THE HONG KONG POLYTECHNIC UNIVERSITY
香港理工大學

Faculty of Construction and Environment
建設及環境學院

建設與環境
Construction & Environment

建設及環境學院院刊

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Faculty of Construction and Environment

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Table of Contents

Message from the Dean

Prof. Xiang-dong LI
Dean of Faculty of Construction and Environment

This magazine presents a recap of the Faculty's activities and news in 2024 across three major areas, research and innovation, teaching and learning, and partnership. In addition to keeping you updated on FCE's development, I hope this recollection serves as a handy tool for reflecting on our accomplishments and growth over the past year, identifying the strengths and areas for improvement, and setting informed goals for the future.

One milestone of 2024 was the launch of our Faculty Logo – a symbol that encapsulates FCE's identity and mission. The logo comprises the initials of the Faculty, "FCE", and the Chinese character "建". The design pays homage to the traditional Chinese mortise and tenon structure, representing time-honoured traditional construction wisdom. The addition of the colour green, symbolising our commitment to the environment, complements our corporate colour and underscores our pledge to sustainability. The Faculty Logo embodies our aspiration to impart and enrich the knowledge passed down from our predecessors to future generations through education and research. It will serve as a consistent visual presence to foster a sense of unity and remind us of FCE's identity, values, and missions as we continue to grow and thrive.

In 2024, FCE maintained strong standings in our world rankings. In the QS World University Rankings by Subject, FCE was ranked 14th globally in Civil and Structural Engineering (1st in Hong Kong), 14th in Architecture and Built Environment (2nd in Hong Kong), and 46th in Environmental Sciences (2nd in Hong Kong). Several senior academics of FCE have assumed leadership roles in newly established university-level research institutes. Their vision will guide interdisciplinary research endeavours at PolyU to create meaningful impacts on society. In alignment with the University's goal of promoting non-local learning experiences, the FCE departments organised various study tours and service-learning trips to equip our students to become future professionals with a global perspective. We were also delighted to reconnect with FCE alumni at various reunion events and share their inspiring success stories.

I hope you enjoy reading this comprehensive summary of the dynamic year we have had at FCE.

Awards & Achievements

World Rankings

QS World University Rankings by Subject 2024

FCE once again demonstrated outstanding achievement in the Quacquarelli Symonds (QS) World University Rankings by Subject 2024, ranking 14th in the world in both the Architecture & Built Environment and Civil & Structural Engineering disciplines, and 46th in the Environmental Sciences discipline.

Locally, we were consistently rated as the city's best in Civil & Structural Engineering for three consecutive years since 2022. The other two disciplines also maintain a strong standing, coming in second among our sister universities. As we celebrate these accomplishments of the FCE community, we remain committed to furthering our pursuit of academic and research excellence, aiming to reach new milestones in the future.

Launched in 2011, the annual QS World University Rankings by Subject evaluates universities based on indicators including academic reputation, employer reputation and research impact. This comprehensive guide covers a total of 55 subjects in 5 broad subject areas.

U.S. News & World Report's 2024-2025 Best Global Universities subject rankings

FCE achieved remarkable rankings in the U.S. News & World Report's 2024-2025 Best Global Universities subject rankings, securing 2nd place globally in Civil Engineering and 18th in Environmental Engineering. Both were ranked the best in Hong Kong.

These outstanding accolades validate the dedication and effort of FCE members to realise our vision of becoming a leading academic institution on the international stage in the fields of construction, environmental science, and sustainable urban development.

The 2024-2025 Best Global Universities Rankings by the U.S. News & World Report covers 51 subject rankings and evaluates 2,250 universities across 104 countries. The rankings were calculated based on 13 indicators, including global and regional research reputation, total citations, international collaboration and more.

Top Scholars

FCE boasts highest numbers of Top 2% scholars in Building & Construction and Civil Engineering

According to the "Updated science-wide author databases of standardised citation indicators" compiled by Stanford University in 2024, 18 FCE scholars are on the list of the World's Top 2% Most-cited Scientists in the Building and Construction sub-field, marking the globally largest representation of top scholars in the field. Additionally, FCE boasts the highest number of Top 2% Civil Engineering scholars in Hong Kong. In 2024, a total of 10 FCE academics made it to the top 50 scholars in the world in their respective fields.

Top 50 Scholars	Subject Field	Rank in Field
Prof. C.S. POON *Dept of Civil and Environmental Engineering*	Building & Construction	4
Prof. Qihao WENG *Dept of Land Surveying and Geo-Informatics*	Geological & Geomatics Engineering	7
Prof. Jin-Guang TENG *Dept of Civil and Environmental Engineering*	Civil Engineering	8
Prof. Qingyan CHEN *Dept of Building Environment and Energy Engineering*	Building & Construction	13
Prof. Xiao Lin ZHAO *Dept of Civil and Environmental Engineering*	Civil Engineering	19
Prof. Albert CHAN *Dept of Building and Real Estate*	Building & Construction	24
Prof. Wan-ki CHOW* *Dept of Building Environment and Energy Engineering*	Strategic, Defence & Security Studies	29
Prof. Heng LI *Dept of Building and Real Estate*	Building & Construction	30
Prof. Kwok-wing CHAU* *Dept of Civil and Environmental Engineering*	Mechanical Engineering & Transports	31
Prof. Ben YOUNG *Dept of Civil and Environmental Engineering*	Civil Engineering	40

**Retired academic staff*

Recognitions

FCE members honoured by HKSAR Government for impactful contributions to societal and industry development

Prof. Jin-Guang TENG, PolyU President and Chair Professor of Structural Engineering of the Department of Civil and Environmental Engineering (CEE), was conferred the Bronze Bauhinia Star by the Government of Hong Kong SAR on 1 July 2024. This prestigious award recognises Prof. Teng's impactful achievements as a leading scholar in structural engineering and his significant contributions to the betterment of society.

As a renowned academic, Prof. Teng's career is marked by numerous accolades, including being elected as a Member of the Chinese Academy of Sciences, which is the highest academic title in the field of science and technology in China. His publications have been widely cited by researchers globally, and many of his research findings have been adopted in relevant design codes/ guidelines in China, the United States, Europe, the United Kingdom and Australia. As President, Prof. Teng has emphasised the development of PolyU as an innovative world-class university with a strong sense of social responsibility. Under his leadership, PolyU has achieved remarkable success in the global academic landscape, soaring from 106th in the 2019 QS World University Rankings to a record high of 57th in the 2025 Rankings.

Prof. Albert CHAN, Chair Professor of Construction Engineering and Management of the Department of Building and Real Estate (BRE), was honoured with the prestigious Medal of Honour by the HKSAR Government on 1 July 2024. The Medal recognises Prof. Chan's remarkable contributions to construction policy research and his efforts in nurturing young talents to foster the growth of the construction industry in Hong Kong.

An expert in the fields of project management and project success, construction procurement and relational contracting, public-private partnerships, and construction health and safety, Prof. Chan has an impressive publication record with over 1,000 publications in these areas. His pioneering work has led to revolutionary development in the construction industry and innovative changes in policy decisions.

Excellence Award in APEC urban technology competition and Uichi Inouye Memorial Award 2024

Prof. Jianlei NIU, Chair Professor of Building Environment and Energy of the Department of Building Environment and Energy Engineering (BEEE), was honoured with an Excellence Award at the Innovating for Public Urban Technology Transformation Competition (INPUT 2) for the project “Human-oriented outdoor thermal environment evaluation and optimization design”. Prof. Niu and his research team developed a simulation tool for assessing outdoor pedestrian thermal comfort levels and a logical design for optimising cooling strategies, including a novel membrane-assisted radiant panel that enhances localised spot-cooling effects. The innovation can promote the utilisation of outdoor spaces by residents and reduce the reliance on air conditioning systems, which will ultimately help reduce city-wide energy consumption.

The INPUT2 competition was initiated by the Ministry of Science and Technology of China and supported by the Asia-Pacific Economic Cooperation (APEC) to promote the idea of sustainable urban development, exchange and cooperation in innovation and application of scientific and technological achievements, as well as to improve industrial development and urban governance in the 21 APEC member economies.

Prof. Niu was also awarded the Uichi Inouye Memorial Award - Asian International Award 2024 by The Society of Heating, Air-Conditioning and Sanitary Engineers of Japan (SHASE). Prof. Niu received the award on 10 May 2024 in Tokyo in recognition of his milestone contributions to the development, design, research, and education in the field of air conditioning, heating, and environmental engineering.

The Uichi Inouye Memorial Award was launched by SHASE in 2010 in memory of the late Prof. Uichi INOUYE, a pioneer of modern building services design in Japan. This prestigious award is presented to at most one recipient per year.

Research & Innovation

Research Funding Support

RGC General Research Fund

Researchers' track record of securing competitive research funding is a widely recognised indicator of research excellence. FCE again demonstrated its outstanding research quality in the 2024/25 application results for the Research Grants Council (RGC) General Research Fund (GRF) and Early Career Scheme (ECS), which were announced on 27 June 2024. It remained in the leading position in the Civil Engineering, Surveying, Building and Construction (CESBC) disciplines of the RGC Engineering Panel with an increase in both the total number of grants and funding amount in the present round.

Owing to their similar nature, the application results for GRF and ECS were combined in some of the following analyses.

Department	Total (including GRF & ECS)	Total amount of competitive funding (including GRF & ECS) (HK$)
BEEE	6	$6,629,855
BRE	8	$8,000,052
CEE	22	$23,157,397
LSGI	7	$6,435,765
FCE (Total)	43	$44,223,069

As seen from Figure 1 below, the total number of grants recorded an increase in the present round, and the total funding also increased to HK$44 million (Figure 2).

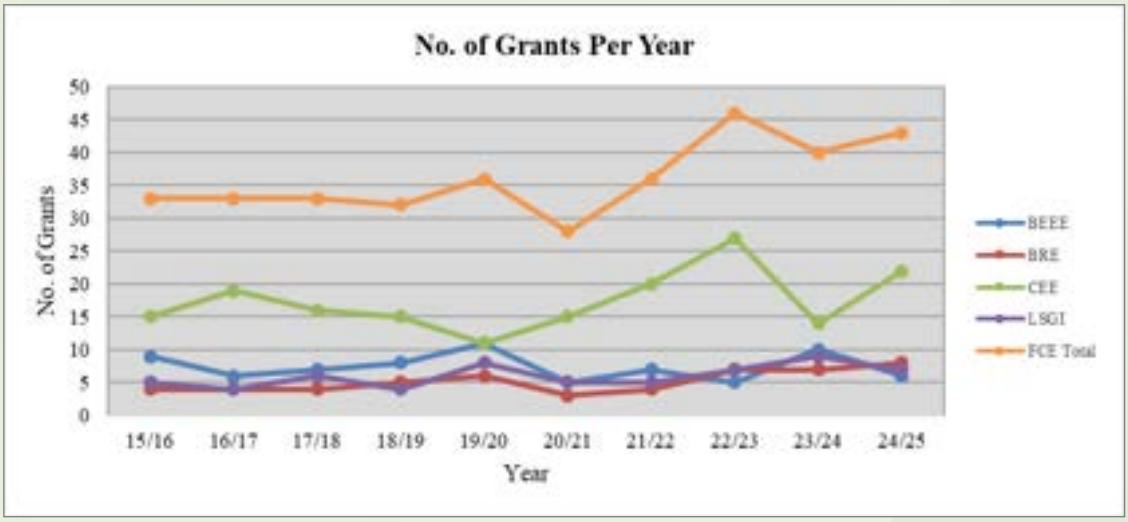


Figure 1: Comparison of the number of grants per year between departments over the past 10 years

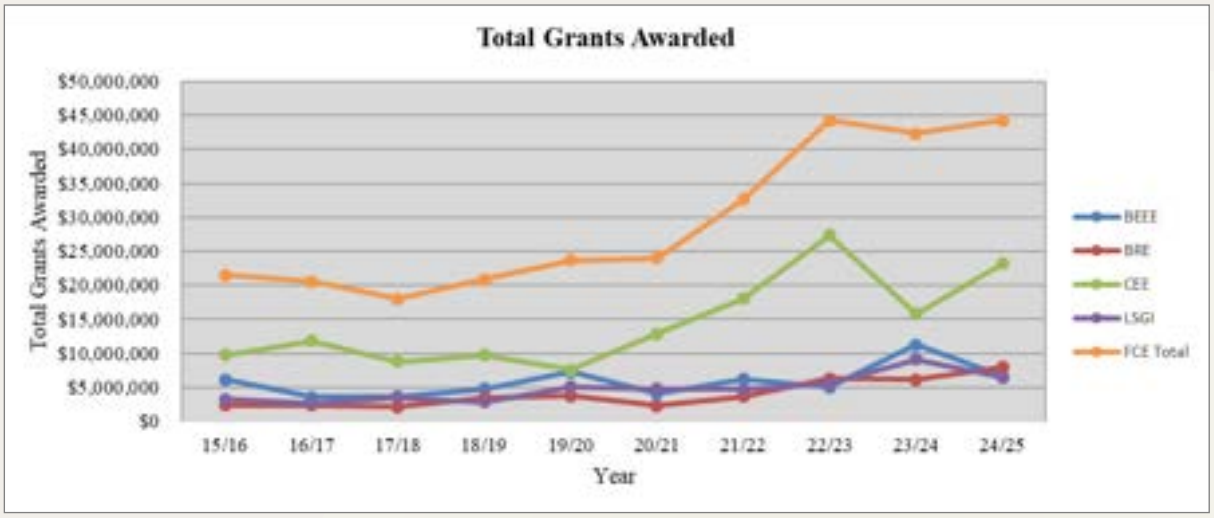


Figure 2: Comparison of total grants awarded per year between departments over the past 10 years

In the Civil Engineering, Surveying, Building and Construction (CESBC) disciplines of the Engineering Panel, PolyU has led local universities in the GRF/ECS exercises since 1994/95 in both the number of GRF/ECS projects supported and the total grant value awarded, consistently winning around or almost reaching 50% of all GRF/ECS grants allocated in these disciplines. The distribution of the amount of GRF/ECS funding in 2024/25 among local universities is shown in Figure 3. We received 49% of the total available funding in the CESBC disciplines this year, with an average funding of HK$996K per project.

