like to express our gratitude for the very fruitful sharing by the speaker.

Fire

Chairman’s message

By Ir Anthony W K PAU

It is my honour to serve the FE Division as Chairman for Session 2023/2024. I would like to take this opportunity to extend my heartfelt gratitude to all our Past Chairmen and Committee Members for their excellent leadership and many contributions to the success of the FE Division.

With everything now returning to normality after the pandemic, the FE Division has resumed physical connections with our members and stakeholders. Physical technical visits, seminars, the Annual Symposium, CPD Courses and outbound study tours will be organised once again to
I am greatly honoured and humbled to be elected Chairman of the GE Division. Allow me to express my sincere gratitude to the members of the GE Division for the opportunity to serve in this capacity. Special thanks to our Immediate Past Chairman, Ir Dr Johnny Cheuk for his remarkable leadership navigating the GE Division through the challenging times of the pandemic.

As we move further into 2023, we can finally put the pandemic behind us and turn the page to a new chapter. Now it’s time for us to elevate the professionalism of geotechnical engineers to new heights through fostering international collaboration and knowledge sharing. There are huge opportunities for us to play a major role in the infrastructural and developmental projects that are currently in the pipeline.

However, let us not overlook the challenges that persist within our industry – winning the talent war, retaining young talent, and escalating safety practices in construction. To win the talent war we must raise the profile of geotechnical engineering and showcase the impactful role it plays in society.

Embracing smart digital tools will improve the career prospects of geotechnical engineers and enhance productivity. To retain young talent, we must continue to deepen our communication and connect with young members. In construction safety, we have a duty to embed safety into all our designs and harness digital technologies to prioritise buildability and quality.

The FE Division will continue to serve as a platform to promote the adoption of fire engineering design and the Registered Fire Engineer Scheme. We will work with local universities to offer top-up opportunities for young engineers as well as existing members of the FE Division to fulfil their academic qualification to join the fire discipline and become professional fire engineers.

Finally, I would strongly encourage you to visit the Fire Engineering Digest, a depository of technical materials and activities from our past symposia, CPD Courses, Fire Engineering Excellence Awards as well as fire safety design and management. It is accessible to all HKIE members with your passwords in the FE Division’s website. I am sure you will find it is a valuable repository of knowledge and very informative about fire engineering and fire safety.

I look forward to receiving your continuous support and meeting you soon in our activities.

Geotechnical

Chairman’s message

By Ir Dr Gavin S H TOH

I am greatly honoured and humbled to be elected Chairman of the GE Division. Allow me to express my sincere gratitude to the members of the GE Division for the opportunity to serve in this capacity. Special thanks to our Immediate Past Chairman, Ir Dr Johnny Cheuk for his remarkable leadership navigating the GE Division through the challenging times of the pandemic.

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I look forward to receiving your continuous support and meeting you soon in our activities.
Echoing the theme of our President, Ir Dr Barry Lee – “We Engineer, We Serve” 「知行合一 成就專業」, I have been inspired by the phrase: “servant leader”. While we take pride in being engineers, we are reminded to serve our fellow engineers and the wider public with professionalism and proficiency.

We can achieve this through the art of storytelling to inspire young minds and retain young talent, steering continuous improvement in our expertise and performances to raise the professionalism of geotechnical engineers and embrace a sense of personal responsibility to prioritise safety in our engineering designs.

We look forward to another successful and fruitful year for the GE Division with the dedication of my fellow Committee Members.

Technical visit to the Hong Kong-Shenzhen Innovation and Technology Park at the Lok Ma Chau Loop

By Ms Hammie K W NG

The technical visit to the Batch 1A Development of the Hong Kong-Shenzhen Innovation and Technology Park (HSITP) at Lau Ma Chau was successfully held on 10 June 2023 by the GE Division. Kindly supported by the Hong Kong-Shenzhen Innovation and Technology Park Ltd and hosted by the China Road and Bridge Corporation (CRBC) and the lead contractor of the CRBC, the Tak Wan-CWF Joint Venture, the participants enjoyed a valuable learning experience throughout the visit.

During the visit, the background of the Joint Venture was introduced. The Batch 1A Development consists of two main works areas with on-going foundation works for buildings which are separated by a temporary access road.

The foundation works, the excavation and lateral support (ELS) system and the site setup for Buildings 8 & 9 and Building 11 were discussed. For Buildings 8 & 9, a temporary working platform supported of king posts and struts was installed to support the heavy duty equipment. Prefabricated struts with bolt and nut connection designs were adopted to expedite their installation and enhance site safety.

The logistics and interface management were also discussed, including two different temporary traffic arrangement schemes, namely, a one-way gyratory system to control the queues of construction vehicles during working hours and maintain two-way traffic at other times.

The environmental management plan included various measures to minimise potential nuisances that may be caused by wastewater, noise, and air pollution. Innovative robotic construction was adopted for welding the connections of the sheetpile and temporary steel casings for bored pile installation. This provided high quality and easy access that helped to accelerate the process.

A guided tour was arranged to the construction area to showcase the site arrangements and support installations for the wide and deep excavation.

The visit provided a precious opportunity for participants to learn the large-scale excavation and support which were carried out in a safe, efficient, and well-managed manner for this project. On behalf of all the participants, we wish to express our sincere gratitude to the hosts for their kind arrangements and experience sharing during the visit.
**Logistics & Transportation**

**Technical seminar on the application of AI in transportation**
By Ir Terry CHAN

The captioned seminar was held on 19 June 2023 and attracted a diverse pool of enthusiastic attendees. During the presentation, Dr Ke Jintao, Assistant Professor in the Department of Civil Engineering at The University of Hong Kong (HKU), delved into the complex challenges and fascinating research questions surrounding ride-sourcing services, sparking a lively and engaging discussion among the participants.

Dr Ke’s ground-breaking simulation platform, presented during the seminar, replicates the real taxi market with staggering accuracy, boasting an error margin of less than 15% between the simulation and a real trajectory.

The simulation platform included essential modules such as pricing, matching, repositioning, and routing. The two-stage framework of online matching and offline AI learning is a remarkable feat that matches drivers and passengers instantaneously, approximating the spatiotemporal future value of each location and interval using historical data.

Dr Ke also discussed the coordination of ride-sourcing and public transit services, and presented a model that recommends passengers to choose a combined mode of ride-sourcing and public transit services, thereby creating a win-win situation that increases the utilisation rate and profits of the ride-sourcing platform while improving transit usage.

With ideas like the establishment of a simulator for a Mobility-as-a-Service system and the estimation of the carbon footprint for a multimodal transportation network or fleet of vehicles, Dr Ke’s vision for the future of transportation and AI is genuinely awe-inspiring.

On behalf of the LT Division, we thank Dr Ke for sharing his invaluable expertise on the application of AI in transportation. The seminar was a highly enriching experience, and we are grateful for the opportunity to learn from such a distinguished expert in the field.

**Manufacturing, Industrial & Systems**

**Chairman’s message**
By Ir Dr Eric S L LIU

It is my great honour to succeed our Immediate Past Chairman, Ir Norman Chan, and be elected Chairman of the MI Division for Session 2023/2024. My sincere thanks to all Past Chairmen for their great support, and also to all the Committee Members, Co-opted Members, Observers and helpers for their tremendous contributions to the Division. I am excited to be part of a team which is fully committed to the continuous development of the MIS profession.