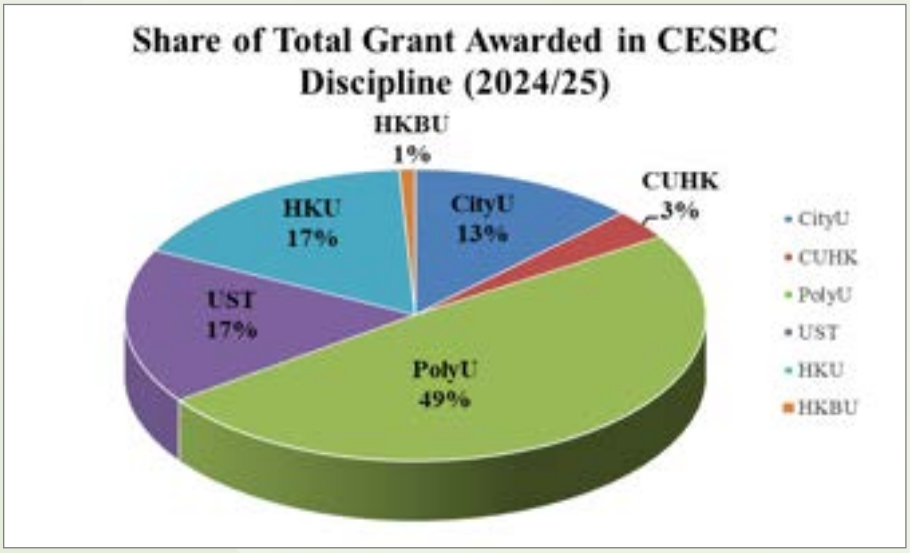


Figure 3: Distribution of GRF/ECS funding in the CESBC disciplines among institutions in the 2024/25 round

Of the 43 GRF/ECS grants awarded to the Faculty this year, three were awarded outside the CESBC disciplines. The Faculty won 40 grants (or 40.4%) totalling HK$41 million out of the 99 GRF/ECS grants awarded by RGC in the CESBC disciplines in the 2024/25 round.

FCE colleagues are encouraged to aim for continuous improvement by writing high-quality proposals that achieve full scores (5). This effort will help secure a larger share of GRF/ECS funding in the future, positively impacting the R-portion of the University and its departments.

RGC Collaborative Research Fund

PolyU scholars again showcased their research excellence by securing competitive funding from the RGC Collaborative Research Fund (CRF) 2023/24 exercise, winning HK$55.49 million from the CRF Collaborative Research Project Grant (CRPG), the highest among local universities. Out of the nine CRPG projects awarded to PolyU, FCE academics contributed one-third of the projects and funding amount.

The CRF CRPG is designed to foster collaboration between researchers across disciplines and institutions, in facilitating research output with high levels of attainment, quantity, dimensions and impact.

Project	Project Coordinator	Amount Awarded (HK$)
Improving the health and stability of roadside trees in compact urban development through novel road systems and tree root "training"	**Prof. Yuhong WANG** *Professor* *Dept of Civil and Environmental Engineering*	$5,407,780
Towards future climate-resilient sea-crossing bridges via intelligent learning of long-term real monitoring data	**Prof. Yong XIA** *Professor* *Dept of Civil and Environmental Engineering*	$5,056,919
Multi-sensor monitoring, geophysical interpretation and prediction of sea level rise in Hong Kong	**Prof. Jianli CHEN** *Professor* *Dept of Land Surveying and Geo-Informatics*	$6,567,108

RGC Research Impact Fund

The RGC Research Impact Fund (RIF) aims to provide sustained support to local academics for conducting impactful and translational collaborative research projects and to articulate the potential for benefiting the wider community. Three research projects led by FCE scholars received support from the RIF in the 2023/24 exercise, as part of a total of 14 awarded proposals in Hong Kong. Within PolyU, FCE led in both the number of grants received and the total grant amount. Our total funding exceeds HK$13 million, representing more than 60% of PolyU's funding from the five awarded projects.

Project	Project Coordinator	Amount Awarded (HK$)
Digital twin-enabled intelligent assessment and maintenance of offshore wind turbine structures in a life-cycle context	**Prof. Songye ZHU** *Professor* *Dept of Civil and Environmental Engineering*	$4,970,000
Durable Low-carbon Asphalt Pavement Built with Recycled Waste Polyolefin Plastics through Reactive Extrusion	**Prof. Zhen LENG** *Professor* *Dept of Civil and Environmental Engineering*	$4,060,000
An AI-enabled Geospatial Platform for Smart Facility Management and Smart Mobility of People with Disabilities (PwDs)	**Prof. Xintao LIU** *Associate Professor* *Dept of Land Surveying and Geo-Informatics*	$4,320,000

National Natural Science Foundation of China

The Faculty has been sparing no effort in nurturing its young researchers' capabilities to conduct independent research and contribute to the development of Hong Kong and the Nation, through organising various research workshops to facilitate interdisciplinary exchange and sharing sessions by senior academics, to enhance knowledge in conducting outstanding research. In the 2024 exercise, a total of ten FCE Research Assistant Professors and Postdoctoral Fellows secured support from the Young Scientists Fund of the National Natural Science Foundation of China (NSFC), demonstrating their ability to lead innovative projects in their areas of expertise independently.

The awarded projects covered a diverse range of topics, such as explosion dynamics, concrete bridge reliability against natural hazards, and nighttime light remote sensing. Each awardee received funding of up to RMB 300,000 to support their scientific research projects for three years.

Cross-border collaborative research schemes

Cross-border collaborative research initiatives can significantly boost research output and impact across various disciplines, institutions, and regions. Actively engaged in collaborative projects with diverse partners on multiple levels, the following two FCE academics obtained funding from the Research Grants Council (RGC) to support their joint research endeavours with academic communities in Mainland China and Europe.

Project Title	Hong Kong Principal Investigator	Partner Institution	Amount Awarded (HK$)
NSFC/RGC Joint Research Scheme 2024/25			
Spatio-temporal Evolution of EV Loads and Flexible Interaction with Urban Power Distribution Systems	**Prof. Jerry YAN** *Chair Professor* *Dept of Building Environment and Energy Engineering*	Tianjin University	$1,184,331
EU-HK Research Cooperation Co-funding Mechanism by the RGC 2024/25			
Geotechnical Resilience through Intelligent Design	**Prof. Zhen-Yu YIN** *Professor* *Dept of Civil and Environmental Engineering*	Institute of Geotechnical Engineering BOKU	$497,600

Environment and Conservation Fund

The Environment and Conservation Fund (ECF) granted around HK$2.4 million to four projects led by FCE's early-career academics to support their research that contributes to environmental sustainability and conservation efforts in Hong Kong. The Faculty is pleased to witness our young academics engage in addressing environmental issues intimately connected with the local community and are striving to deliver substantial and direct benefits to the people of Hong Kong.

The ECF, established by the Hong Kong government in 1994, aims to support green projects and activities, raise environmental awareness, and encourage community action in environmental protection and ecological conservation.

Project	Principal Investigator	Amount Awarded (HK$)
Dynamic Monitor and Analysis of Street Air Quality in High-density Urban Environments in Hong Kong Utilizing Mobile Sensor Platform and Computer Vision-based Technology	**Prof. Cynthia HOU** *Assistant Professor* *Dept of Building Environment and Energy Engineering*	$499,600
Development of Concrete Slurry Waste-derived Carbonation Coating to Improve the Durability of Concrete Structures	**Dr Peiliang SHEN** *Research Assistant Professor* *Dept of Civil and Environmental Engineering*	$500,000
Turning Incinerated Sewage Sludge Ash into Engineering Fill Using Microbial Induced Calcium Carbonate Precipitation Method Incorporating CO2 Sequestration	**Dr Dingbao SONG** *Research Assistant Professor* *Dept of Civil and Environmental Engineering*	$500,000
Advance Our Understanding of the Environmental Impact of Tyre Wear Emission in a Changing Climate	**Dr Meng WANG** *Research Assistant Professor* *Dept of Civil and Environmental Engineering*	$900,000

FCE academics drive innovation and societal impact through diverse research funding schemes

FCE's broad expertise across multiple disciplines and its capacity to tackle a wide range of research endeavours, including transportation technology and public policy, was demonstrated by its researchers' successful projects funded by external competitive research funding schemes.

The Faculty encourages all FCE academic staff to continue their efforts in advancing knowledge within their respective fields and addressing critical societal needs.

Project Title	Principal Investigator	Amount Awarded (HK$)
Smart Traffic Fund		
A study on public transport re-routing with a healthy 'Wait-to-Ride' trip mode for optimizing public transportation routes and improving traffic congestion	**Prof. Charles WONG** *Professor* *Dept of Land Surveying and Geo-Informatics*	$5,384,708
Parking Garage Vacancy Prediction Services in Hong Kong: AI-enabled Solutions for Enhanced Reliability and Extensibility	**Prof. Wei MA** *Assistant Professor* *Dept of Civil and Environmental Engineering*	$2,897,745
Strategic Public Policy Research Funding Scheme 2023/24		
Policy Framework for Cross-Regional Cooperation Strategies in the Greater Bay Area's Construction Industry	**Prof. Geoffrey SHEN** *Chair Professor* *Dept of Building and Real Estate*	$3,966,350
Public Policy Research Funding Scheme 2023-24 (Third Round)		
Overweight Prevention in Heavy Lifting Works for Construction Workers with the Smart Lightweight Active Soft Exosuit	**Dr Kelvin HEUNG** *Research Assistant Professor* *Dept of Building and Real Estate*	$553,725

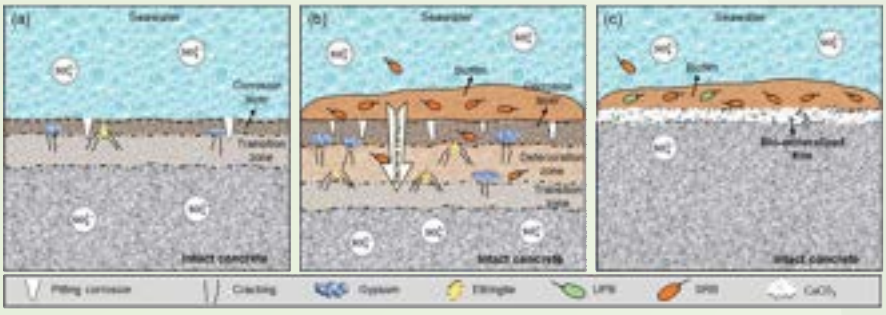
Research Outputs

Research on green-blue-grey infrastructure facilitates policymaking on building sustainable city

Urban heatwaves, exacerbated by climate change and rapid urbanisation, pose a significant threat to world cities. In response to this growing concern, green-blue-grey infrastructure (GBGI) has emerged as an effective and aesthetic solution for mitigating urban heat. A research study published in *The Innovation* in March 2024, titled "Urban heat mitigation by green and blue infrastructure: Drivers, effectiveness, and future needs", by Prof. Hai GUO, Professor of the Department of Civil and Environmental Engineering (CEE) and a group of global researchers, provides a systematic overview of the urban cooling capabilities of GBGI across various regions and introduces a practical framework for its implementation in developing sustainable and resilient cities.

The paper proposes a nine-stage framework encompassing stakeholder engagement, feasibility studies, design, policy development, implementation, monitoring, evaluation, and eventual upscaling and replication. It serves as a holistic roadmap for policymakers to address the surging environmental challenges brought by intensive urbanisation. The extensive development of GBGI can improve air quality, mitigate the urban heat island effect, enhance urban biodiversity, and offer recreational opportunities to the community.

High impact biomineralisation research against microbially induced corrosion in Environmental Science & Technology



One of the major obstacles to the long-term use of marine concrete structures is microbially induced corrosion (MIC), a common phenomenon in marine environments that results in concrete cracking, thereby decreasing the lifespan of concrete structures and causing considerable economic loss.

A research team led by Prof. Xiang-dong LI, Chair Professor of Environmental Science and Technology of the Department of Civil and Environmental Engineering (CEE) and Dean of Faculty, pioneered a biomineralisation method to form biomineralised film on concrete surfaces as a protective layer, inhibiting corrosion and extending the lifespan of marine concrete structures. The research was published in the top international journal *Environmental Science & Technology*. The biomineralisation treatment developed by the team uses materials from nature, thus has a low ecological impact as a coating method. The treatment also utilises CO2 during the preparation stage and during crack repair, which contributes to carbon neutrality.

Research on big mobility data reveals demographic disparities in exposure levels to air pollution

Exposure to air pollution can cause a wide range of health effects for everyone. However, numerous studies indicate significant disparities in how different populations experience these exposures. The research article "Big mobility data reveals hyperlocal air pollution exposure disparities in the Bronx, New York", co-authored by Prof. An WANG, Assistant Professor of the Department of Civil and Environmental Engineering (CEE), leverages extensive mobility data to uncover significant variations in air pollution exposure across different neighbourhoods in the Bronx. By analysing movement patterns and air pollution data, the study identifies areas with disproportionately high levels of air pollution, highlighting the environmental injustices faced by certain communities, particularly those in Hispanic-majority and low-income neighbourhoods. The findings underscore the necessity for targeted interventions and policies to address these localised disparities and improve public health.

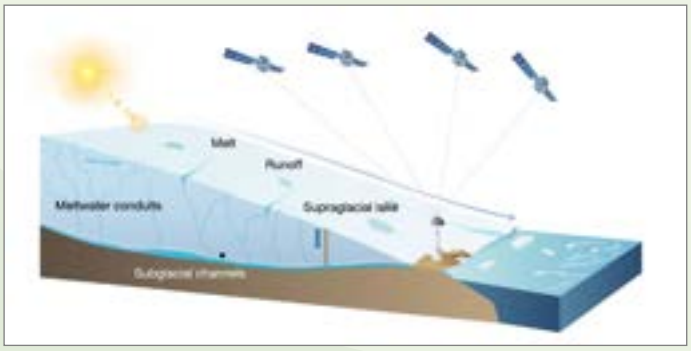
The article was published in *Nature Cities* and reported by *MIT News* in July 2024. *Nature Cities* is a new online journal launched in 2024 by Nature Portfolio, publishing cutting-edge research that addresses urban issues on a broad scale.

Study published in Nature revealing summer water storage in Greenland ice sheet

The Greenland ice sheet (GrIS) is currently the largest single contributor to global-mass-induced sea-level rise. Research on the hydrological processes in Greenland is critical for understanding ice sheet melt behaviour and the associated sea-level rise.

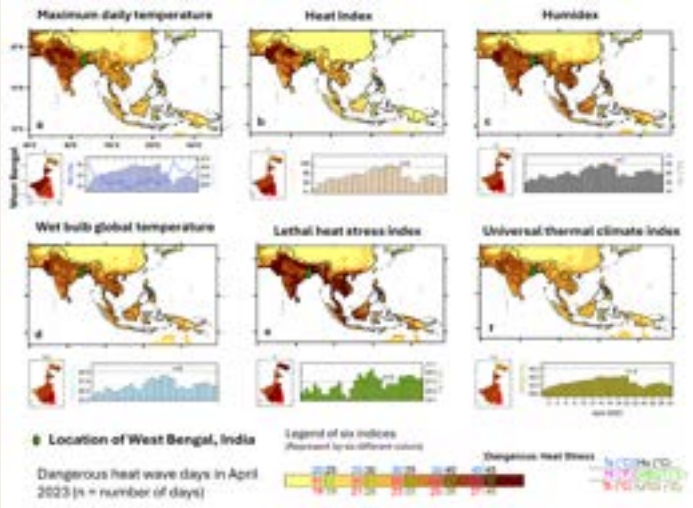
A group of international researchers, including Prof. Jianli CHEN, Professor of the Department of Land Surveying and Geo-Informatics (LSGI), published a study named "Vertical bedrock shifts reveal summer water storage in Greenland ice sheet" in *Nature*, revealing the summer water storage in GrIS.

The research analysed bedrock elastic deformation measured by Global Navigation Satellite System (GNSS) stations to quantify the spatiotemporal behaviour of the total mass of water leaving the GrIS. The study discovered that during melt season, the buffered meltwater caused at most 5 mm subsidence of the bedrock near the GNSS stations. It also showed that meltwater runoff modelled from regional climate models may contain systematic errors, suggesting that upward adjustments of up to 20% may be needed for the warmest years.



These findings indicate a high potential for utilising GNSS data for research on hydrological processes in Greenland and provide the basis for improved projections of future GrIS melt behaviour.

Study reveals limitations of existing heat wave indices for detecting dangerous outdoor conditions



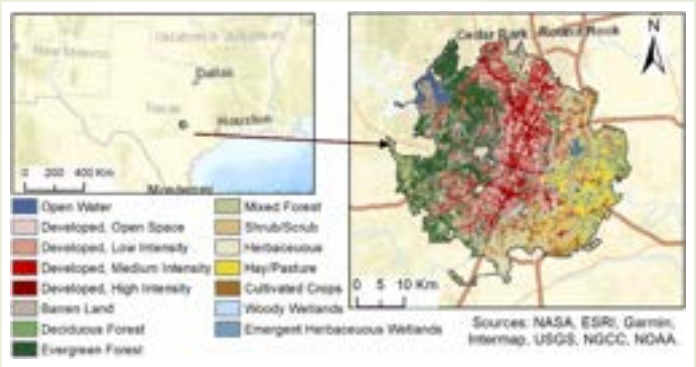
Fuelled by global warming, heat waves are becoming more rapid and severe with intensifying health effects and environmental damage. However, there is currently no standard or global method to measure heat wave severity, and existing indices define dangerous heat stress conditions using different thresholds. In view of this, the research team led by Prof. Qihao WENG, Chair Professor of Geomatics and Artificial Intelligence of the Department of Land Surveying and Geo-Informatics (LSGI), conducted a study titled "Comparing existing heat wave indices in identifying dangerous heat wave outdoor conditions".

Published in *Nexus* in August 2024, the research is co-authored by Prof. Weng and Dr Pir MOHAMMAD, a Postdoctoral Research Fellow of LSGI. This research examines the effectiveness of six commonly used heat wave indices in identifying dangerous conditions and found that five out of the six indices were unable to capture the severity and spatial distribution of recent lethal heat wave events observed in India, Spain, and the USA. The research results emphasise the necessity to develop a global heat wave framework that can effectively detect outdoor conditions across diverse climatic and geographic regions, so as to reduce impact on lives and properties.

Nexus is PolyU's first interdisciplinary journal, published in collaboration with Cell Press. The open access journal covers cutting-edge research in multi-disciplinary fields that address pressing global challenges.

Urban spatial transformation study published in Science Direct reveals increasing prominence of planning intentions over traditional factors

Effective urban planning is crucial for achieving sustainable development. To provide a nuanced understanding of how urban planning impacts land development and guides urbanisation, Prof. Qihao WENG, Chair Professor of Geomatics and Artificial Intelligence of the Department of Land Surveying and Geo-Informatics (LSGI), published a paper titled "Spatiotemporal analysis of underlying factors in urban transformations: Quantifying the importance of urban plan intentions in the Austin Metropolitan Area, Texas" with his team.



Published in *Science Direct*, the paper examines the urban spatial transformation in Austin, Texas across three distinct development periods through Geographically Weighted Logistic Regression (GWLR) modelling. The study highlights a decreasing influence of traditional factors on urban transformation and an increasing significance of planning intentions since the mid-2000s. It also reveals that a development plan focusing on protected areas and transport systems had a greater impact than those on development centres. The study could contribute to enhancing the effectiveness of sustainable urban development plans.

Innovation Technology / Knowledge Transfer

BEEE research team develops solar-powered coating to mitigate urban heat island effects towards carbon neutrality

Buildings consume approximately 90% of the electricity in Hong Kong and generate over 60% of the city's carbon emissions. To reduce energy consumption in buildings, a research team led by Prof. Vivien LU, Professor of the Department of Building Environment and Energy Engineering (BEEE) developed a solar-driven adaptive radiative cooling (SARC) coating to help lower both surface and indoor temperatures, which was published in *Chemical Engineering Journal* in August 2024.

Unlike traditional passive radiative cooling materials, which cannot automatically adjust their cooling capacity in response to environmental changes, this carbon dots-driven SARC coating can adjust its cooling capacity based on solar irradiance: as solar intensity increases, the coating's solar reflectance is enhanced, preventing buildings from absorbing excessive heat. This non-toxic, metal-free, and durable coating can reduce a building's surface temperature by up to 25°C and lower indoor temperatures by 2 to 3°C without consuming any energy.

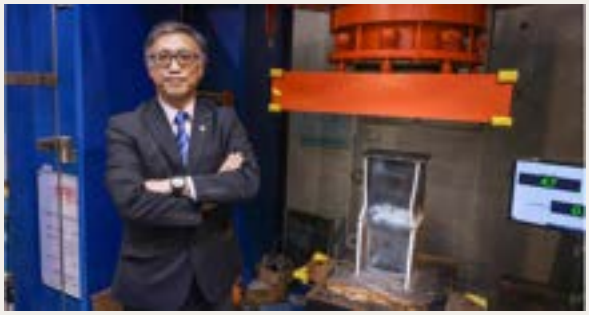
The SARC coating was tested on the roofs of container houses at a construction site in Hong Kong and was proven highly effective and durable. Over the two-year test period, 10% annual energy savings were achieved from reduced air-conditioning, while solar reflectance of the coating decreased by less than 2%. The exceptional cooling performance of the novel SARC coating, the variety of available colours, and its easy application using just paint rollers make it a promising solution for sustainable urban development. Prof. Lu and her teammate, Dr Quan GONG, Postdoctoral Fellow of BEEE, won a Gold Medal at the 4th Asia Exhibition of Innovations and Inventions (AEII) in December 2024 with their project featuring this impactful innovation.

Interdisciplinary research by FCE scholar benefits 100 million smart devices globally

A series of colour management technologies developed by Prof. Tommy WEI, Professor of the Department of Building Environment and Energy Engineering (BEEE) and his research team were successfully commercialised and widely adopted by social media, imaging systems and manufacturers of LED lighting products, smartphones and drones, powering over 100 million high-end smart devices worldwide each year.

Being the Director of the Colour Imaging and Metaverse Research Centre, Prof. Wei aspires to develop a new algorithm based on human visual mechanisms to improve colour appearance and calibrate perception variance across imaging systems. To further extend the impact of his research beyond academia, Prof. Wei co-founded a start-up named Guardian Glow which focuses on the development of personalised AI smart devices and solutions for key technologies used in Extended Reality headsets.

Innovative welding technology for ultra-high strength S960 steel pioneered by FCE research team advances infrastructure sustainability



S960 steel is an ultra-high strength steel widely used in the construction of high-rise buildings and long-span structures. However, its strength and ductility can be reduced by up to 20% to 30% during welding, limiting its applications. A research team led by Prof. K.F. CHUNG, Professor of the Department of Civil and Environmental Engineering (CEE), developed a welding technology that can minimise or even eliminate these adverse effects and maintain the mechanical properties of S960 steel.

The team studied the effects of heat input energy during welding onto the S960 steel and discovered the optimal heat energy ranges for different weld joint designs across various thicknesses of S960 steel. This innovative welding technology was adopted in a footbridge in the first phase of the Fanling North New Development Area, marking Hong Kong's first public works project using S960 steel.

This advancement enables the use of thinner and fewer steel materials, reducing the self-weight of the footbridge, and hence, the number of foundation piles required. In the long term, this innovation can lead to lower carbon emissions and enhanced sustainability.

FCE Global STEM Professors to lead two JC STEM labs for translating frontier science and technology into societal impact

We are delighted to report that Prof. Qingyan CHEN, Chair Professor of Building Thermal Science of the Department of Building Environment and Energy Engineering (BEEE), and Prof. Qihao WENG, Chair Professor of Geomatics and Artificial Intelligence of the Department of Land Surveying and Geo-Informatics (LSGI), will lead two newly established Jockey Club (JC) STEM Labs as the Lab Directors.

Prof. Chen will direct the **JC STEM Lab of Healthy Built Environment**, dedicated to developing innovative solutions for evaluating and designing healthy and energy-efficient environments, with applications in airborne infectious disease control and thermal comfort in buildings, transportation and urban areas. The lab aims to set a precedent for sustainable urban development on a global scale.

Prof. Chen and Prof. Weng will lead two of the eight JC STEM labs inaugurated on 11 November 2024.

Prof. Weng will lead the **JC STEM Lab of Earth Observations** to advance Earth observation technologies by integrating space-air-ground sensing, AI-powered image processing and urban sensor networks. The lab will pioneer geomatics solutions that revolutionise urban monitoring and environmental management.

The JC STEM Labs are funded by The Hong Kong Jockey Club Charities Trust to support the research endeavours of distinguished scholars selected for the Global STEM Professorship Scheme and to nurture STEM talents in Hong Kong.

FCE academics take up pivotal roles in university-level research initiatives

FCE is a strong advocate for interdisciplinary research at PolyU. Sharing the same belief, FCE academics play substantial roles in PolyU's university-level research initiatives.

Research Institute for Climate-Resilient Infrastructure (RICRI)

Otto Poon Research Institute For Climate-Resilient Infrastructure
潘樂陶韌性基礎設施研究院

In the context of global climate change and accelerated human activities, the frequency and intensity of extreme weather events and the associated natural disasters have increased significantly. This trend threatens natural ecosystems and agriculture, disrupts social and economic activities in both urban and rural communities, and impacts the health and safety of humanity. To mitigate these challenges, FCE academics commit their expertise to the Research Institute for Climate-Resilient Infrastructure (RICRI), a newly established university-level research institute in 2024 funded by a generous donation from the Otto Poon Charity Foundation, to research and develop resilient and sustainable solutions.

Prof. Xiang-dong LI, Dean of Faculty and Chair Professor of Environmental Science and Technology of the Department of Civil and Environmental Engineering (CEE), leads the RICRI as its Director. Prof. Huan-feng DUAN and Prof. Songye ZHU, both Professors from CEE, serve as the Associate Directors. The RICRI offers a comprehensive and interdisciplinary research platform to build an effective and integrated scientific think tank for the broader society in Hong Kong, the Nation, and the world.

Shortly after the approval of its establishment, the RICRI promptly embarked upon its mission and held a briefing session on 28 August 2024 to call for proposals from all PolyU academics for its Climate-Resilient Infrastructure Research Scheme.

Research Centre for Nature-based Urban Infrastructure Solutions (RNUS)

Research Centre for Nature-based Urban Infrastructure Solutions
基於自然的城市基礎設施解決方案研究中心

The unprecedented rate of urbanisation worldwide presents mounting challenges to cities and underscores the urgent need for innovative solutions to ensure urban resilience and sustainability. The newly established Research Centre for Nature-based Urban Infrastructure Solutions (RNUS) in 2024 is dedicated to advancing sustainable practices in urban development by integrating ecological principles with innovative urban infrastructure design. The centre aims to advance our scientific understanding of the interactions among nature, built environments, and human societies in urban areas, and develop innovative, nature-based infrastructure solutions based on this understanding. Led by Prof. Yuhong WANG, Professor of the Department of Civil and Environmental Engineering (CEE), RNUS brings together a multidisciplinary team of researchers and experts from PolyU and other global academic institutions to collaborate on projects that promote sustainable infrastructure with pioneering nature-based infrastructure solutions.

With its commitment to innovation and sustainability, RNUS is not only a response to current urban challenges but also a proactive step towards shaping a greener future for cities worldwide.

Research Centre for Artificial Intelligence in Geomatics (RCAIG)

Research Centre for Artificial Intelligence in Geomatics
The Hong Kong Polytechnic University
香港理工大學地理空間智能研究中心

The Research Centre for Artificial Intelligence in Geomatics (RCAIG), which was established in 2024 and led by Prof. Qihao WENG, Chair Professor of Geomatics and Artificial Intelligence of the Department of Land Surveying and Geo-Informatics (LSGI), is a joint effort of experts from five PolyU academic departments. Under Prof. Weng's leadership as the Principal Investigator, the RCAIG focuses on the development of innovative AI technologies for solving environmental and societal challenges in geomatics, aiming to become a global R&D hub in GeoAI. The Faculty believes that the concerted efforts of these top-notch experts across disciplines would maximise our endeavours to advance the field of GeoAI.

Innovations spearheaded by FCE academics reap gold and silver at Geneva Inventions Expo 2024

Three projects on insulation material, structural column, and firefighting robot led by FCE academics were awarded Gold and Silver Medals at the 49th International Exhibition of Inventions Geneva (Geneva Inventions Expo) for their positive impact on people's lives and sustainable development.

The Geneva Inventions Expo is a widely recognised annual event devoted exclusively to invention, the event this year attracted 1,035 entries from 38 countries and regions.

Award	Principal Investigator(s)	Project
Gold Medal	**Prof. Hongxing YANG**, *Professor* *Dept of Building Environment and Energy Engineering*	A Fireproof Solar PV Vacuum-Glazing Wall Panel (FSVG) as Building Insulation Layer
	Prof. Tak-Ming CHAN*, *Professor* **Dr Shuai LI**, *Postdoctoral Fellow* **Prof. Ben YOUNG**, *Chair Professor of Steel Structures* *Dept of Civil and Environmental Engineering*	FRP-ECC-HSC Composite Column
Silver Medal	**Prof. Xinyan HUANG**, *Associate Professor* **Mr Meng WANG**, *Research Assistant* *Dept of Building Environment and Energy Engineering*	Smart Firefighting Robot

**Former academic staff*

FCE shines in inaugural PolyU Patents Achievement Award

FCE's strong commitment to advancing knowledge transfer initiatives was recognised in the PolyU Patents Achievement Award 2023.

Patent filing is an essential step in the knowledge transfer process, safeguarding the valuable intellectual assets of researchers and testifying to the originality of their groundbreaking work. The active patent filing activities within FCE demonstrate that the research conducted by its academics is making promising progress towards commercialisation.

Award	Category	Unit / Awardee
Top Patents Filing Award 2023	*Department*	**Dept of Civil and Environmental Engineering**
	Inventor	**Prof. John SHI**, *Chair Professor* *Dept of Land Surveying and Geo-Informatics*
Most Active Patents Filing Award in the year 2023	*Department*	**Dept of Civil and Environmental Engineering**
	Inventor	**Prof. C.S. POON**, *Chair Professor* *Dept of Civil and Environmental Engineering*

BRE academic-led start-up wins first place at Cornell EMI Pitch Competition

FCE and its departments actively promote entrepreneurship development among their members. In November 2024, the BRE academic-led start-up ICC (Hong Kong) Limited achieved first place at the Cornell EMI Pitch Competition in New York, an international entrepreneurship event showcasing a wide range of start-ups from around the world. Dedicated to developing innovative AI and optimisation solutions for efficient decision-making in construction projects, the start-up was also recognised as an awardee of the PolyU Micro Fund and Angel Fund for its exceptional performance in innovation and technology.