The MI Division is a long-established division of the HKIE and we have a very wide engineering spectrum as most of our members have crossover professions with other stakeholders in the engineering and technology sectors.

Apart from our annual flagship event, the HKIE MIS Industry Award, we will continue to organise various activities including conferences, seminars, technical visits and project
competitions, to enhance and encourage engineering expertise.

We are committed to teaming up with industry leaders and local academia to promote the ‘New Industrialisation’ movement. This is creating many amazing opportunities for engineers to innovate and upgrade traditional manufacturing industries by adopting new technologies, such as artificial intelligence (AI) and the Internet of Things (IoT) for smart manufacturing.

Looking ahead, Hong Kong will increasingly move toward the goal of becoming an international Innovation & Technology hub. The Division will continue to play its role in facilitating the exchange of professional views between our members and the industry with the authorities and key stakeholders. We will also gear towards promoting innovation and smart technology, and raising the standing and visibility of the MIS engineering profession. To improve the link with the Mainland and the Greater Bay Area (GBA), we will hold activities, visits and exchange discussions with engineering bodies across the border.

To ensure the success of the Division, I appeal to all members for your active participation and continuous support. I sincerely look forward to seeing you in our coming events and activities. Thank you!

Mechanical, Marine, Naval Architecture & Chemical

Technical visit to Kai Tak MTR station for Tunnel Environmental Control System (TECS)

By Mr Calvin WONG

The captioned visit was held on 13 May 2023 by the MC Division. Kai Tak MTR station was one of the stations on the Tuen Ma Line opened for operation in February 2020.

During the visit, speakers from the MTR introduced the principles of TECS design to handle normal, congested and emergency conditions for railway systems. For emergency conditions, tenable conditions should be provided for evacuation on the principle of push-pull or local smoke extraction depending on the location.

The components of TECS were also introduced, including mechanical elements like Tunnel Ventilation Fans (TVF), power supply elements like the Motor Control Centre (MCC), pneumatic control elements like air compressors, dryers and pneumatic tanks and the main control elements like Programmable Logic Controllers (PLC).

After the briefing, a site visit was conducted to introduce the functions of each element and share the factors being considered for manufacturing, construction, and operation.

First, the Station Control Room and Station Computer Room were visited for the TECS control skeleton. Then, the group went to the TVF room where special features such as double-hinged joints for access panels to airducts and internal fan guides were introduced.

Other plant rooms like the MCC room, the Air Compressor room and Trackway Fan room were visited to demonstrate the workmanship and design considerations such as, for example, a preliminary thought of adopting the concept of DfMA for the treatment panel inside the air compressor room.

Finally, the vertical TVF room was visited and the improvement of installation work during design development was demonstrated by the metallic rings used to fix the flexible connectors.

After the visit, a group photo was taken and the organisers and participants were thanked.
Young Members Committee

Technical seminar on digitalised site management
By Ms P S SHIH

The captioned online seminar was successfully held by the YMC on 27 April 2023. The speaker, Mr Eric Tse, Project Environment Manager of Hip Hing Construction Co. Ltd, shared his experience of developing two mobile applications for the company, Hip Hing Connect and the Material Management App (MMA), to achieve effective digitalised site management.

Hip Hing Connect is a mobile application that integrates site worker registration, profile recording, induction training, and safety performance assessment functions into a single app. In the registration process, the data on workers’ cards is recognised by the Optical Character Recognition (OCR) system and auto-filled in the app. The centralised worker profile database enables workers access to different sites, saving time in making and printing multiple registration which is both more efficient and environmentally friendly.

To facilitate the implementation of the new process and application, a grace period was granted to sub-contractors. Training materials were also provided for workers, sub-contractors, and internal staff to allow various parties to adapt to the app.

The Material Management App (MMA) is a mobile platform that allows construction sites to exchange surplus construction and demolition materials. Projects with surplus materials are matched with projects in need of those materials through the app, facilitating their trade and transfer process. This solution promotes sustainability by reducing wastage. According to Hip Hing’s actual case assessment, 32,500 tonnes of material have been saved, as well as the associated administration fees and costs of discharging and purchasing new materials.

Participants raised questions in the question-and-answer session. One of the participants’ concerns was about privacy and security, and the speaker said that sensitive information would not be backed up to a server and the IT department monitored security.

The seminar provided insights into developing and implementing digitalised site management. As Hong Kong is transiting towards being a smart city, the trend to digitalisation in the construction industry is inevitable.

Overseas delegation to Germany - the moment of engineering evolution (jointly organised with the HKIE-CPDC)
By Ir T K CHEUNG

The captioned delegation from 30 March to 10 April 2023 was organised to study advanced German technology, policy and practices and an industrial ecosystem with their potential applications in Hong Kong.

The theme of the delegation was “The Moment of Engineering Evolution”. The delegation aimed to explore how Hong Kong could be developed into a smart and sustainable city by studying three major areas: Digital Transformation, Energy Transition, and a Sustainable City.
On Digital Transformation, the group visited the Karlsruhe Institute of Technology to study the experience of Germany in nurturing an innovative culture. Challenges like motivation, talent, and market conditions were also discussed. Visits to Autostadt, Bausch + Ströbel demonstrated the successful implementation of Industrie 4.0 solutions in Germany.

On Energy Transition, the energy expert in Deutsche Energie-Agentur GmbH (dena) introduced us to the German strategy for achieving carbon neutrality and energy security. We also visited TU Berlin to study the latest wind technology, including offshore wind turbine hydrodynamic simulation and active blade control.

In relation to a Sustainable City, Hafencity gave us a good example of how to achieve the United Nations Sustainable Development Goals (UNSDGs) during urban development. Hamburg Harbour provided Hong Kong with a comparable case on flood management infrastructure. We also visited the Reichstag Building and Global Tower to study green concept buildings.

Besides the technical visits, the delegates also had opportunities to exchange ideas with the local engineering society. We met young engineers from VDI Young Engineers in Berlin, Hamburg and Karlsruhe. We were also delighted to meet up with the founding chair of the Institution of Mechanical Engineers (IMechE) Germany. Insightful and fruitful knowledge sharing was exchanged over dinners.

The overseas delegation to Germany provided valuable insights into how Hong Kong could develop an innovative culture, implement Industry 4.0 solutions, achieve carbon neutrality, and implement sustainable development concepts. We hope that the insights gained from the visit will help Hong Kong to develop into a smart and sustainable city.

Forever Young Alumni

Chairlady’s message

By Ir Sally S Y LEUNG

It is my great pleasure and honour to be elected Chairlady of the FYA for the Session 2023/2024.

The FYA is a group of Past Chairmen and Committee Members of the Young Members Committee (YMC) who have retired or resigned from their service. The Committees of the FYA get together to continue serving the institution, remain closely connected to the industry and maintain friendships after their retirement from the YMC.

Over the past years, the FYA has organised seminars, workshop, eco tours, day trips and overseas exchange visits and delegations which have established a solid groundwork and accomplished a lot.

As we move further into the new year and resume normal life once again after COVID, we plan to focus on health, well-being and networking in this Session. We also plan to conduct some interesting activities such as interactive coffee making classes, green tours, countryside walks, equity seminars and fellowship and networking dinners to keep up the momentum of the FYA and continue serving the industry.