Dr Dong WANG, the Founder of ICC (Hong Kong) Limited and a Postdoctoral Fellow of BRE, collaborated with Ms Rongyan LI, PhD student, and Ms Zhe ZOU, Research Assistant, for the competition. Under the supervision of Prof. Tarek ZAYED (Professor), Prof. Hung Lin CHI (Associate Professor), and Prof. Geoffrey SHEN (Chair Professor of Construction Management), they developed iOptiCrane, the world's first AI-powered platform designed to automatically generate tower crane layouts for Modular Integrated Construction (MiC) and traditional construction projects. This innovation significantly reduces crane collision risks, operation duration, and emissions.

Green Tech Fund supports project on ammonia-based pretreatment system for food waste digestate valorisation

In a densely populated city like Hong Kong, waste management and reduction comprise an essential part of cutting down carbon emissions and achieving sustainable development. A project led by Prof. Shao-Yuan LEU, Associate Professor of the Department of Civil and Environmental Engineering (CEE), "Study of Ammonia Pretreatment - Power Generation System toward Complete Valorisation of Food Waste Digestate", was granted HK$6.8 million by the Green Tech Fund for its ability to enhance the efficiency of food waste digestate valorisation and mitigate carbon footprint.

In the long term, the project outcomes could be applied at facilities like the Organic Resources Recovery Centre and sewage treatment works to minimise odour, reduce landfill waste and produce high-quality organic fertiliser.

MTR Research Funding Scheme 2024

The railway network in Hong Kong plays a crucial role in the city's transportation system, providing efficient, reliable, and rapid transit for passengers every day. To further facilitate the sustainable development of rail transport, the MTR Research Funding (MRF) Scheme was established by the MTR Academy to support groundbreaking projects that will keep Hong Kong ahead of current and future transport challenges. The following two projects led by FCE scholars received support from the MRF Scheme 2024, focusing on enhancing the comfort and efficiency of the MTR system, as well as its resilience during unforeseeable disruptive events.

Project	Principal Investigator	Amount Awarded (HK$)
Integrating Big Data Analysis and Dynamic Cooling Technologies for Thermal Comfort Optimization in Metro Stations and Urban Transit Interfaces	**Prof. Jianlei NIU**, *Chair Professor* *Dept of Building Environment and Energy Engineering*	$1,182,900
A lifecycle-based resilience analysis framework for MTR system under unforeseeable disruptive events	**Prof. Anthony CHEN**, *Professor* *Dept of Civil and Environmental Engineering*	$1,180,200

Teaching & Learning

Quality Education

Orientation sessions and roadshow to welcome FCE freshmen for university life

To welcome the new cohort of freshmen and prepare them for their academic journeys at FCE, the FCE departments conducted orientation sessions for both undergraduate and taught postgraduate students starting from mid-August 2024.

The orientation sessions included department overviews, programme rules and regulations, and laboratory briefings. Representatives from PolyU central units also introduced the available resources and guidance for outbound exchange opportunities and knowledge transfer initiatives. Students also had the chance to meet their respective Heads of Department, Programme Leaders, and Academic Advisors. These sessions covered nearly all aspects of university life, allowing students to efficiently plan for their upcoming years at FCE.

In addition to the departmental orientations, the Faculty of Construction and Environment Student Association (FCESA) also took part in the Welcome Roadshow coordinated by the Student Affairs Office from 14 to 16 August 2024. The event was a student-initiated endeavour to showcase the forthcoming activities of the student associations and societies and to attract new members. The FCESA booth attracted around 120 students to enquire about the upcoming events.

FCE community appreciates Chinese culture at Mid-Autumn Festival Gala

On 13 September 2024, numerous FCE members and their family and friends joined the Mid-Autumn Festival Gala on the PolyU campus and enjoyed a blissful night appreciating traditional Chinese culture and celebrating the festival for reunion.

They spent the night admiring Chinese music and dance performances, painting lanterns, solving riddles, and tasting mooncakes in the FCE zones with their loved ones. The Council Chairman, Court Chairman and Central Management Team also visited the FCE zones and shared the joyous moment with the FCE community.

The Mid-Autumn Festival Gala is a part of the PolyU Chinese Culture Festival organised by the Culture Promotion and Events Office. The event provided students with an excellent opportunity to immerse themselves in traditional Chinese culture, enriching their study experience at PolyU.

Seminar Series on Green Deck Development

The Green Deck was a concept conceived by PolyU to connect the areas adjacent to the Hung Hom Cross Harbour Tunnel Toll Plaza to form a landscaped platform over vehicular traffic at the Toll Plaza, aiming to improve air quality and community health, rebuild community connectivity, enhance local amenities, and revitalise the neighbourhood. It involved numerous construction and environment-related research, innovation, and expertise.

The Faculty organised the Seminar Series on Green Deck Development on 9 – 12 January 2024 and invited guest speakers from PolyU and the industry to share their experience working on the project and how their research could translate into pragmatic applications. The seminar series was well received by FCE undergraduate students, total attendance at the seminars exceeded 120.

Session	Topic	Speaker
1	**Project inception and introduction of project development process in the Building Industry**	Prof. Alex LUI *Member of the University Court, PolyU* *Leader of former Green Deck Project Team*
2	**Experience in Architectural Design and how to cooperate with other disciplines**	Mr Freddie HAI *Director, Rocco Design Architects Associates*
3	**Experience in Structural Design and how to cooperate with other disciplines**	Mr Steve KITE *Director and East Asia Highways Leader, Arup*
4	**Applications in Green Deck Development:**	
	Survey on public support to Green Deck Project	Prof. Eric CHUI *Head and Chair Professor, Dept of Applied Social Sciences, PolyU*
	Effect of the Green Deck on local air quality	Prof. Frank LEE *Professor, Dept of Civil and Environmental Engineering, PolyU/* *Professor and Acting Head, Earth, Ocean and Atmospheric Sciences, HKUST (GZ)*
	Cost-benefit analysis of the Green Deck development	Prof. Mark HSU *Associate Professor, Dept of Civil and Environmental Engineering, PolyU*

FCE academics share good practices of integrating GenAI in learning and teaching to drive pedagogical development

The emergence of Generative Artificial Intelligence (GenAI) presented both unprecedented opportunities and challenges to academia. In response to PolyU's open and forward-looking stance to the use of GenAI in education, many FCE academics have begun to utilise GenAI as a tool for learning, teaching, and assessment.

In April and June 2024, academic representatives from FCE departments were invited by the Educational Development Centre to share their experiences and insights on effectively leveraging GenAI to enhance student learning with fellow PolyU academics. Their sharing stimulated the exchange of GenAI-related pedagogical methods among the PolyU community, contributing to the overall educational advancement of both FCE and the University.

Thank you to the following department representatives for sharing and promoting good pedagogical practices:

Department	Representative
Dept of Building Environment and Energy Engineering	**Dr Gigi LUI** *Senior Lecturer*
Dept of Building and Real Estate	**Prof. Hung Lin CHI** *Associate Professor*
Dept of Civil and Environmental Engineering	**Dr Barbara SIU** *Senior Lecturer*
Dept of Land Surveying and Geo-Informatics	**Prof. Wallace LAI** *Professor*

Career Talk by Airport Authority Hong Kong broadens FCE students' career prospects

FCE is dedicated to supporting our students in exploring their career prospects. On 23 October 2024, FCE collaborated with the Faculty of Engineering (FENG) to host a career talk featuring representatives from the Airport Authority Hong Kong (AAHK). They introduced the Hong Kong International Airport Graduate Engineer Programme to the students. Accredited by The Hong Kong Institution of Engineers (HKIE), this Scheme "A" training programme provides aspiring engineers with comprehensive on-the-job training and exposure to diverse airport engineering systems and projects.

The talk offered a unique opportunity for students majoring in various engineering disciplines, such as Aviation, Building Services, Civil, Electrical, and Mechanical Engineering, to explore promising career paths in the aviation industry. It also served as an excellent platform for them to network with industry experts and alumni, allowing students to gain practical advice.

Department events enhance students' career skills and networking

Engineers of the Future: BEEE Engineer Pop-up

FCE departments are committed to equipping students with the skills and connections necessary for successful careers in their respective fields. On 20 September 2024, the Department of Building Environment and Energy Engineering (BEEE) hosted the "Engineers of the Future: BEEE Engineer Pop-up" event, offering students a pivotal opportunity to connect with industry leaders and explore career paths in building services engineering.

Experts from five key professional societies provided valuable insights into professional status and membership requirements, followed by interactive discussions on career opportunities and industry trends. To encourage ongoing engagement, BEEE generously sponsored the first-year student membership fees for these societies, fostering strong ties between students and the professional community.

- American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) - HK chapter;
- Building Services Operation and Maintenance Executives Society (BSOMES);
- Chartered Institution of Building Services Engineers (CIBSE) – HK Region;
- Chartered Institute of Plumbing and Heating Engineering (CIPHE); and
- The Hong Kong Institution of Engineers (HKIE) – Building Services Division.

CEE x CEEAA Job Interview Training Workshop 2024

The CEE x CEEAA Job Interview Training Workshop 2024, held on 26 October, was organised by the Department of Civil and Environmental Engineering (CEE) in collaboration with The Hong Kong Polytechnic University Civil and Environmental Engineering Alumni Association (CEEAA). This workshop equipped students with essential job interview skills. Experienced alumni shared their insights and strategies for successful interviews while providing support in reviewing participants' CVs. Participants engaged in mock interviews and received personalised feedback, boosting their confidence and competencies as they prepare for careers in civil and environmental engineering.

Together, these initiatives highlight FCE departments' proactive approach in supporting students' professional development, ensuring they are well-prepared to navigate their future careers in related fields.

Non-local learning experiences enrich FCE students' global perspective

To prepare our students to become global citizens with outward-looking mindsets, FCE champions the University's goal of promoting non-local learning experiences. Apart from exchange studies, FCE departments also incorporate non-local learning opportunities, such as study tours and service-learning trips, to instil a global perspective in students.

The study tours held in the 2023/24 academic year provided excellent opportunities for students to explore and compare the different facets of urban development between Hong Kong and the destination cities. By visiting esteemed universities, signature infrastructures, institutions, utility enterprises, and utilising local transportation systems, students were able to immerse themselves in diverse academic, social, and cultural environments. These first-hand experiences enhanced their awareness of how culture and history impact the overall development of various cities and regions. On the other hand, the service-learning trips deepened students' understanding of the real-world challenges faced by those in need. These trips encouraged students to contribute to the betterment of the Nation and the world by applying their knowledge and technical skills.

The non-local learning experiences thoughtfully designed by FCE departments exemplify the Faculty's commitment to providing holistic education that grooms future professionals with a global perspective.

BEEE Service-Learning Trip to Cambodia
Motherland Cambodia Education Center, Kampong Speu

BRE Study Tour to Japan
Akashi-Kaikyo Bridge, Osaka

CEE Study Tour to Taiwan
construction site of a new Taipei Rapid Transit System station

LSGI Study Tour to Singapore
Sky Greens Farm

Outreach Activities

PolyU JUPAS Consultation Day 2024 engages prospective students

The PolyU Consultation Day for Joint University Programmes Admissions System (JUPAS) applicants was successfully held on 18 May and 5 July 2024. It provided JUPAS applicants with refreshing learning experiences and admissions information for our undergraduate programmes through a series of face-to-face events.

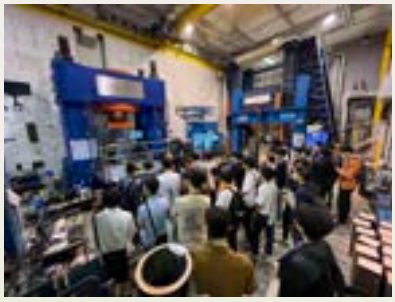
For Part I on 18 May, students were offered a valuable opportunity to immerse themselves in preparation for admission interviews at PolyU by participating in individual or group mock admission interviews. This first-ever event allowed academic staff from different departments to provide direct feedback to student participants. In addition to information seminars on departmental scheme-based admission programmes, which gave an overview of the curriculum and career prospects, representatives from the four FCE departments were also present at the consultation booth to answer questions and discuss students' enquiries. The FCE activities and booths attracted about 200 participant visits from those who were eager to enhance their knowledge about the academic aspects of student life in FCE.

Part II of the event was held on 5 July with the theme "Cheer On! Chit-Chat with HKDSE Students". It offered a valuable chance for prospective students who missed the previous event or sought additional admission information. The participating parents and secondary school students attended the admission strategy and arrangement sharing session to gather information about undergraduate programmes. Those interested in construction and environment disciplines visited the FCE consultation booth to seek advice and guidance from the representatives of the four FCE departments on programme selection and career prospects.

PolyU Summer Institute 2024

The PolyU Summer Institute 2024, a dynamic five-day residential camp designed for secondary school students, was held from 22–26 July. During the Faculty attachment sessions on the second and fourth days, around 120 enthusiastic participants engaged in a half-day tour organised by FCE. The tour offered a unique opportunity for them to explore the departments' state-of-the-art laboratories and witness live demonstrations of cutting-edge equipment. These experiences helped participants gain insights into FCE's internationally renowned disciplines and consider their future career pathways.

PolyU Info Day 2024



The PolyU Information Day (Undergraduate & Taught Postgraduate Programmes) 2024 was successfully held on 12 October, attracting over 1,500 participants who engaged in a broad range of activities organised by the Faculty and its departments. Participants visited our exhibition booths and attended informative seminars to gather firsthand admissions and programme information. Prof. Charles WONG, Associate Dean (Teaching and Global Engagement) of Faculty, took the chance to introduce the new Bachelor's Degree Scheme in Construction and Environment at the FCE programme seminar, which will admit students starting in the 2025/26 academic year, providing a more flexible option for students to customise their studies based on interests.

To offer a glimpse into university life at the city's largest hub of construction research capabilities, numerous guided tours and lab visits were arranged to showcase the state-of-the-art facilities of our departments. The event also featured an engaging thematic talk, where current students provided personal insights, fostering meaningful exchanges with the participants.

FCE departments organise competitions to spark prospective students' interest in land resources optimisation and civil engineering

The Department of Building Environment and Energy Engineering (BEEE) co-organised the Social Innovation Inventor Design Competition 2023/24 with the World Green Organisation (WGO). Themed "Smart Design on Optimising Land Resources", the competition aimed to foster a culture of innovation and sustainability, empowering young people to develop solutions that address societal and environmental challenges.

Participants from both secondary schools and tertiary institutions were tasked with designing a recycling factory and a cross-shaped shopping pedestrian street in the Northern Metropolitan Area respectively. In May 2024, BEEE held a workshop on fire safety and innovative environmental technologies for building design for the finalists. Winners in both categories were honoured during an award presentation ceremony held on 10 August 2024.

The Department of Civil and Environmental Engineering (CEE) conducted the Mini Concrete Canoe Competition on 23 August 2024. With the theme "New Methods and Materials in Smart Construction", the competition is the first of its kind in Hong Kong, providing students with a unique and authentic experience in building mini canoes with concrete materials.

The 13 teams of secondary students were coached on basic hydraulics, concrete materials knowledge, 3D printing theory, and concrete canoe mould design through a series of workshops before presenting their final creations for testing.

Student Achievements

FCE Ug student awarded The Most Outstanding PolyU Student 2023/24

Ms Sze Lam WONG, a BSc (Hons) in Property Management student of the Department of Building and Real Estate (BRE), was selected The Most Outstanding PolyU Student 2023/24. She is also the recipient of the Outstanding Student Award of Faculty and the Outstanding Student Award of Department.

Apart from her outstanding academic achievement as evidenced by the prestigious scholarships she won, such as the President Emeritus Professor Poon Chung-kwong Scholarship 2022/23 and the Innovation and Technology Scholarship 2023, she also distinguished herself as a well-rounded young adult by her strong leadership ability, extensive involvement in extra-curricular activities, substantial community service experience and exposure, and commendable personal attributes.

During her past four years at PolyU, Ms Wong participated and took up leadership roles in various extra-curricular activities. For example, the ICAC Ambassador Programme 2020/21 and the Hang Lung Future Women Leaders Program 2022/23. She served her fellow students as the President of the PolyU English Club, volunteered for the Joint-University Social Service Organization and the Opportunities for the Elderly Project caring for the mental well-being of singleton elderly, and was a PolyU Student Ambassador helping to promote the University to prospective students.

Ms Wong received the honour from Prof. Jin-Guang TENG, PolyU President, at the award presentation ceremony held on 26 March 2024 and delivered a vote of thanks on behalf of all the outstanding students.

PolyU's Outstanding Students Award Scheme was established in the academic year 1998/99 to award full-time final-year students who excel in both academic and non-academic pursuits during their studies, the awards offered under this scheme are conferred at departmental, faculty and university levels.

Presidential Student Leadership Award 2023

To honour students who demonstrated exceptional leadership qualities and contributions to the community, PolyU organises the Presidential Student Leadership Award (PSLA) annually to reward awardees at the departmental level, faculty/school level and university level. The award serves as a testament to the excellence of our students in not only academic but also non-academic pursuits, and reflects the University's unwavering commitment to providing holistic education to its students

The award presentation ceremony for PSLA 2023 was held on 26 March 2024. The following FCE awardees received the honour from Prof. Jin-Guang TENG, PolyU President, and were encouraged to continue to fully develop their potential.

	Awardee *Department*
Faculty Award	**Ms Wing Shan NG** *Dept of Building and Real Estate*
Departmental Award	**Mr Sing LAW** *Dept of Building Environment and Energy Engineering*
	Mr Beiming HU *Dept of Civil and Environmental Engineering*
	Ms Chi Yin CHAN *Dept of Land Surveying and Geo-Informatics*

FCE Awards for Outstanding PhD Theses 2023/24

The FCE Awards for Outstanding PhD Theses recognise outstanding research outputs by our PhD students. This year, five students were awarded for their excellent academic performance, impressive publication records, impactful research, and strong presentation skills.

Awardees were selected through a rigorous evaluation process, with an "excellent" rating from the Board of Examiners serving as the essential criterion for their theses. This foundation allowed the respective Departmental Research Committees to shortlist the most outstanding candidates, who then competed in the oral presentation for the final selection of awardees by the Working Group of the Faculty Research Committee.

By honouring these high-calibre theses, the Faculty affirms its commitment to fostering professional excellence, promoting a vibrant research community, and advancing cutting-edge research.

Name *Department*	Chief Supervisor	Title of Thesis
Dr Wenchao SHI *Dept of Building Environment and Energy Engineering*	Prof. Hongxing YANG *Professor*	Simulation and Experimental Studies on Plate-type Indirect Evaporative Cooling System with Porous Material
Dr Siyuan ZHAO *Dept of Building and Real Estate*	Prof. Meng NI *Chair Professor*	Achieving Zn-Air Batteries with High Voltage Output and High Energy Efficiency
Dr Yu GU *Dept of Civil and Environmental Engineering*	Prof. Anthony CHEN *Professor*	Advancing travel demand models: From individual choices to equilibrium analysis with mathematical programming methods
Dr Yi JIANG *Dept of Civil and Environmental Engineering*	Prof. C.S. POON *Chair Professor*	Development of modified techniques for accelerated carbonation of recycled concrete fines
Dr Xuanyu QU *Dept of Land Surveying and Geo-Informatics*	Prof. Xiao-li DING *Chair Professor*	Structural Health Monitoring based on Integration of GNSS and In-situ Sensors

FCE Three Minute Thesis Competition 2024

As a prequel to the PolyU Three Minute Thesis Competition (3MT®) 2024, the FCE 3MT® competition was successfully held on 5 June 2024 with four research postgraduate students awarded for their outstanding academic, presentation, and research communication skills.

Ten contestants selected from department-level 3MT® competitions presented their research to the adjudicating panel and the audience in three minutes, with the aid of one static PowerPoint slide. The adjudicating panel selected three winners while the audience voted for the People's Choice Award. The winners received cash prizes and certificates from Prof. Meng NI, Associate Dean (Research) of Faculty. The Champion and the First and Second Runners-up also represented FCE in the PolyU 3MT® 2024.

The 3MT® competition was developed by The University of Queensland and is now held in over 900 universities worldwide.

Award	Name *Department*	3MT® Title
Champion	**Ms Shujie XU** *Dept of Civil and Environmental Engineering*	Cracking the ABC (Algal Bloom Code) for a Safer Water Future
First Runner-up	**Ms Zhuowei WANG** *Dept of Civil and Environmental Engineering*	Hydrogen bus: Driving green transit alongside electric bus in Hong Kong
Second Runner-up	**Mr Ali FARES** *Dept of Building and Real Estate*	Towards a Comprehensive Pavement Condition Assessment
People's Choice Award	**Mr Raffel Dharma PATRIA** *Dept of Civil and Environmental Engineering*	The Green Winery: Turning Plant Residue into Liquid Gold

BEEE PhD students' project on sustainable transportation wins top prize at global final of ISETS-ESCAP Youth Voice Competition

Encouraging young talents to propose innovative solutions for sustainable development challenges is a vital educational goal of FCE. The cross-institution team "Energy Victory," comprising three PhD students - Mr Dayin CHEN, Mr Junxiang ZHANG, and Mr Shibo ZHU from the Department of Building Environment and Energy Engineering (BEEE), along with Ms Haolan CHEN from Shanghai Jiao Tong University, won first prize at the divisional final in the Northeast Asian Division of the prestigious ISETS-ESCAP Youth Voice Competition 2024. Organised by the International Society for Energy Transition Studies (ISETS) and the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP), this international competition engages younger generations in discussions on critical global issues.

The team developed a project titled "Drawing the Blueprint of Traffic Electrification with Digital Twin" under the supervision of Prof. Jerry YAN, Chair Professor of Energy and Buildings, and Dr Ying DU, Postdoctoral Fellow of BEEE. They proposed a comprehensive framework to forecast the dynamic development roadmap through advanced digital twin technology, aiming to contribute to a greener future in the transportation sector.

Following their remarkable success in the Northeast Asia Division, the team outshined the first-prize winners from other six divisions and secured the Global First Prize in the global final held in Chengdu.

LSGI PhD student wins First Place Award in UN Datathon China Division

Mr Songyang LI, a PhD student of the Department of Land Surveying and Geo-Informatics (LSGI), teamed up with students from the Department of Applied Mathematics (AMA) and The University of Hong Kong (HKU) as "Sustainable Roaming" and won the First Place Award at the United Nations (UN) Datathon China Division. The winning project "China-Africa Cooperation: Shared Prosperity for Sustainable Development" investigated the China-Africa cooperation projects over the past 20 years by utilising multi-source satellite datasets and World Bank open-access data. The team created an online platform to visualise the cooperation projects' impact and contribution to the sustainable development of African countries. The project serves as a potential technical support to further advocate the cooperation framework of the Belt and Road Initiative and Sino-foreign relations.

Organised by the UN Statistics Division, the 2023 UN Datathon brought together talented individuals from around the world to showcase their innovative data-driven applications and tools developed to achieve the UN Sustainable Development Goals (SDGs). In 2023, the UN Datathon held its first China Division competition at the UN Global Platform for Big Data China Hub (UNBDC) in Hangzhou. Around 100 teams from China's top universities, research institutions and enterprises competed in the intense 3-day Datathon in November 2023.

FCE students clinch gold and bronze at innovation and entrepreneurship competition

FCE fervently supports the idea that research results with practical implications should be utilised to create impacts on society, hence the Faculty encourages entrepreneurship among the Faculty's academic staff and students alike.

At the 9th China International College Students' 'Internet+' Innovation and Entrepreneurship Competition held in December 2023 at Tianjin University, FCE students won a gold award and a bronze award for demonstrating impressive entrepreneurial spirit. The Gold Award project "Smart Firefighting Robot" utilises artificial intelligence and computer vision technologies that autonomously navigate fire scenes, detect various objects, and automatically extinguish fires.

	Project	Department	FCE Members	Supervisor
Gold Award	Smart Firefighting Robot	Dept of Building Environment and Energy Engineering	Mr Meng WANG* Mr Xiaoning ZHANG Mr Wai Kit CHEUNG Mr Yifei DING	Prof. Xinyan HUANG *Associate Professor*
Bronze Award	GIS and Metamodeling for the Optimal MiC Logistics and Crane Layout	Dept of Building and Real Estate	Ms Sze Lam WONG* Mr Rongsheng LIU Mr Jingchao YANG	Prof. Tarek ZAYED *Professor*

*Team Leader

BEEE Ug graduate wins Merit Award in Best URIS Research Project Award 2023

To nurture the next generation of intellectuals and promote undergraduate (Ug) research, the Undergraduate Research and Innovation Scheme (URIS) administered by the Graduate School (GS) provides Ug students with an enquiry-based learning opportunity to develop sound research, enhance research competence and establish research connections under the supervision of the Faculty's top-notch academics.

Ms Ying Tung LAM, a graduate from BEng (Hons) Building Services Engineering, received the URIS 2021/22 Cohort - Best URIS Research Project Award (Merit) for her project "Study of Fire Impact on Glass Panels". Supervised by Prof. Liming JIANG, Assistant Professor of the Department of Building Environment and Energy Engineering (BEEE), Ms Lam's project investigated fire development mechanisms in building compartments with large glass facades and windows, leading to a novel fire control strategy 'active opening' and potentially reforming the window design of buildings.

Students who are successfully admitted to the two-year URIS programme will automatically become members of the College of Undergraduate Researchers and Innovators (CURI). They will be eligible to attend CURI activities and apply for funding schemes.

RICS Hong Kong Student Awards 2024 affirms FCE's quality education in surveying

FCE provides a variety of Royal Institution of Chartered Surveyors (RICS) accredited programmes at both undergraduate and taught postgraduate levels that support career paths in surveying and facilitate routes to professional qualification.

On 4 December 2024, the RICS Hong Kong Student Awards Ceremony was held for the first time in Hong Kong to recognise the outstanding academic performance of top students from the 2023/24 intake cohort in RICS-accredited programmes. Among the 39 students honoured, 18 of them were from FCE.

Department	Programme title	Awardee
Dept of Building Environment and Energy Engineering	MSc Facility Management	Ms Fong Wah CHUNG Mr Ka Shing YEUNG
	MSc High Performance Buildings	Mr Chung Long CHUI Ms Nok Hei WONG
	MSc Sustainable Urban Development	Ms Ho Kwan KEI Ms Wing Yan WOO
Dept of Building and Real Estate	BSc (Hons) Property Management	Mr Shing Pan FUNG
	BSc (Hons) Surveying	Mr Pak Yin Hugo CHEUNG
	MSc Construction and Real Estate	Ms Ka Man CHAN Ms Jiamin CHEN
	MSc Construction Law and Dispute Resolution	Ms Xut Kan CHAN Ms Liting WANG
	MSc International Real Estate	Ms Tong YU
	MSc Project Management	Ms Tin Wai CHAN Ms Jingyu QI
Dept of Land Surveying and Geo-Informatics	BSc (Hons) Land Surveying and Geo-Informatics	Ms Ruoxin YIN
	MSc Geomatics	Ms Cho Kwan CHEUNG Mr Ouwen ZHANG

Scholarships

Innovation and Technology Scholarship 2024

Ms Karen YEUNG, a year three BSc (Hons) in Surveying student of the Department of Building and Real Estate (BRE), was granted the esteemed Innovation and Technology Scholarship 2024 in recognition of her remarkable academic achievements, enthusiasm for innovation and technology, and holistic personal development.

Aligned with future social development trends, the awardees were selected against six InnoTech Areas and Ms Yeung stood out in the Artificial Intelligence and Robotics area. She received the honour at the award presentation ceremony held on 11 June 2024 together with the other four PolyU awardees. The scholarship supports the awardees' participation in overseas/ Mainland China attachments, local internships, mentorships, service projects, as well as ideation and achievement showcase programmes.

This prestigious scholarship is jointly organised by the Innovation and Technology Commission, HSBC, and The Hong Kong Federation of Youth Groups, with 25 outstanding university students selected as scholarship recipients each year.

SHKP-Kwoks' Foundation x PolyU Building Homes with Heart Scholarship Programme

In 2024, nine exceptional FCE students received scholarships from the SHKP-Kwoks' Foundation x PolyU Building Homes with Heart Scholarship Programme to support their studies. At the award ceremony held on 28 August, Mr Adam KWOK, Executive Director of SHKP, presented the scholarships to the awardees. Each student was awarded a scholarship of up to HK$40,000, to support their studies in construction, real estate, or engineering-related disciplines.

At the ceremony, Prof. Ben YOUNG, Vice President (Student and Global Affairs) of PolyU, and Mr Robert CHAN, Executive Director of SHKP and a PolyU graduate, shared their visions for academic-industry collaboration and nurturing future talents for the industry.

Department	Programme	Awardee
Dept of Building Environment and Energy Engineering	BEng (Hons) Building Services Engineering	Mr Lok Kwan CHAN Mr Kai Yin CHUI Mr Sing LAW
	BEng (Hons) Building Services Engineering Minor in Mechanical Engineering	Mr Yuxi CHEN
	MEng Building Services Engineering	Mr Lingtao LIU
Dept of Building and Real Estate	BSc (Hons) Surveying	Ms Yingying CHEN Ms Phoena CHO Ms Cheuk Yan LEUNG
Dept of Civil and Environmental Engineering	BEng (Hons) Civil Engineering (Structural Engineering)	Ms Cheuk Yin TANG

Staff News

PolyU President's Awards and Faculty Awards for Outstanding Achievement 2023

The President's Awards and the Faculty Awards for Outstanding Achievement are two tiers of awards established to recognise and celebrate the remarkable contributions of staff members. Categorised into individual and team awards, the honours are given in the areas of Teaching, Research and Scholarly Activities, Knowledge Transfer, and Services.