We will continue to send representatives to join HKIE Task Forces and Focus Groups whenever needed. We will also
It is my great honour to be elected as Chairlady of the PPC for Session 2023/2024 and I am delighted to continue serving our fellow club members, as well as the HKIE.

I wish to express my sincere gratitude to our President, Past Presidents and Past Chairmen of the PPC including our Immediate Past Chairman Mr Parry Chan for his excellent leadership during the hardships of the pandemic. I would also like to extend my thanks to all the Committee Members for their dedication and to the members for their tremendous support.

The PPC was formed by Apprentices or Protégés who have been selected by the President of each Session since 2009. It offers a platform for Protégés and the Past Presidents of all sessions to gather, network and maintain a close relationship with the HKIE.

Over the past years, the PPC has organised a wide range of self-initiated activities to enhance communications between members and promote engineering to the public. The principal aim is to support the President, contribute to the HKIE and serve the community.

Activities include the Engineering Fun Day for primary school students, the Engineering Exploration Programme for secondary school students and volunteering projects. After nearly three years of social distancing and travel restrictions due to COVID, we resumed holding the PPC Annual Dinner in February and successfully organised the PPC President’s Club, as well as an Overseas Delegation in June 2023.

Echoing the theme of our President “We Engineer, We Serve”, our team is eager to keep up our commitment to our members, our Institution and our community. Please stay tuned and check out our Facebook page for more information at https://www.facebook.com/HKIEPPC/.

Follow us on Instagram @hkie_proteges and get connected on LinkedIn!
the first face-to-face President’s Cup in the form of a Bowling Competition on 11 June 2023.

Teams of four participants took part with the final three teams with the highest scores after the semi-final and final rounds receiving medals and cash coupon rewards up to a maximum of HK$2,000!

We were thrilled to have a total of eight teams, consisting of over 30 protégés and honoured guests from various sessions participating in the event. The competition was intense yet exciting, and every participant dedicated their best to each strike and gave it their all to represent their respective teams.

Everyone enjoyed a delightful afternoon with a lot of laughter and remarkable moments. It was a precious opportunity to widen our social circle and share new ideas in a casual atmosphere. Many participants said it had been a long time since they had bowled and they felt very excited during the three-hour competition.

Congratulations to the winning teams and sincere appreciation to our President Ir Dr Barry Lee, Immediate Past President Ir Aaron Bok, and Past Presidents Ir Chan Chi-chiu and Ir Edwin Chung for joining and officiating at the event.

Our champion team was “Rolling in the Deep” which consisted of Ir Bok, and three of his Protégés including Mr Edison Pak, Miss Sarita Chan and Mr Kenny Siu!

Overall, the event was a huge success and we look forward to welcoming more protégés for taking part in our annual President’s Cup in other format of team-based activity in the coming years!

The HKIE Toastmasters Club

HKIE Toastmasters Club Regular Meeting held on 6 July 2023
By Mr Peter WONG

The theme for this meeting was “A New Start”. Both members and participants shared their experiences of company works project planning and setting up teams. Tips on how to learn new skills and hobbies effectively were also shared.

We were grateful to have Mr Tom Wong as the Toastmaster for the Evening and Mr Peter Wong as the Table Topics Master. Mr Wong initiated an interactive Table Topics Session and encouraged the audience to share their knowledge and experience of project management.

Techniques for turning failures into successful experiences were also shared along with learning new skills, starting a new job and goal setting. Participants in the Table Topics were encouraged to deliver their speeches on stage to practice their public speaking skills.

Prepared speeches were delivered by Mr Leo Lee (Pathway Level 1 Project Title: Introduce Myself) and Mr Tom Wong (Pathway Level 2 Project Title: What is it like to be a Supportive Style Engineer). The speeches were evaluated based on their strengths and areas for improvement in public speaking skills.
The best speakers and evaluator were also selected. The best table topic speaker: Ms Briana Lam The best prepared speech: Mr Tom Wong The best evaluator: Ms Melissa Waye

TMC meetings are a learn-by-doing platform where participants hone their speaking and leadership skills in a relaxed atmosphere.

They also offer a wonderful opportunity to expand your engineering network. If you are interested in joining us, please contact our Vice President Public Relation Ms Jessy Ng by email at jessy.cs.ng@clp.com.

Veneree Club

Chairman's message

By Ir Simon CHUNG

I am honoured to serve as Chairman of the VC for Session 2023/2024.

The VC has been committed to serving the retired members of the HKIE since it was established in 2012. In the coming session, together with our Committee Members, we would like to strengthen our commitment to serve as highlighted below.

We will continue to organise talks with popular speakers covering a wide variety of topics including health, travel, culture and history that go well beyond the engineering matters we used to engage in during our careers. Before and during the talks, we will resume our tea gatherings so that our members can make new friends and meet old friends.

We will continue holding the talks in both physical and virtual modes to extend our service to more members.

In March 2023, we held our annual Engineering Exposition (EngExp) for young engineers with physical participation. This provided an excellent opportunity for the new generation to learn from senior members on how to face the challenges of an engineering life and what kind of attitude they should adopt to achieve their career goals.

During the main talks this year, we organised break-out sessions to encourage greater communication between the speakers and young engineers. We will also be adopting this idea in the upcoming EngExp.

We resumed our popular outings and visits to place of interest to enable our members to come together. We will now make these events a regular bi-monthly activity.

The success of the VC depends on the passionate support of our members. We welcome retired HKIE engineers to join our activities and we encourage them to continue their service to the community. Our activities are open to members of all engineering disciplines. Simply go to Veneree Club on the HKIE website and register for participation.

Finally, I would like to take this opportunity to express my sincere gratitude to the Past Chairmen for their excellent leadership in the past years.
On 21 June 2023, the VC organised the captioned talk which attracted 129 HKIE members.

The talk was delivered by Ir Prof Norman W M Ko, Chair Professor in the Department of Mechanical Engineering at The University of Hong Kong (HKU), until he retired in 2000. Ir Prof Ko continues serving different Hong Kong universities as a professor and fellow but, in addition to his achievements in engineering, he is also well known as a world-renowned sculptor. He is Fellow Member of the UK Royal Society of Arts, a Member of the Chinese Artists Association and a founding member of the Hong Kong Sculptors Association. In recognition of his achievements and contributions to society, the HKIE awarded Ir Prof Ko with the Institution’s Gold Medal in 2021.

In the talk, Ir Prof Ko focused on the ancient sculptures in the three European national museums that he had visited recently to explain the various development stages and characteristics of ancient sculptures in Western civilisations.

The three museums he visited were the National Archaeological Museum of Athens, in Greece, the Istanbul Archaeological Museums in Turkey, and the Louvre Museum in Paris, France.

The talk started with the origins of sculptural art in ancient Greece and explained the emergence of the archaic and classic styles during the development of the ancient Greek civilisation.

Ir Prof Ko then moved to the modification stage of ancient sculptural art exemplified by the Hellenistic style, following the conquests of Alexander the Great, which flourished in the Near East and was subsequently further enriched by the Romans. The Hellenistic style is characterised by naturalism and realism which had a profound effect on the development of sculptural art in the Renaissance and later periods.

A lot of questions were raised by the participants in the talk, and Ir Prof Ko addressed them all with passion and patience.
Presidential Address/Dinner

Friday, 15 September 2023
Hong Kong Convention and Exhibition Centre (HKCEC)
1 Harbour Road, Wan Chai, Hong Kong

Programme
Presidential Address
6:15pm
Ir Dr Barry C H LEE will deliver his Presidential Address at 6:15pm at Theatre 1, HKCEC.

Cocktail and Dinner
7:00pm for 7:45pm
Members and their guests are welcome to join the President for the cocktail and dinner following the Presidential Address at Convention Hall, HKCEC. The price is HK$1,800 per person which covers the pre-dinner cocktail and dinner.

Dress Code
Lounge suit

Honours and Awards
We are pleased to announce that 11 distinguished members of the Institution were conferred honours by the Chief Executive in this year’s honour list in recognition of their remarkable contribution to Hong Kong or for their meritorious public and community service. They are:

Silver Bauhinia Star (SBS)
Ir LO Kwok Wah, SBS, JP
Ir Alice PANG, SBS, JP

Bronze Bauhinia Star (BBS)
Ir CHEUNG Yuen Fong, BBS
Mr Michael John GREEN, BBS

Medal of Honour (MH)
Ir Prof CHUNG Kwok Fai, MH
Ir SHEN Shuk Ching, MH

We are also delighted to note that six distinguished members have been appointed Justices of the Peace (JPs) or Non-official JPs with effect from 1 July 2023.

Registration and Enquiries
Please visit the HKIE website at www.hkie.org.hk/PresidentialDinner. Please complete and return the Reply Form with the appropriate payment before Friday, 18 August 2023 to:

Eli MOCK / Mandy TSE
Conference and Function Section
The Hong Kong Institution of Engineers
9/F Island Beverley, No 1 Great George Street
Causeway Bay
Hong Kong
Tel: (852) 2830 9021
Fax: (852) 2203 4133
Email: conf3@hkie.org.hk
Mandatory Continuing Professional Development Requirements for Corporate Members

Commencing 1 January 2019, competence-based approach to CPD activities will be fully implemented as part of CPD requirements for Corporate Members. Corporate Members are required to undertake, out of the 30 hours per year, at least 5 hours each for two areas of CPD activities, namely “Discipline-Specific Technical Matters” (DSTM) and “Broader Areas of Studies” (BAS) or “General Professional Matters” (GPM). In 2021, the HKIE further updated the CPD requirements for its members. Corporate Members are required to attend at least 3 hours per year of CPD activities related to “Health and Safety” (H&S) effective for CPD declaration from 2022 onwards.

Corporate Members are required to complete and return an annual CPD Declaration Form together with the membership subscription advice to the Institution. A random checking, usually 1% sampling, on all Corporate Members, will be conducted on an annual basis. Members who are selected for checking will be asked to submit their evidences of CPD.

The following actions shall be taken in case of non-compliance:

1. Corporate Members will receive a warning letter if they fail to comply with the CPD requirement for the first year that they were selected for sampling, and will be asked to submit their CPD attainment again for the following year; Warning letters will be issued to Corporate Members who fail to comply in two consecutive years. The HKIE Continuing Professional Development Committee (CPDC) will also follow up with those Corporate Members on the reasons of non-compliance;
2. Corporate Members who fail to comply with the CPD requirement again in the second year may be asked to submit their CPD attainment for the following year and be invited to an interview with CPD Committee Representative(s) or to attend specific HKIE CPD activities proposed by the CPDCSP; and
3. Corporate Members who fail to attend interview or the specific HKIE CPD activities in the third year may have their names published in the HKIE website and the HKIE journal; the frequency of which shall be determined by the CPDC.

For details, please refer to the “Guidance Notes for Mandatory Continuing Professional Development (CPD) for Corporate Members” which is available on the HKIE website at http://www.hkie.org.hk.

Mandatory Basic Safety Training under the Factories and Industrial Undertakings Ordinance, Cap. 59

Corporate Membership has satisfied the Commissioner for Labour in respect of section 6BA(4), Cap 59 since 1998 on the understanding that Corporate Members have undertaken a minimum units in the Continuing Professional Development (CPD) programmes, which include updates on occupational health and safety legislation. On the basis that Corporate Members will continuously update their knowledge in occupational safety and health through CPD, Corporate Members of the HKIE do not need to take mandatory basic safety training before entering construction sites.

Please note that the HKIE is required to provide such CPD records concerning the recognition of the Corporate Members’ training for the purpose of section 6BA, Cap 59 upon the request of the Labour Department.

Members may refer to the online references of safety training for information:

- Occupational Safety & Health Council (https://www.oshc.org.hk/eng/main/training/)
- Construction Industry Council (http://www.cic.hk/eng/main/safety-corner/)
- HKIE Safety Specialist Committee (http://ssc.hkie.org.hk/)

Policy on Reinstatement

Corporate Members and Associate Members who have been removed from the membership roll (due to resignation or striking off by Council resolution) for more than seven years will be required to submit fresh applications should they wish to re-join the Institution. All other grades of members who have been removed from the membership roll (due to resignation or striking off by Council resolution) for more than three years will be required to submit fresh applications should they wish to re-join the Institution. Subject to the above, the current payment scale for reinstatement of membership other than for non-resident members, is a reinstatement fee of HK$410 (for administration purpose), plus all arrears in subscription. The arrears in subscription shall be subject to a maximum of three years’ subscriptions prior to the application for reinstatement of membership.

Non-resident members who apply for the reinstatement of membership as non-resident members shall only be required to pay a reinstatement fee of HK$410; all arrears in subscription shall be waived. All other requirements for reinstatement of membership shall remain unchanged.
NOTICES TO MEMBERS

Update on “SARTOR3” (Standards and Routes to Registration 3) and “UK-SPEC” (The UK Standard for Professional Engineering Competence)

The Engineering Council (UK) implemented “SARTOR3” system from 1999. Accredited MEng degrees or accredited BEng degrees plus matching sections are required to satisfy the academic requirements for Chartered Engineers in the United Kingdom. The HKIE is a signatory to the Washington Accord and the HKIE recognizes the accredited MEng or accredited BEng degrees plus matching sections of the Engineering Council (UK) from first intake year 1999 as satisfying the academic requirements for Member of the HKIE.

With effect from 1 March 2004, the “SARTOR3” system has been replaced by the “UK-SPEC”. The Engineering Council (UK) has revised UK-SPEC and has implemented it from 31 December 2021. The academic requirements for Chartered Engineers (CEng) Registration are:

(i) An accredited Bachelors degree with honours in engineering or technology, plus either an appropriate Masters degree or engineering doctorate accredited by a Licensee*, or appropriate further learning to Masters level
(ii) An accredited integrated MEng degree
(iii) An accredited Bachelors degree with honours in engineering or technology started before September 1999
(iv) Equivalent qualifications or apprenticeships accredited or approved by a Licensee*, or at an equivalent level in a relevant national or international qualifications framework

* Licensee is the engineering institutions that have been licensed by the Engineering Council (UK) to assess individuals for professional registration.

The HKIE shall accept graduates from the UK as satisfying the academic requirements for Member of the Institution if they could provide document proof from the Engineering Council (UK) that they have satisfied the academic requirements (i) to (iii) above for Chartered Engineers (CEng) Registration.

HKIE Diary – Place your order online!