Following the President's Awards for Outstanding Achievement 2023 which were announced in February 2024, FCE announced the Faculty Awards for Outstanding Achievements 2023 in early March 2024. Congratulations to all the awarded individuals and teams on their distinguished accomplishments.

The President's Awards for Outstanding Achievement 2023

Category of Awards	Individual Award/ Team Award	Dept	Post
Research and Scholarly Activities *Outstanding Researcher*	Prof. Xiang-dong LI	CEE	Chair Professor
Knowledge Transfer *Sub-category: Industry*	Prof. Yong XIA*	CEE	Professor
	Prof. Songye ZHU	CEE	Professor
	Prof. You DONG	CEE	Associate Professor
	Prof. Jiannong CAO	COMP	Chair Professor

FCE Faculty Awards for Outstanding Achievement 2023

Category of Awards	Individual Award/ Team Award	Dept	Post
Teaching *Outstanding Teacher*	Ir Chung-Lim KWAN*	CEE	Senior Teaching Fellow
	Mr Hoi-yung LIN	CEE	Instructor
Teaching *Outstanding Young Teacher*	Prof. Xinyan HUANG	BEEE	Associate Professor
Research and Scholarly Activities *Outstanding Young Researcher*	Prof. Tak-Ming CHAN#	CEE	Professor
Knowledge Transfer *Sub-category: Industry*	Prof. Yong XIA*	CEE	Professor
	Prof. Songye ZHU	CEE	Professor
	Prof. You DONG	CEE	Associate Professor
	Prof. Jiannong CAO	COMP	Chair Professor

** Team leader for the group*
 # Former academic staff

Dean's Award for Outstanding Achievement in Research Funding 2024

Department	Awardee	
Dept of Building Environment and Energy Engineering	Prof. Xinyan HUANG	Associate Professor
Dept of Building and Real Estate	Prof. Heng LI	Chair Professor
	Prof. Geoffrey SHEN	Chair Professor
	Prof. Meng NI	Chair Professor
Dept of Civil and Environmental Engineering	Prof. Zhen LENG	Professor
	Prof. Yong XIA	Professor
	Prof. Songye ZHU	Professor
	Prof. You DONG	Associate Professor
	Prof. Huan-Feng DUAN	Professor
	Prof. Shao-Yuan LEU	Associate Professor
	Prof. Alessandro STOCCHINO	Associate Professor
	Prof. Qi ZHAO	Assistant Professor
Dept of Land Surveying and Geo-Informatics	Prof. Xiao-li DING	Chair Professor
	Prof. Xintao LIU	Associate Professor

Dean's Award for Outstanding Achievement in Teaching Innovation 2024

Department	Award Category	Awardee	
Dept of Building Environment and Energy Engineering	Individual Award	Prof. Cynthia HOU	Assistant Professor

Dean's Award for Highly Cited Researchers 2024

Department	Awardee		Field
Dept of Building Environment and Energy Engineering	Prof. Jerry YAN	Chair Professor	Engineering
Dept of Building and Real Estate	Prof. Geoffrey SHEN	Chair Professor	Cross-Field

FCE Award for Outstanding Administrative/Technical Services 2024

Unit	Award Category	Awardee	
Faculty of Construction and Environment	Individual Award	Miss Anessa CHAN	Assistant Officer
	Individual Award	Miss Niky CHAN	Technical Officer
	Team Award	Ms Esther CHIK*	Executive Officer
		Miss Wendy YIP	Assistant Officer
Dept of Building Environment and Energy Engineering	Individual Award	Ms Ida LEUNG	Senior Executive Officer
Dept of Building and Real Estate	Individual Award	Ms Chloe SHING	Assistant Officer
	Team Award	Mrs Vivien KAO*	Senior Executive Officer
		Miss Queenie WONG	Executive Officer
		Ms Irene WU	Executive Officer
		Mr K.K. CHEONG	Technical Officer
		Mr W.M. LEUNG	Technician
Dept of Civil and Environmental Engineering	Individual Award	Ms Connie LAM	Administrative Assistant
	Individual Award	Ms Emily FUNG	Technical Officer
	Individual Award	Ms Katherine NG	Executive Officer
Dept of Land Surveying and Geo-Informatics	Individual Award	Ms Peony CHAN	Senior Secretary
	Team Award	Ms Serein HAN*	Scientific Officer
		Miss Stella TSE	Scientific Officer
		Mr Chi-shing LAU	Technical Support Assistant

*Team leader

Long Service Award 2023

A total of 44 FCE staff were honoured for their loyal service to the University with the Long Service Award 2023. The award is given to staff members upon completing each five-year service period. A number of the awardees have been serving PolyU for 25 years or more.

The PolyU Long Service Award scheme was first introduced in 1990 to recognise long-serving staff for their dedication and commitment to PolyU, and to foster a sense of belonging among staff. Prof. Jin-Guang TENG, PolyU President, held a tea gathering on 21 February 2024 at Hotel ICON to share the joy with the awardees. The awardees also received a certificate and a souvenir as a token of appreciation from the University.

Congratulations to the awardees and thanks for their years of devotion which have been instrumental to FCE's growth and accomplishments over the years.

Staff promotions

Congratulations to the promotions of the following academics of FCE with effect from 1 July 2024!

Promotions to Chair Professor

Prof. Meng NI

Chair Professor of Energy Science and Technology

Dept of Building and Real Estate

Prof. Wu CHEN

Chair Professor of Satellite Navigation

Dept of Land Surveying and Geo-Informatics

Promotions to Professor

Prof. Huan-Feng DUAN

Dept of Civil and Environmental Engineering

Prof. Wallace LAI

Dept of Land Surveying and Geo-Informatics

Long-serving staff

Congratulations and farewell to the following long-serving staff of FCE who retired in 2024!

Prof. Chi Kwan CHAU

Associate Professor

Department of Building Environment and Energy Engineering

Ms Kendy KWOK

Clerical Officer

Department of Building Environment and Energy Engineering

FCE engages collaborative effort from senior academics for next strategic plan

To enhance communication and gather insights from the leading scholars of respective disciplines for the Faculty's next strategic plan, Prof. Xiang-dong LI, Dean of Faculty, held a meeting with a group of Chair Professors on 30 August 2024 to solicit their unified efforts for FCE's continued success.

During the meeting, the Dean and the Chair Professors reviewed the Faculty's efforts and performance from multiple perspectives, including learning and teaching, research, and talent acquisition. They also discussed the corresponding new and major initiatives to drive sustained growth in these aspects. The Chair Professors generously shared their observations on various policies and offered constructive suggestions regarding FCE's academic programme development and knowledge transfer endeavours. The meeting provided a platform for direct and enhanced communication among FCE's senior academics and engaged their inputs for the Faculty's strategic development.

Dean meets with newly recruited academics

On 7 March and 4 September 2024, Prof. Xiang-dong LI, Dean of Faculty, met with two groups of newly recruited academics. An informal meeting between the Dean and newly recruited academics is a part of FCE's new academic staff orientation to help the new joiners better understand the Faculty's strategic foci and expectations of them.

New academic staff

Professor

Prof. Ming LU

Prof. Ming LU joined the Department of Building and Real Estate (BRE) as a Professor in July 2024. He received his PhD degree in Civil Engineering – Construction Engineering & Management from the University of Alberta, Canada in 2001. Prof. Lu served at the Department of Civil and Structural Engineering (now the Department of Civil and Environmental Engineering) of PolyU from 2000 to 2010 and later at the Department of Civil and Environmental Engineering of the University of Alberta. He has received numerous accolades, including the Stephen G. Revay Award from the Canadian Society for Civil Engineering (CSCE) in 2023, in recognition of his remarkable contributions to the history and science of civil engineering in Canada.

Through conducting focused research and guiding doctoral students in Hong Kong and Canada, Prof. Lu has made significant achievements in advancing the states of knowledge and practice in three specialisation domains: (1) devising innovative methods for project scheduling and operations simulation; (2) making machine learning algorithms explainable for engineering applications; and (3) streamlining optimisation strategies and developing sufficient optimisation solutions for construction engineering & project management. His upcoming research will focus on civil infrastructure construction and maintenance systems (e.g., bridges/tunnels/highways/pipelines) to further develop (1) AI-enabled process simulation methods for designing production systems subject to constraints induced by emerging technology, Occupational Health & Safety, environment, and social equity; (2) pragmatic optimisation platform for Agile Project Management involving finite resources, multiple clients and multiple stakeholders.

Prof. Joseph AWANGE

The Department of Land Surveying and Geo-Informatics (LSGI) welcomed Prof. Joseph AWANGE to the position of Professor in November 2024. Prof. Awange obtained his BSc and MSc degrees in Surveying from the University of Nairobi, Kenya, and a second MSc degree and PhD in Geodesy from the Stuttgart University, Germany. He also holds a Postgraduate Diploma in Environmental Impact Assessment (EIA) from Murdoch University, Australia. Prior to joining PolyU, Prof. Awange served as an Associate Professor and later as Professor at Curtin University from 2012.

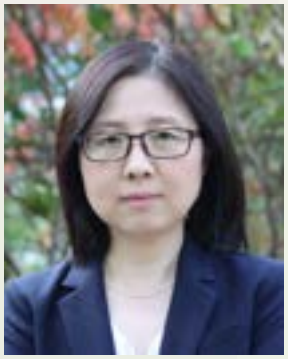
Prof. Awange's research interests encompass remote sensing of the environment, hydroclimate, climate variability and change, climate extremes, and mathematical geosciences. His scholarly contributions include over 25 books published with Springer and more than 250 high-impact journal articles. He plays an active role in the academic community as the Acquisition Manager for Springer Nature, focusing on Earth Sciences, Geography, and Environment books, and as an Associate Editor for leading journals such as *Remote Sensing of Environment* and *Science of Remote Sensing*.

Prof. Awange's contributions to scientific cooperation and advancements in geodesy and environmental geoinformatics have been recognised through numerous awards, including the Alexander von Humboldt Fellowship, Japan Society for the Promotion of Science (JSPS) Fellowship, and Brazil Frontier of Science Fellowship, which supported him in conducting research in Germany, Japan and Brazil, respectively.

Associate Professor

Prof. Tristance KEE

Prof. Tristance KEE joined the Department of Building and Real Estate (BRE) as an Associate Professor. She completed her Bachelor's and Master's degrees in Architecture at the University of Waterloo, and a PhD at the Faculty of Architecture at The University of Hong Kong (HKU). She has been a full-time academic since 2009 where she served HKU and The Technological and Higher Education Institute of Hong Kong (THEi) previously. Her passion lies in exploring interdisciplinary approaches within architecture, reflecting and addressing the ever-evolving needs of the industry. As a Registered Architect and Authorized Person (Architecture) in Hong Kong, she serves as a Council Member in The Hong Kong Institute of Architects (2024-2026), and served as the Chair for the Asia Pacific Interior Design Awards from 2021 to 2023.



Prof. Jinxia LIU

The Department of Civil and Environmental Engineering (CEE) welcomed Prof. Jinxia LIU to the post of Associate Professor in July 2024. Before joining PolyU, she worked as an Associate Professor and the Director of the Brace Water Centre at McGill University, Canada. Her research team focused on reducing the environmental and health impacts of emerging organic pollutants, particularly poly- and perfluoroalkyl substances (PFAS). Her work integrates fundamental and applied studies of PFAS environmental fate and behaviour through laboratory experiments and field monitoring, using multidisciplinary approaches in engineering, chemistry, and microbiology. She also collaborated extensively with government agencies and private industries to tackle soil and water pollution issues.

Prof. Liu has secured numerous competitive research grants from Canadian and U.S. funding agencies, including the Natural Sciences and Engineering Research Council of Canada (NSERC), the Canada Foundation for Innovation and the U.S. National Science Foundation.

Assistant Professor

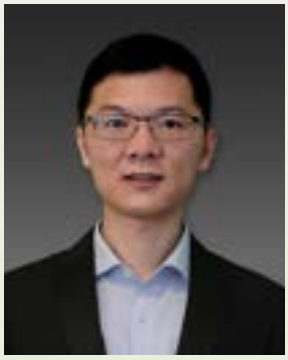
Prof. Liangfen DU

Prof. Liangfen DU joined the Department of Building Environment and Energy Engineering (BEEE) as an Assistant Professor in April 2024. She obtained her BEng in Environmental Engineering and MSc in Acoustics from the Northwestern Polytechnical University in China, and received her second Master's degree and a PhD in Acoustics from the Institut National des Sciences Appliquées de Lyon (INSA Lyon) in France. After graduation, she worked as an Acoustic Consultant in the industry for various industrial projects involving noise impact assessment, acoustic design, building acoustics and more. She later returned to academia as a research fellow at the National University of Singapore (NUS) from 2017 to 2021 and at the Nanyang Technological University (NTU) in Singapore from 2021 to 2024, respectively. Prof. Du's research interests encompass noise reduction technologies enabling natural ventilation, acoustic metasurfaces, sound prediction, and environmental noise control.

Prof. Yue TENG

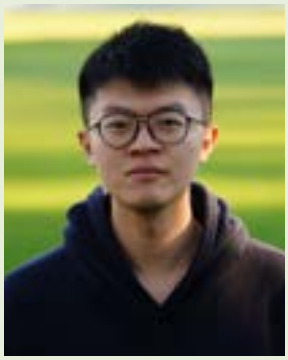
The Department of Building and Real Estate (BRE) had a new Assistant Professor, Prof. Yue TENG, who was promoted from Research Assistant Professor to the current position in July 2024. Prof. Teng obtained her Bachelor's degree in Financial Management and Master's degree in Technology Economics and Management from Chongqing University in 2013 and 2016, respectively, and her PhD degree from the Department of Civil Engineering of The University of Hong Kong (HKU) in 2020. After graduation, Prof. Teng served as a Postdoctoral Fellow at the Department of Civil Engineering and as a Technical Manager at Net Zero Laboratory (NetZeroLab) at HKU.

Prof. Teng's research focuses on zero carbon, prefabrication and modular integrated construction (MiC). Her interdisciplinary background also enhances her research in urban and regional carbon management and the application of digital technologies for monitoring carbon emissions.



Prof. Qianjie CHEN

Prof. Qianjie CHEN of the Department of Civil and Environmental Engineering (CEE) was promoted from Research Assistant Professor to Assistant Professor in January 2024. Prof. Chen obtained his Master's degree in Physics and Climate Science from Utrecht University in The Netherlands in 2013 and his PhD from the University of Washington in 2017. He worked at the University of Michigan as a Postdoctoral Research Fellow before joining CEE. Prof. Chen's research interests include air pollution and climate change, atmospheric oxidative capacity, aerosol sources and chemistry, atmosphere-cryosphere interactions.