The HKIE Diary is a pocket-sized planner featuring information about the Institution and useful telephone numbers. Members may place an order for a complimentary copy of the HKIE Diary 2024 at the Member Login Area of the HKIE website by Thursday, 31 August 2023.

Upon successful order, members will receive an acknowledgement email in September 2023, and the HKIE Diary will be sent out in December 2023. Late orders will only be accommodated while stock lasts and an administrative charge of HK$40 will apply.

For enquiries on the access of the HKIE Member Login Area, please contact mlssupport@hkie.org.hk.

Remarks:
• Members are encouraged to update your correspondence address at “My Profile” under “Services” in the Member Login Area.
• Please note that only subscribed members with valid membership will receive the publication ordered.
• Student Members under the Free Student Membership Scheme are not eligible to order the HKIE Diary.

Online CPD Logbook for Members of the HKIE

The online CPD logbook service is now in operation to provide solely for members of the HKIE to record their personal CPD activities. Members are invited to enter the Member Login area of our website to access to this online free-of-charge CPD logbook for keeping a systemic record of their CPD participation.

For trainees who are under the formal training schemes of the HKIE, they will remain to be required to record their CPD activities in the Record of CPD with endorsement by their Engineering Supervisors.

If you have any questions, please feel free to contact the Member Login Service Support at mlssupport@hkie.org.hk.

HKIE Member Login Area
https://www.hkie.org.hk/memberarea/
HKIE Transactions

HKIE Transactions is an international journal that provides a forum for discussing all aspects of engineering from both theoretical and practical perspectives. Full-length papers, technical notes and discussions on any topic of engineering are always welcome. If your expertise is in any aspects of engineering including but not limited to the following areas, we look forward to receiving your paper!

- Aeronautical, aerospace and aviation engineering
- Building science and services engineering
- Chemical, biological and biomedical engineering
- Civil and structural engineering
- Computer science
- Electrical and electronic engineering
- Energy and environmental engineering
- Engineering management
- Industrial and manufacturing systems engineering
- Information engineering
- Materials science and engineering
- Mechanical and automation engineering

Good quality practical papers are as welcome as those of an academic nature.

Submit your manuscript via ScholarOne Manuscripts System (S1M)
Online submission of manuscripts: http://mc.manuscriptcentral.com/thie.

Before submission, authors are invited to read the submission guidelines at: https://www.hkie.org.hk/hkietransactions/instructions-for-authors for the Instructions for Authors and Referencing Style.

The journal is now paper-free and subscription-free. Published papers are now at http://www.hkie.org.hk/hkietransactions for all you can read!

Enquiries
hkietransactions@hkie.org.hk

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For enquiries, please contact the HKIE Corporate Communications Section
Tel: 2895 4446
Email: sponsorship@hkie.org.hk

Listen to the Hong Kong Engineer

Enjoy the convenience of the “Read Out Loud” function when reading the Journal’s pdf version.

User Notes
The HKIE Transactions Committee is honoured to announce that Prof Shahid MUMTAZ, Professor of Digital Innovation in Nottingham Trent University, and Dr Zhigao ZHENG, Associate Professor at Wuhan University have accepted our invitation to be the Guest Editors for the Theme Issue in the HKIE Transactions on the topic “Deep Learning for IoT Big Data and Streaming Analytics”. This Theme Issue will be published in the HKIE Transactions in June 2024. You are invited to submit manuscripts to this Theme Issue. Detailed information is as follows:

Introduction
In recent years, many researchers have proposed approaches and frameworks for fast-streaming data analytics that leverage the capabilities of cloud infrastructures and services. However, how to process the fast-streaming data for some emerging applications in smaller scale platforms (i.e., at the system edge) or even on IoT devices is a great challenge. This Theme Issue aims to present a collection of high-quality research papers on the state of the art in emerging technologies for the applications of recent trends in Deep Learning (DL) technologies for the IoT domain. We are soliciting original contributions that have not been published in and are not currently under consideration by any other journals. Both theoretical studies and state-of-the-art practical applications are welcome for submission. All submitted papers will be peer-reviewed and selected on the basis of both their quality and their relevance to the theme of this issue.

Topics of interest include, but are not limited to the following scopes:

- Blockchain for data security and privacy
- Cloud-Assisted Data Fusion and sensor selection for Internet of Things
- Computational and Artificial Intelligence algorithms
- Data Driven Decision Making Systems in IoT applications
- Deep Learning (DL) technologies for IoT domain applications
- Deep Learning Models for Time Series Data and IoT
- DL for smart IoT devices
- Emerging DL techniques for IoT data analytics
- Emerging hardware architectures for IoT and Big Data
- Fault tolerant, redundant systems
- Fog and Cloud Computing for (near) real-time analytics
- Hybrid Intelligent Models for IoT Context-Aware Systems
- IoT analytics for improving the dependability of IoT systems
- IoT and Big Data Analytics on Energy-Constrained platforms
- IoT big data analytics and IoT streaming data analytics
- Machine learning for IoT data processing
- Multimodal data analysis and information fusion in IoT
- Multi-Task IoT System Modelling and analysis
- Optimisation, control, and automation
- Prediction of situational awareness with IoT data
- Secure and privacy preserving stream analytics
- Smart cities and systems
- Streaming data learning algorithms for IoT
- Swarm Intelligence and Big Data for IoT
- Visualisation techniques

Submission Guidelines
The deadline for final manuscript submission is **Friday, 29 September 2023**. All manuscripts should be submitted through the HKIE Transactions ScholarOne Manuscripts site at [https://mc.manuscriptcentral.com/thie](https://mc.manuscriptcentral.com/thie). New users should first create a login account. Once logged on to the site, submissions should be made via the Author Centre. For more details regarding the author guidelines, please refer to the Instructions for Authors and Referencing Style.

More details
To know more about this Theme Issue, please, please visit: [https://www.hkie.org.hk/hkietransactions/9th-theme-issue](https://www.hkie.org.hk/hkietransactions/9th-theme-issue).

Enquiry
If you have any enquiries regarding this Theme Issue, please feel free to contact the HKIE Corporate Communications Section at +852 2895 4446 or via email at hkietransactions@hkie.org.hk.

Thank you in advance for your support to HKIE Transactions and we look forward to receiving your submissions soon.

Remarks:
1. The HKIE Transactions reserves the right to withhold any or all of the manuscripts at their absolute discretion.
2. The HKIE Transactions’ decision is final and no correspondence will be entered into.
“Proud to be Engineers” lapel pin

This golden, square-shaped lapel pin (equipped with a butterfly clutch) features the Simplified Dragon Coat of Arms at its centre and the words “Proud to be Engineers” — the Presidential Theme of Session 2022/2023 — on the sides. This simple but elegant design matches well with a suit and gives the pin’s wearers a sleek appearance that makes them proudly and instantly recognisable as engineers. The pin is available for sale at HK$100 each.

HKIE Rubik’s Pen Pot

If you are tired of rummaging around for pens and paper clips, the HKIE Rubik’s Pen Pot will come in handy for keeping your desk organised. It comes with a design that integrates the new HKIE logo with each letter printed on a side of the pen pot. It has two rows of magnets to store paper clips, and features a twistable-block that allows you to have fun while being practical at the same time. The HKIE Rubik’s Pen Pot is available at HK$80 each.

The HKIE thermo cup

Printed with the Dragon and Beaver Coat of Arms and the new HKIE logo, the HKIE Thermo Cup combines the HKIE’s tradition and modern simplicity style. It is great for hot or cold beverages. The button design enables easy locking and prevents spilling. Its simple elegance and high practicality can certainly satisfy your daily needs. The HKIE Thermo Cup is now available for sale at HK$90 each.

HKIE ties

With an eye-catching and stylish design, the HKIE Ties are among the most popular souvenirs for our members. Six new designs are now available and may be an essential piece to add to your wardrobe. Embroidered with the simplified HKIE Dragon Coat of Arms, either in a single, monogram or two-colour pattern, the ties are timeless accessories for fellow engineers and suitable for every occasion. The six new designs are now available at HK$100 each.

Simplified Dragon Embroidered (Navy blue)
Simplified Dragon Embroidered (Burgundy)
Monogram Dragon Pattern (Navy Blue)
Monogram Dragon Pattern (Burgundy)
Two-colour Dragon Pattern (Navy Blue)
Two-colour Dragon Pattern (Burgundy)

For details of our whole range of souvenirs, please visit: https://hkie.org.hk/en/membership/souvenir/
For enquiries and ordering, please contact our reception desk at 2895 4446.
The following elections were recently approved by Council of the Hong Kong Institution of Engineers.

**Member**

ANG Man Lung  
AU Cheuk Wah  
CHAN Che Kei  
CHAN Cheung Ho  
CHAN Ka Hei  
CHAN Ka Man  
CHAN Kam Chi  
CHAN Kwan Shing  
CHAN Lo  
CHAN Ngai Yan  
CHAN Pak Long  
CHAN Siu Keung  
CHAN Wing Lun Joshua  
CHEN Chun Tat  
CHEN Lei  
CHEN Yu  
CHENG Bik Nam  
CHENG Hiu Lam  
CHENG Wing Kwong  
CHENG Yuen Wai  
CHEUNG Chun Ho  
CHEUNG Chung Wa  
CHEUNG Kin Yip  
CHEUNG Lam Wai  
CHEUNG Tsun Wing  
CHIN Tjao Yuen  
CHIU Wing Shan  
CHOW Pak Ki  
CHOW Ting Sing  
CHU Shing Shun  
CHUNG Man Yuj  
CHUNG Yan Ngan  
DENG Chao  
DONG Hao  
FOK Shing Chi  
FONG Chi Ching  
FONG Chi Ki  
FONG Siu Wai  
FUNG Sau Long  
HO Chi Wah  
HO Ho Yin  
HO Ming Sang  
HO To Sum  
HUANG Yingxian  
HUNG Yui  
KEUNG Wai Cheuk  
KONG Ka Chun  
KONG Yuk Ming  
LAI Cheuk Wang  
LAI Hiu Ching  
LAI Kwan Ho  
LAI Lok Kei Rocky  
LAI Shun Yin  
LAI Tsz Kin  
LAM Chi Yeung  
LAM Hiu Yau  
LAM Ho Yiu  
LAM Ka Kit  

**Associate member**

CHAN Wing Chiu  

**Graduate member**

BOY Giovanny  
CHAN Chin Ngai  
CHAN Ching Ting  
CHAN Ka Wing  
CHAN Long Chung  
CHAN Pit Wang  
CHAN Pok Him  
CHAN Siu Wai  
CHAN Sui Cheong  
CHAN Ying Lung  
CHAN Yung Ming  
CHAU Oliver  
CHEN Mingjie  
CHENG Sheung Chit  
CHENG Wing Man  
CHEUNG Hiu Ching  
CHEUNG Hon Chou Ryan  
CHEUNG Tin Yat  
CHIU Mong Wang  
CHOI Kit Ming Raymond  
CHOW Hok Yiu  
CHOW Ka Yan  
CHU Chun Lok  
CHUI Ka Ling  
CHUNG Cheuk San Michael  
CHUNG Chi Yan  
CHUNG King Chun  
CHUNG King Lun  
CHUNG Sheung Yeung  
DU Zhenyu  
FAHEEM Sheikh Bilal  
FAN Liang  
FU Tianyu  
FUNG Ho Man  
HO Wing Kei  
HUI Ka Chun  
LAI Ho Kwan  
LAI Kevin Cheuk Yin  

**Affiliate**

LEUNG LEE SHING  

**Student member**

AU Wai Kit  
AU Wai Lun Andy  
AU YEUNG Chak Him  
CAI Chi Leung  
CAI Fai Yeuk  
CAROLLYNE Angel  
CHAN Cheuk Yin  
CHAN Chi Kit  
CHAN Chun Lam  

**No of Member : 137**

**No of Associate member : 1**

**No of Graduate member : 82**

**No of Affiliate : 1**
The following elections to Additional Discipline were recently approved by Council of the Hong Kong Institution of Engineers.

<table>
<thead>
<tr>
<th>Name</th>
<th>Disciplines</th>
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<tr>
<td>CHAN Ho Yin</td>
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<td>MCL</td>
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<td>FOK Ho Hon</td>
<td>FRE</td>
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<td>HO Chun Fai</td>
<td>CVL</td>
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<td>KONG Tak Fai</td>
<td>CVL</td>
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<td>LAM Tsz Lung</td>
<td>CVL</td>
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<td>ENV</td>
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<td>LEE Yim Lam</td>
<td>CVL</td>
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<td>CVL</td>
</tr>
<tr>
<td>YAU Kristie</td>
<td>CVL</td>
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</tbody>
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No of Student member : 236

Total Elections : 13
Gaia Education Company

eLearning series:

Business Finance for Non - Finance Managers
- 1 - 31 August 2023 (CPD0801)
- 1 - 30 September 2023 (CPD0902)
- 1 - 31 October 2023 (CPD1001)
Duration: 3 hours; HK$780

English for Technical Writing
- 1 - 31 August 2023 (CPD0802)
- 1 - 30 September 2023 (CPD0903)
- 1 - 31 October 2023 (CPD1002)
Duration: 3 hours; HK$780

Improving the Style of Your English Writing
- 1 - 31 August 2023 (CPD0803)
- 1 - 30 September 2023 (CPD0904)
- 1 - 31 October 2023 (CPD1003)
Duration: 3 hours; HK$780

Mistakes to Avoid in Conversational English
- 1 - 31 August 2023 (CPD0805)
- 1 - 30 September 2023 (CPD0906)
- 1 - 31 October 2023 (CPD1005)
Duration: 3 hours; HK$780

The Financial Side of Project Management
- 1 - 31 August 2023 (CPD0806)
- 1 - 30 September 2023 (CPD0907)
- 1 - 31 October 2023 (CPD1006)
Duration: 3 hours; HK$780

Hybrinar: Construction Contract Claims - Principles, Practice & Processing (CPD1007)
11 October 2023 (Wed); 9:30am - 5:00pm; HK$1800

Hybrinar: Construction Contract Claims - Principles, Practice & Processing (CPD1007)
11 October 2023 (Wed); 9:30am - 5:00pm; HK$1800

Registration: Please download the Enrollment Form from the HKIE website and return to HKLTI with a crossed cheque made payable to “Hong Kong Legal Training Institute Ltd.” addressed to Hong Kong Legal Training Institute, Rm 503, Tower Two, Lippo Centre, Admiralty, Hong Kong.