Prof. Tao LIU

Prof. Tao LIU joined the Department of Civil and Environmental Engineering (CEE) as an Assistant Professor in March 2024. He obtained his Bachelor's degrees in Environmental Engineering and Economics from Tsinghua University in 2015, and received his PhD degree from the Advanced Water Management Centre (AWMC) at The University of Queensland (UQ) in 2020. After graduation, he worked as a Research Fellow at UQ, during which he secured the Discovery Early Career Researcher Award (DECRA) funded by the Australian Research Council (ARC). The competitive DECRA Fellowship supports outstanding early-career researchers who have been awarded a PhD within the last 5 years, with demonstrated capacity for innovative research. Prof. Liu's research focuses on the development of innovative solutions for urban water and wastewater management, through the effective integration of fundamental science and applied engineering.

Prof. Guoqiang SHI

Prof. Guoqiang SHI was promoted from Research Assistant Professor to Assistant Professor in March 2024 with the Department of Land Surveying and Geo-Informatics (LSGI). Prof. Shi received his PhD from The Chinese University of Hong Kong (CUHK) in 2019. During 2018 and 2019, he was a visiting scholar with the Department of Earth and Planetary Science, University of California Berkeley. He worked at the Institute of Space and Earth Information Science of CUHK as a Postdoctoral Fellow before joining LSGI. His research interests include synthetic aperture radar interferometry (InSAR) and its applications to urban geo-hazards monitoring and modelling, built environment and infrastructure health diagnosis.

External Appointments and Awards

Beyond academia, FCE academic staff members have consistently demonstrated a strong commitment to public service and external engagements, leveraging their expertise for the benefit of the broader community. Many of them were honoured with prestigious awards from professional institutions in recognition of their outstanding contributions. In 2024, the below FCE academics shared with us their external appointments and awards.

Prof. Jerry YAN
Chair Professor
Department of Building Environment and Energy Engineering

Award
Fellow of the Hong Kong Academy of Engineering Sciences (HKAES)

Prof. Tommy WEI
Professor
Department of Building Environment and Energy Engineering

Appointment
Member of Young Member Section (YMS) of the Hong Kong Academy of Engineering Sciences (HKAES)

Award
Hong Kong Engineering Science and Technology (HKEST) Award 2023

Prof. Meng NI
Chair Professor
Department of Building and Real Estate

Appointment
Editor-in-Chief of *Energy Reviews* (Elsevier)

Prof. Ben YOUNG
Chair Professor
Department of Civil and Environmental Engineering

Award
Member of the European Academy of Sciences and Arts (EASA)

Prof. Hai GUO
Professor
Department of Civil and Environmental Engineering

Appointment
Centre Director of the Australia-China Centre for Air Quality Science and Management (ACC-AQSM) for Hong Kong, China

Prof. Qihao WENG

Chair Professor
Department of Land Surveying and Geo-Informatics

Awards
2024 American Association of Geographers (AAG) Wilbanks Prize for Transformational Research in Geography

2024 AAG Remote Sensing Specialty Group (RSSG) Lifetime Achievement Honor Award

Prof. Jianli CHEN
Professor
Department of Land Surveying and Geo-Informatics

Award
Fellow of the American Geophysical Union (AGU)

Prof. George LIU
Professor
Department of Land Surveying and Geo-Informatics

Appointments
Chief Scientist of Meteorological Observation Center of the China Meteorological Administration

Founding Chair of the Canadian Institute of Geomatics (CIG) Hong Kong Branch

Prof. Charles WONG
Professor
Department of Land Surveying and Geo-Informatics

Appointment
Member of the Energy Advisory Committee of the Environment and Ecology Bureau

Partnership

Global Engagements

FCE joins hands with Hexagon to advance spatial measurement technologies

In early March 2024, the Department of Land Surveying and Geo-Informatics (LSGI) signed a Memorandum of Understanding (MoU) with Hexagon Leica Geosystems (Qingdao) Co., Ltd. (Hexagon) to establish a strategic framework partnership to foster R&D in surveying, geographic information mapping technology and equipment, and positioning and navigation systems.

Signed by Prof Wu CHEN, Head of LSGI, and Mr Deyong WANG, Chief Financial Officer (China Region) of Hexagon and Executive Director of Hexagon Leica Geosystems, the MoU set the ground for collaboration opportunities such as the establishment of a joint lab, talent cultivation, technology transfer and commercialisation of spatial measurement technologies.

Hexagon is a renowned innovator in global spatial information technology and solutions. The partnership is one of the Faculty's university-industry collaboration endeavours to create industrial and societal impact.

FCE cultivates connections with delegations from Mainland China institutions to explore collaboration opportunities

FCE continues to strengthen ties with Mainland China institutions and explore collaboration opportunities on research initiatives and innovative solutions for global challenges.

On 21 June 2024, a delegation from the Advanced Interdisciplinary Institute of Environment and Ecology, Beijing Normal University, visited FCE. They shared their recent research initiatives with Prof. Xiang-dong LI, Dean of Faculty, and other FCE academic representatives. The meeting was followed by a laboratory tour to showcase our research capabilities and foster academic exchanges.

On 30 July 2024, a delegation from the School of Environment, Harbin Institute of Technology, visited FCE. Prof. Xiang-dong LI and department representatives presented an overview of FCE and its research focuses and conducted a laboratory tour to enhance the delegates' understanding of FCE's research excellence. The delegates also introduced their latest developments in hopes of facilitating in-depth exchanges.

FCE departments strengthen academic and government partnerships for impactful education and research

To ensure that the education and research conducted at FCE remain aligned with the latest policy needs and challenges in Hong Kong and beyond, FCE departments maintain strong ties with government departments and statutory bodies in their fields.

On 3 October 2024, a team from the **Architectural Services Department of the HKSAR Government** visited the Department of Building and Real Estate (BRE). Led by Ar Michael LI and Sr Alan SIN, the Director and Deputy Director of Architectural Services, the team learned about BRE's latest research and toured the laboratories to better understand its research strengths.

On 23 September 2024, the Department of Land Surveying and Geo-Informatics (LSGI) received a delegation from the **Singapore Land Authority (SLA)**, a statutory board under the Ministry of Law in Singapore. The delegation led by Ms Wai Lin THONG, Deputy Chief Executive of SLA, was introduced to the academic programmes provided by LSGI. Both parties also explored opportunities for future collaboration. These visits fostered mutually beneficial partnerships and ensured that FCE is equipped to contribute effectively to societal advancement, both locally and internationally.

BRE received a dedicated team from the Architectural Services Department

LSGI received a delegation from the Singapore Land Authority

Counsellor Fly-in Programme 2024 to attract global prospective students

To connect with high school representatives and recruit outstanding students from overseas as well as international schools in Hong Kong, PolyU has been promoting an in-depth understanding of our dynamic academic and campus life via the "Counsellor Fly-In Programme". Hosted by the Global Engagement Office (GEO), the 2024 programme welcomed around 50 counsellors from schools all over the world to visit PolyU in March 2024.

On 8 March 2024, FCE hosted a group of counsellors for a tour of the major laboratories and teaching facilities of our four departments. The tour began with a brief introduction of FCE's research and education excellence by Prof. Linda XIAO, Associate Dean (Partnership) of Faculty. Counsellors then visited the Fire Engineering Laboratory, CARE Resource Centre, Structural Engineering Research Laboratory, and Laboratory for Smart City and Spatial Big Data Analytics. Representatives from the facilities showcased and demonstrated how teaching and research activities are conducted there.

Representatives from the departments also attended the Mini Recruitment Fair held later that afternoon to provide the counsellors with details of our top-notch academic programmes.

International recruitment efforts via university fairs and visits

Beyond local recruitment of prospective students, FCE is committed to attracting global talent through various initiatives, including active participation in recruitment trips hosted by the Global Engagement Office (GEO). In October 2024, FCE participated in a university fair in Indonesia, alongside around 30 renowned universities worldwide. Interested students explored our comprehensive range of undergraduate programmes and opportunities in Hong Kong.

Additionally, the Faculty also joined the tour to visit international schools in Shanghai and Suzhou, Mainland China, engaging with potential students who are planning to pursue their academic and career prospects in the fields of construction, environment, and sustainable urban development.

FCE efforts in attracting talents from the GBA

Recognising the strategic importance of recruiting talents and strengthening industry cooperation in the Greater Bay Area (GBA), the Faculty actively participated in the Hong Kong Construction Industry 'Talent Hub' – Joint Industry Promotion and Recruitment Event. Jointly organised by the Development Bureau of the HKSAR Government and the relevant Guangdong provincial departments, the event took place on 10 and 11 November 2024. It aimed to highlight career opportunities in the construction industry and promote Hong Kong's educational offerings to students and practitioners from the Mainland, particularly those from the GBA.

FCE representatives showcased our undergraduate and taught postgraduate programmes at the recruitment booth. A highlight was a promotion talk by Prof. Charles WONG, Associate Dean (Teaching & Global Engagement) of Faculty, titled "Next Generation of Sustainable Construction and Environment: Nurturing our Talents in the GBA". His presentation emphasised the Faculty's commitment to nurturing skilled professionals in sustainable construction and environmental fields.

Alumni News

FCE alumnus receives Outstanding PolyU Alumni Award 2023

FCE alumnus and also one of the awardees of the 2023 FCE Outstanding Alumni Award, Sr Dr Tin-cheung CHEUNG, was conferred the 2023 Outstanding PolyU Alumni Award in Professional Achievement by the University.

Dr Cheung is currently the Chairman of the Hong Kong Green Building Council. He served in the Hong Kong government for over three decades with tenures spanning various departments. During his tenure as the Director of Buildings, he led the Buildings Department to review and develop policies and strategies that greatly enhanced building safety in Hong Kong. Dr Cheung accepted the honour along with four other awardees at the award ceremony held on 19 December 2023 at Hotel ICON under the witness of over 200 guests.

The Outstanding PolyU Alumni Award aims to give recognition to distinguished graduates of PolyU for great distinction in their chosen fields, active support to their alma mater, as well as impactful contributions to the wider community.

Women in Green Building Leadership Award recognises FCE alumna for advocacy and influence in sustainability

FCE alumna Ms Grace KWOK, a recipient of the 2023 FCE Outstanding Alumni Award, was honoured with the Women in Green Building Leadership Award by the World Green Building Council Asia Pacific Network in November 2024.

This prestigious award recognises female trailblazers who have demonstrated exceptional leadership, innovation, and commitment to sustainability, thereby influencing the industry towards a more sustainable future. Ms Kwok was nominated by the Hong Kong Green Building Council for her significant contributions to Hong Kong's green building development as an inspiring female leader.

FCE alumnus wins HKIE Young Engineer of the Year Award 2024 for commendable professional achievements

Ir David KWOK, a graduate of the Doctor of International Real Estate and Construction Programme of the Department of Building and Real Estate (BRE), was honoured with the Young Engineer of the Year Award 2024 by The Hong Kong Institution of Engineers (HKIE) for his achievements in the engineering profession and significant contributions to the wider community. Ir Kwok received the honour from Ir Dr Barry LEE, President of the HKIE, on 15 March 2024 at the 46th HKIE Annual Dinner.

Apart from leading a technology start-up to develop a digitalised fabrication process for building materials, Ir Kwok also dedicates his extensive experience in civil and building engineering projects to help nurture young minds in multiple capacities such as ambassador, mentor, and volunteer teacher.

FCE is delighted to see our young alumni soaring to great heights in their careers and giving back to their respective professions.

Joint Alumni FCE Spring Reunion 2024 strengthens bond between Faculty and alumni

To engage and connect FCE's diverse alumni community, a Joint Alumni FCE Spring Reunion was organised by our five FCE Alumni Associations and was successfully held on 9 March 2024. Around a hundred guests, alumni, current Faculty members and students attended the gathering. The guests were led on a campus tour to revisit some familiar sites of their alma mater and learn about the latest developments and facilities on campus. They also joined the dinner gathering at Ju Yin House on the PolyU campus, enjoying the time networking and exchanging insights with each other.

InnoTech Open Day x Alumni Homecoming 2024 celebrates innovation and connection

The PolyU InnoTech Open Day x Alumni Homecoming 2024, held on 19 October, warmly welcomed the public to explore the University's impactful achievements and invited alumni back to their alma mater to celebrate their vital role in its growth and success. FCE showcased cutting-edge research and technology with a focus on Smart Living and Transportation at the Faculty booth. Alumni, along with their families and friends, were thrilled to explore the latest advancements and innovations since their graduation. The departments also organised thematic guided tours of the HVACR Laboratory, Fire Engineering Laboratory, and Photogrammetry and Robotic Vision Laboratory (Planetary Remote Sensing Lab), offering alumni a chance to reconnect with their academic roots and rediscover the transformation.

The day perfectly blended nostalgia and progress, strengthening connections across generations and industries, and allowing alumni to refresh cherished friendships and memories at PolyU.

Outstanding Alumni Award of PolyU FCE 2024

Four distinguished awardees were honoured with the Outstanding Alumni Award of PolyU FCE 2024 for their exceptional entrepreneurial, professional, and scholarly achievements, as well as their active support to the alma mater and impactful contributions to the community. The Faculty hopes that their success and impact, which reflect FCE's quality education, will inspire and motivate the FCE community to strive for excellence and to give back to society.

Outstanding Alumni Award in Entrepreneurial Achievement
Ir Eagle MO Cheung Ying

Bachelor of Engineering in Building Services Engineering
The Hong Kong Polytechnic University (1997)

Ir Mo is the founder and Managing Director of Telemax Environmental and Energy Management Limited. Since the company's establishment in 2009, Ir Mo has steered the firm's growth from a local consultancy in Hong Kong and Mainland China to an internationally recognised firm specialising in construction, mechanical and electrical engineering, green buildings, environmental protection, sustainable energy development, and carbon emission reduction.

Ir Mo's commitment to innovation is evident through the development of an AI-based carbon management platform and an energy audit app she pioneered, which have significantly enhanced project efficiency. Her leadership has earned the company numerous prestigious awards, including the 2023 Green Building Award and the Hong Kong's Most Outstanding Business Awards 2020. In addition to being acknowledged for her expertise and influence in the industry, Ir Mo has also contributed her expertise to academia by taking up various scholarly roles such as lecturer and textbook editor, further solidifying her impact on sustainable development and environmental stewardship.