Enquiries: Tel: 2869 6322; Email: email@hklti.hk

Independent Commission Against Corruption, Hong Kong Business Ethics Development Centre

Practising Ethics – An Effective Defence Against Corruption (CPD0901)
16 September 2023 (Sat); 9:30am - 11:00am;
Free of charge

Venue: The HKIE Headquarters

Registration: Please complete the online application form from the HKIE website.

Enquiries: Tel: 2890 6373; Email: cpdc@hkie.org.hk

Mastermind Training Institute (Hong Kong) Limited

Construction Contract Claims Essentials (CPD0808)
11 August 2023 (Fri); 9:30am - 5:00pm; HK$1500

Defects in Construction Projects (CPD0708)
15 September 2023 (Fri); 9:30am - 5:00pm; HK$1500

Buildings Ordinance and Regulations: Overview and Cases (CPD0909)
8 September 2023 (Fri); 9:30am - 5:00pm; HK$1500

Essentials of NEC4 Engineering Construction Contract (ECC) (CPD1008)
13 October 2023 (Fri); 9:00am - 5:00pm; HK$2000

Venue: Admiralty/ Wanchai

Registration: Please complete the Online Enrollment Form from the HKIE website.

Enquiries: Training Department at Tel: 2709 1038; Email: training@master-mind.hk
MindPower Development Academy Co. Limited

Behavioural Based Safety for Safety Officers, Engineers & Managers (CPD0809)
30 August 2023 (Wed); 9:00am - 5:00pm; HK$3500

Lean Six Sigma Green Belt (ISO 13053) (CPD0910)
8, 15, 22, 29 September 2023 (Fri); 9:00am - 5:00pm; HK$4800

Psychology for Safety Officers & Managers (CPD1009)
26 October 2023 (Thu); 9:00am - 5:00pm; HK$3300

Venue: Asia Pacific Business Center

Registration: Please make your registration at www.mpda.com.hk

Enquiries: Tel: 8192 9898 (Miss Melinda); Email: info@mpda.com.hk

SGS Hong Kong Limited

Organizational Level Greenhouse Gas Accounting and Verification – ISO 14064 Introductory and Implementation Course (CPD0810)
7-9 August 2023 (Mon-Wed); 9:00am - 6:00pm; HK$5,830 (HK$5,247 for HKIE Member)

Professional Development Course for BIM Manager (CPD0811)
1, 8, 15, 22 & 29 August 2023 (Tue); 9:00am - 6:00pm; HK$18,000 (HK$16,200 for HKIE Member)

ISO 14064 Greenhouse Gas Accounting and Verification Awareness Course – Introduction of GHG Quantification & Reporting (CPD0911)
4 September 2023 (Mon); 9:00am - 6:00pm; HK$1,980 (HK$1,782 for HKIE Member)

Professional Development Course for BIM Coordinator (CPD1010)
30 October - 4 December 2023 (Mon); 9:00am - 6:00pm; HK$10,800

Professional Development Course for BIM Manager (CPD1011)
19 October - 23 November 2023 (Thu); 9:00am - 6:00pm; HK$18,000 (HK$16,200 for HKIE Member)

Venue: UNIT 303&305, 3/F Building 22E Phase 3 HK Science Park, N.T. Hong Kong

Registration: Please download the Enrollment Form from the HKIE website and return to SGS with a crossed cheque made payable to “SGS Hong Kong Ltd. - SGS Academy”, UNIT 303 & 305, 3/F, Building 22E, Phase 3, HK Science Park, Pak Sek Kok, N.T. Hong Kong.
Atttn: Ms. Joyce CHONG

Enquiries: Tel: 2765 3530 (Ms. Joyce CHONG); Fax: 2333 2257

TQM Consultants Company Limited

Impactful Communication and Negotiation Skills (CPD0812)
1 August 2023 (Tue); 9:30am - 5:00pm; HK$1,600 (HK$1,300 for HKIE Member)

Professional Project Management (CPD0912)
18 September 2023 (Mon); 9:30am - 5:00pm; HK$1,600 (HK$1,300 for HKIE Member)

Sustainable Development Planning and ESG Workshop (CPD1012)
13 October 2023 (Fri); 1:30pm - 5:30pm; HK$1,500 (HK$1,200 for HKIE Member)

Venue: Training Centre of TQM Consultants Co Ltd, 11/F Lockhart Centre, 301 - 307 Lockhart Road, Wan Chai, Hong Kong

Registration: Please complete the Online Enrollment Form from the HKIE website.

Enquiries: Training Department at Tel: 2569 2883; Fax: 2569 0108; Email: training@tqm.com.hk

U - Safe Consultancy Workshop (Online CPD Course)

eLearning: Assurance Techniques for Compliance with Health & Safety Rules
• 1 - 31 August 2023 (CPD0813)
• 1 - 30 September 2023 (CPD0913)
• 1 - 31 October 2023 (CPD1013)
Any time; HK$2,000
eLearning: How to Implement Sustainable Construction Practices
- 1 - 31 August 2023 (CPD0814)
- 1 - 30 September 2023 (CPD0914)
- 1 - 31 October 2023 (CPD1014)
Any time: HK$800

eLearning: How to Manage Environmental Aspects & Hazards
- 1 - 31 August 2023 (CPD0815)
- 1 - 30 September 2023 (CPD0915)
- 1 - 31 October 2023 (CPD1015)
Any time: HK$800

eLearning: How to Report Environmental Performance
- 1 - 31 August 2023 (CPD0816)
- 1 - 30 September 2023 (CPD0916)
- 1 - 31 October 2023 (CPD1016)
Any time: HK$1,200

eLearning: Introduction of Environmental Audit
- 1 - 31 August 2023 (CPD0817)
- 1 - 30 September 2023 (CPD0917)
- 1 - 31 October 2023 (CPD1017)
Any time: HK$1,200

eLearning: Occupational Health and Hygiene Management Practices
- 1 - 31 August 2023 (CPD0818)
- 1 - 30 September 2023 (CPD0918)
- 1 - 31 October 2023 (CPD1018)
Any time: HK$2,500

eLearning: OHSAS 18001:2007 Implementation Practice & Skill
- 1 - 31 August 2023 (CPD0819)
- 1 - 30 September 2023 (CPD0919)
- 1 - 31 October 2023 (CPD1019)
Any time: HK$2,500

- 1 - 31 August 2023 (CPD0820)
- 1 - 30 September 2023 (CPD0920)
- 1 - 31 October 2023 (CPD1020)
Any time: HK$3800

Registration: Registration via Online Training Platform www.procpdonline.com
Enquiries: Email: info@procpdonline.com

**Standard Enrolment Procedures**
Please complete and return the Standard Reply Form together with a crossed cheque (if required) to respective organisers. You may refer to respective course details for payment method.

Please be reminded that applications will not be accepted without submission of the appropriate fee.

For further details of the Standard Enrolment Procedures when applying CPD courses and/or seminars organised by the HKIE, please refer to the HKIE homepage at [http://www.hkie.org.hk](http://www.hkie.org.hk).

**Enquiries**
Please contact Training & Development Section, the HKIE at Tel: 2895 4446 Fax: 2577 7791.

**Continuing Professional Development (CPD) Requirements for Candidates Applying to Become Corporate/Associate Members**
Candidates who would like to apply for Corporate or Associate Membership must meet the CPD requirements of the Institution.

For application to Corporate Membership, candidates under Formal Training Route (Scheme “A”) must have undertaken a minimum average of 45 hours per year calculated from the commencement date of Scheme “A”, up to the time of the Professional Assessment. For General Experience Route, candidates must meet a minimum average of 45 hours per year for the six years immediately prior to their application for Professional Assessment. For Mature Route, candidates must have undertaken an average of 45 hours per year of relevant extra developmental updating for the three years immediately prior to their application for Professional Assessment.

For application to Associate Membership, candidates under Formal Training Route must have undertaken a minimum average of 45 hours per year from the commencement date of training scheme, up to the time of the Assessment. For General Experience Route or Mature Route, candidates must have undertaken a minimum average of 45 hours per year for the two years immediately prior to their application for Assessment.
Programmes Subsidised by Vplus Engineering* Tuition Subsidy

- Professional Diploma in Construction Engineering (QF Level 4)
- Professional Diploma in Construction Site Supervision (QF Level 4)
- Professional Diploma in Railway Engineering (QF Level 4)
- Professional Diploma in Smart City (QF Level 4)
- Certificate for Building Information Modelling Manager (QF Level 4) (Recognised as CIC-Accredited BIM Manager Course*)
- Certificate in Electric Vehicle Repair and Maintenance (QF Level 3)
- Diploma in Infrastructure Engineering (Electrical & Mechanical) (QF Level 3)
- Diploma in Power Engineering (QF Level 3)

Vplus Engineering is part of the Vplus Subsidy Scheme. Eligible applicants can reimburse 60% of the tuition paid up to a maximum of HK$45,000 per person.

*For details of CIC-Accredited BIM Manager, please refer to Construction Industry Council’s website. Please visit the programme website for QF Level, QR Registration No. and Validity Period.

Engineering Discipline In-service Training Enquiries

- 9081 5283
- EDIT@vtc.edu.hk
- IVEEDIT
- EDIT.vtc.edu.hk

Programme Website

Notice: The HKIE does not pre-approve any CPD activities/courses. In regard to the academic requirements for membership of the HKIE, please refer to the accredited programmes listed in the HKIE website.

August 2023 | Hong Kong Engineer
Undergraduate Programmes in
CONSTRUCTION & ENVIRONMENT
2023/24 Admissions

Bachelor of Engineering (Honours) Scheme in
Building Sciences and Engineering
建築科學及工程學（榮譽）工程學士課程
Building Sciences and Engineering
(with a specialization of Building Services Engineering)
建築科學及工程學
(設有建築服務工程學專業)

Bachelor of Science (Honours) Scheme in
Building and Real Estate
建築及房地產（榮譽）理學士課程
Building Engineering and Management
建築工程及管理
Property Management
物業管理
Surveying
地產及建設測量

Bachelor of Engineering (Honours) Scheme in
Civil Engineering and Sustainable Development
土木工程及可持續發展學（榮譽）工程學士課程
Civil Engineering
土木工程學
Civil Engineering (Structural and Fire Safety Engineering)
土木工程學（結構及消防安全工程）
Environmental Engineering and Sustainable Development
環境工程及可持續發展學
Civil Engineering (Smart Mobility)
(only offered in conjunction with secondary major: AI and Data Analytics)
土木工程學（智能運輸）
(必須同時修讀副主修: 人工智能及數據分析)

Bachelor of Science (Honours) Scheme in
Spatial Data Science and Smart Cities
空間數據科學及智慧城市（榮譽）理學士課程
Land Surveying and Geo-Informatics
土地測量及地理資訊學

Enquiries
(852) 3400-8496
faculty.ce@polyu.edu.hk
(852) 2362-2574
Application via Study@PolyU website at www.polyu.edu.hk/study
Urged the Government to face up to the labour shortage problem

The problem of labour shortage in Hong Kong is becoming increasingly acute, not only slowing down economic recovery but also affecting people’s livelihood. On 8 June, together with some other LegCo members, I held a press conference to urge the Government to face up to the labour shortage problem and to stabilize manpower supply. We invited representatives of several business sectors to share their experiences of operating under the labour shortage and to put forward four major recommendations on human resources policies to the SAR Government.

Released a proposal on "Improving Manpower Resources in the Tourism Industry"

The Government announced a special scheme on 13 June to import foreign workers for the tourism-related airline and passenger transport industries. On the other hand, hotel room attendants and travel agency operators are also in urgent need of labour replenishment. On 16 June, together with some other LegCo members, I put forward five major recommendations on manpower planning for the tourism industry, including the introduction of a special labour importation scheme for the tourism industry to help travel agencies, hotels and other related industries to address the manpower shortage problem, so as to rebuild the hospitality capacity of the tourism industry.

Conducted a study on "Building a Bay Area for basic necessities of life"

A study of “Building a Bay Area for basic necessities of life” was conducted by the Business and Professionals Alliance for Hong Kong (BPARK). Together with the members of BPARK, I held a press conference on 23 June and put forward 15 proposals on deepening seamless connectivity between Hong Kong and other Bay Area cities in four major areas, including healthcare, food and consumption, housing and home ownership, and transportation. It is hoped that by breaking through the boundaries between cities, regional integration can be fostered and economic and livelihood development of the region can be promoted to meet the needs of Hong Kong residents.

Funding projects approved at the FC and PWSC meetings

At the PWSC meeting on 7 June, the funding projects of expansion of North District Hospital (HK$32.5 billion), Lai King Building in Princess Margaret Hospital (HK$5.5 billion), and redevelopment of Kwong Wah Hospital, phase 2 (HK$8.9 billion) were approved to enhance service capacity. The projects were also approved at the FC meeting on 30 June.

Raised a question regarding sector-specific labour importation schemes

At the LegCo meeting on 28 June, I asked the Government if it has a timetable for introducing sector-specific labour importation schemes for other sectors with acute manpower shortages; given that the Government has indicated that the scheme for the construction sector should primarily apply to public sector construction works, and private sector construction works with special circumstances will also be considered, whether the Government has formulated a clear definition or guidelines for “special circumstances”; whether the Government will step up publicity and promotion outside Hong Kong; and whether it will launch a one-stop online platform to enable job seekers to keep abreast of the latest recruitment information and application procedures? Please view my question and the Government’s reply via the following link: https://www.info.gov.hk/gia/general/202306/28/P2023062800261.htm?FontSizes=3

Join the organ donation campaign at the LegCo

With the advancement in medical skills and technology, patients in need may now find a second chance at life through organ transplantation, lighting up hope for patients and their family members. On 7 June, the Department of Health set up a booth at the LegCo and encourage the public to register their wish to donate organs. I participated in the activity and hope more people will understand the importance of voluntary organ donation.

Introduction of labour importation schemes for construction and transport sectors

On 13 June, the Government introduced sector-specific labour importation schemes for the construction and transport sectors to alleviate the manpower shortage problem in Hong Kong. The total quota for the two sector-specific labour importation schemes is 20000, comprising 12000 for the construction sector and 8000 for the transport sector, of which 6300 are for the aviation industry and 1700 for the public light bus/coach trade. I welcome the scheme and believe it responds to the pressing needs of the industry and enhances sustainable economic development.