Outstanding Alumni Award in Professional Achievement
Ir WONG Chi Pan, JP

Bachelor of Engineering in Civil Engineering
Hong Kong Polytechnic (1989)

Ir Wong, Head of the Civil Engineering Office of the Civil Engineering and Development Department (CEDD), has over 30 years of experience in civil, coastal and environmental engineering. Apart from land and infrastructural development to provide public housing and public fill management, he has overseen the construction and maintenance of port facilities, conducted technical studies on reclamation projects, and led research and development to enhance the design and maintenance standards of marine structures. He has also contributed significantly to technical publications regarding port works design and coastal resilience in the face of climate change. Under his leadership, CEDD has collaborated with PolyU on research studies to improve industry efficiency and support Hong Kong's carbon neutrality goals. His innovative work includes technology to enhance construction waste sorting, field studies of beneficial reuse of public fill and dredged materials, trial applications of new materials in marine structures and building structures, and design guidelines for various engineering applications. Ir Wong is currently serving on the CEE Department Advisory Committee.

Outstanding Young Alumni Award in Professional Achievement
Ir Dr David KOWK Tai Wai

Doctor of International Real Estate and Construction
The Hong Kong Polytechnic University (2023)

Ir Dr Kwok is the Chief Operating Officer of Wah Tung Holdings Limited. He is a highly accomplished professional with diverse qualifications and experience in engineering and construction. He has played a key role in developing operational systems and promoting Environmental, Social, and Governance (ESG) initiatives. He has spearheaded the use of Building Information Modelling (BIM) as early as 2014 and successfully implemented an ESG strategy at Wah Tung. His successful development of a Modular Integrated Construction (MiC) production line and the application of cutting-edge engineering approaches, including an Enterprise Resource Planning (ERP) system at Wah Tung, earned him recognition from The Hong Kong Institution of Engineers with the Young Engineer of the Year Award 2024. Ir Dr Kwok's impact on the industry and society is further demonstrated through his active roles in different professional and educational institutions and contribution to fostering a connection between the young generations and the industry. As the founder of Insquare Foundation Limited, he supports young minds from underprivileged families in developing their programming skills. His innovative approach and dedication to sustainable development have earned him a reputation as a leader in the engineering and construction field.

Outstanding Young Alumni Award in Scholarly Achievement
Prof. SONG Mengjie

Doctor of Philosophy
The Hong Kong Polytechnic University (2015)

Prof. Song is a professor and the head of the Complex Phase Change Thermal Fluid Lab (Frost Lab) at the Beijing Institute of Technology. His research focuses on heat and mass transfer mechanisms in extreme temperatures, significantly advancing the understanding of frost and defrost processes crucial for the safety of aircraft and vehicles in low-temperature environments. Additionally, Prof. Song's work on efficient phase conversion heat mechanisms addresses high heat flux challenges in the energy and manufacturing sectors. His innovations in "extremely cold temperature control" and "extremely hot temperature control" have made him a globally recognised expert, contributing to advancements in anti-frost, anti-ice, and heat dissipation technologies.

A Dialogue with FCE Alumnus Ir Gary Chiang

The FCE Dialogue Series is a new publication initiative of the Faculty to enhance the sense of community and connection among our readers. It is a curated series of narratives featuring inspiring journeys and accomplishments of invited FCE members and friends. The first interviewee of the Series was Ir Gary CHIANG. Ir Chiang is the Principal Manager - Business Development & Support at CLP Power Hong Kong Limited (CLP).

As a seasoned professional in the building services engineering industry, he was honoured with the Outstanding Alumni Award of PolyU Department of Building Environment and Energy Engineering in 2023 for his exemplary leadership in the industry.

As an esteemed alumnus, Ir Chiang highlighted in the Dialogue how FCE's strong industry connections and comprehensive curriculum accelerated his career success. He emphasised the seamless blend of theoretical and practical training in building services engineering, which prepared him well for fieldwork. Ir Chiang also shared how his academic qualifications opened numerous career doors as he entered the job market. Apart from sharing some meaningful projects at CLP, he also stressed the importance of staying updated with technological advancements and encouraged alumni to support FCE.

We welcome you to share your experiences and success stories with us. Your sharing will serve as a valuable source of inspiration and guidance for the next generation of professionals and our broader audience.

Scholarly Activities & Major Events

FCE Annual Forum 2024

FCE takes proactive steps to further equip its researchers with the techniques needed to develop high-quality research proposals and to foster a supportive culture for research excellence.

The FCE Annual Forum 2024 on 22 July 2024 attracted about 70 participants. Academics from FCE departments, the School of Fashion and Textiles (SFT), the Department of Electrical and Electronic Engineering (EEE), and the Department of Applied Mathematics (AMA) shared valuable insights and practical tips on writing first-rate proposals for the schemes funded by the Research Grants Council (RGC). The topics covered at the forum were as follows.

FCE Annual Forum 2024

Topic	Speaker *Department*
Successful Experience in Writing ECS Proposal	**Prof. Tao LIU** *Assistant Professor* *Dept of Civil and Environmental Engineering*
Successful Experience in Writing GRF Proposal	**Prof. Liming JIANG** *Assistant Professor* *Dept of Building Environment and Energy Engineering*
RAP's Successful Experience in Writing GRF Proposal	**Dr Xiao-you WANG** *Research Assistant Professor* *Dept of Civil and Environmental Engineering*
Successful Experience in Writing Proposal for RGC Major Research Scheme – Theme-based Research Scheme	**Prof. Xiaoming TAO** *Chair Professor* *School of Fashion and Textiles*
Successful Experience in Recruiting Quality HK PhD Fellowship Candidates	**Prof. Shengwei WANG** *Chair Professor* *Dept of Building Environment and Energy Engineering*
Successful Experience in Writing Proposal for RGC CRF Young Collaborative Research Grant	**Prof. Liang LIU** *Associate Professor* *Dept of Electrical and Electronic Engineering*
Successful Experience in Writing Proposal for RGC Research Fellow Scheme	**Prof. Buyang LI** *Professor* *Dept of Applied Mathematics*

Workshop on Hong Kong Research Grants Application (Other than RGC Grants)

FCE, recognising the importance of research grants in supporting academic staff's research and underpinning our academic programmes, organised a Workshop on Hong Kong Research Grants Application (Other than RGC Grants) on 3 April 2024 to foster research excellence. Attended by over 60 FCE academics, the workshop aimed to unlock the key to success in securing non-RGC local grants. Speakers from FCE and sister faculties shared their successful experiences with Smart Traffic Fund, Strategic Public Policy Research Fund, Environment and Conservation Fund, and Green Technology Fund.

FCE Distinguished Lecture

The FCE Distinguished Lecture is a hallmark initiative of the Faculty, inviting world-leading academics to share their research findings and expertise with FCE staff, students, alumni, and friends.

FCE was honoured to host Prof. Zhengtang GUO from the Institute of Geology and Geophysics, Chinese Academy of Sciences (CAS), who delivered a lecture themed "Neogene-Quaternary loess deposits in China and Asian climate changes" on 27 August 2024.

Prof. Guo is an eminent Cenozoic geologist and paleoclimatologist renowned for his research on climate information derived from the loess deposits in China. Elected as an academician of CAS in 2013, he currently serves as the Director of the Department of Earth Sciences at the National Natural Science Foundation of China.

During his lecture, Prof. Guo elaborated on how the widespread loess deposits in northern China provide a precious terrestrial record of paleoclimate. He discussed how the chronology yields new constraints on the regional geomorphic history. He also explained the influence of the Tibetan Plateau on the monsoon-dominated climate and inland deserts in Asia and the subsequent climate revolution, along with the impact of the Earth's orbital cycles on the monsoon climate.

FCE Public Lectures

The FCE Public Lecture is a platform for scholars around the world to introduce the latest trends in their fields and share their insights with our students, staff and alumni.

The first lecture in 2024 was delivered by **Prof. Jing MENG** on 26 March 2024, with the topic **"Charting the Path to Net Zero: Leveraging Technological Innovations and Demand-Side Strategies"**.

Prof. Meng is a Professor at University College London and a fellow of Cambridge Centre for Environment, Energy and Natural Resource Governance. As an expert in technology innovation and climate change mitigation policies, she introduced to the audience the current carbon emission trends and their main contributors. She then presented her strategic blueprint for achieving carbon neutrality, taking into consideration the practical technical and economic feasibility. Prof. Meng emphasised the importance of promoting demand-side emission reduction through behavioural change, as well as incorporating innovative technological solutions for long-term and effective pathways to net zero.

The lecture was attended by more than 60 participants, with a dynamic Q&A session after Prof. Meng's sharing.

Urban resilience is currently a central topic of research in academia. At the FCE Public Lecture held on 21 October 2024, the Faculty was honoured to have **Prof. Dongping FANG**, Dean of the School of Civil Engineering and Deputy Director of the Institute for Future Cities and Infrastructures at Tsinghua University, to share his expertise and insights with FCE members and guests.

A renowned scholar in construction safety and urban resilience, Prof. Fang focuses on human-centric approaches to improve urban resilience against earthquakes and floods. During his lecture titled **"People-centric approach for improving urban resilience"**, he generously shared his research methodology and elaborated on an earthquake case study. The lecture concluded with an inspiring exchange of ideas, attracting over 150 attendees.

Dr Otto Poon (3rd from left), Prof. Fang (4th from left), and FCE academics at the lecture.

FCE hosts Research Salon on Energy and Sustainable Development in preparation for third InnoHK Research Cluster

In response to the Hong Kong government's announcement of establishing the third InnoHK Research Cluster, FCE hosted a Research Salon on InnoHK Research Cluster - Energy and Sustainable Development on 3 December 2024. This salon fostered collaboration and dialogue among FCE and other PolyU researchers interested in pursuing new initiatives in this critical area.

The salon began with a welcome remark by Prof. Meng NI, Associate Dean (Research) of Faculty, followed by an insightful sharing talk on InnoHK by Prof. Philip CHAN, Special Advisor to the Deputy President and Provost. A lively Q&A session encouraged engaging discussions and the exchange of ideas.

The InnoHK research clusters have attracted about 2,500 R&D experts from both Hong Kong and around the globe. The initiative to establish the third InnoHK research cluster aims to facilitate collaboration between world-class R&D teams and attract top talent. The salon provided a platform for meaningful discussions and networking among researchers.

FCE Research Salons

The FCE Salons aimed to provide a platform that encourages discussion of research findings, fosters a collaborative ambience and explores potential research collaborations within and beyond FCE.

The **FCE Research Salon on Digital Construction**, held on 18 April 2024, provided a relaxed and informal setting for a group of dedicated academics to engage in fruitful discussions surrounding research ideas and potential collaboration plans.

At the **FCE Research Salon on Extreme Weathers** held on 3 June 2024, Prof. Tao WANG, Chair Professor of Atmospheric Environment of the Department of Civil and Environmental Engineering (CEE), shared insights on the impact of heatwave on air quality in 2022. Prof. You DONG, Associate Professor of CEE, presented the latest research on intelligent maintenance and adaptation of coastal infrastructures in the face of a changing climate.

The **FCE Research Salon on Advanced Thermal Management based on Radiative Cooling Technology** was held on 4 July 2024. The salon brought together researchers from FCE and the City University of Hong Kong, who exchanged the latest findings of their respective research teams. The salon fostered cross-institutional knowledge exchange on intelligent building envelope materials and passive radiative cool coating technologies.

Workshop of Guangdong-Hong Kong-Macao Joint Laboratory for Environmental Pollution and Control facilitates interdisciplinary exchanges

The 2024 annual workshop of the Guangdong-Hong Kong-Macao Joint Laboratory for Environmental Pollution and Control (the Joint Lab), hosted by FCE and the State Key Laboratory of Organic Geochemistry (SKLOG) under the Guangzhou Institute of Geochemistry (GIG) of the Chinese Academy of Sciences (CAS), was held from 8 to 10 November in Zhuhai, China. The event gathered over 70 researchers and students from both institutions to discuss advancements in environmental science and sustainability.

Prof. Xiang-dong LI, co-director of the Joint Lab and Dean of FCE, and Prof. Gan ZHANG, director of SKLOG, inaugurated the event by highlighting the collaborative efforts and history of the Joint Lab. The workshop featured a diverse programme, including 30 presentations from academics, postdoctoral researchers, and students from both PolyU and CAS, as well as dynamic discussion sessions. Key topics explored included the impacts of emerging pollutants, innovative waste and water solutions, atmospheric chemistry, and the application of remote sensing and big data in environmental monitoring.

The Joint Lab, co-directed by FCE and GIG, exemplifies a strong partnership dedicated to advancing research on environmental pollution and control. In line with this commitment, the second day featured a discussion session that focused on identifying future collaborations and research initiatives. Overall, this collaborative workshop underscored the importance of interdisciplinary approaches in addressing environmental challenges and aims to foster greater participation in future workshops.

FCE Dean shares visions at CEDD Construction Revolution Summit 2024 to boost academia-government collaboration

In celebration of the 20th Anniversary of the Civil Engineering and Development Department (CEDD), the CEDD Construction Revolution Summit 2024 was held on 24 June 2024 to provide a platform for leaders from academia and industry to share visions on building a smart, green, and resilient city. As one of the keynote speakers, Prof. Xiang-dong LI, Dean of Faculty, shared his insights and experiences on the topic of “Integration of R&D into Construction Practice”. Prof. Li also engaged in the Panel Discussion and exchanged perspectives with other leaders and experts in the field.

The Summit provided a platform for industry leaders and experts to engage in the exchange of knowledge, the exploration of innovative solutions and the strengthening of cross-disciplinary collaboration.

FCE academics advocate for interdisciplinary collaboration on sustainability at Nexus Forum

FCE academics actively engaged in the Nexus Forum 2024, co-hosted by PolyU and Cell Press on 9 and 10 May, demonstrating their commitment to interdisciplinary research and innovation on sustainability.

Themed "Sustainable Exploration of Interdisciplinary Research and Innovation", the two-day event attracted over 150 participants and explored innovative research in various fields. Prof. Jerry YAN, Chair Professor of Energy and Buildings of the Department of Building Environment and Energy Engineering (BEEE) and Editor-in-Chief of PolyU's first interdisciplinary journal *Nexus*, played a pivotal role in the forum as co-chair. With sustainable urban development being one of the key research directions of the Faculty, the concept of sustainability is interwoven throughout the research of FCE academics. They took up active roles in the event to contribute to the international exchange on sustainability, such as members of the organising committee and international scientific committee, keynote speakers, and session chairs. The success of the Nexus Forum 2024 is a testament to the collaborative spirit and expertise within FCE and PolyU at large.

30th congregation of FCE

Congratulations to the over 1,400 FCE graduates of 2024!

Four separate FCE sessions of the 30th Congregation were conducted on 13, 14, and 17 November 2024 at the Jockey Club Auditorium on the PolyU campus. Prof. Xiang-dong LI, Dean of Faculty, presided over the ceremony, reaffirming FCE's identity, values, and missions. He inspired graduates to cultivate a spirit of resilience as they pursue their dreams. Marking the 30th anniversary of PolyU attaining university status, Prof. Li encouraged the graduates to embody the PolyU motto and contribute to the betterment of the world in their own unique ways.

Each of the four departments invited a guest of honour to share their visions for the future of Hong Kong's development in the construction and environment fields, along with invaluable life lessons and mottos.

Departmental session	Guest of Honour
Department of Building Environment and Energy Engineering	Mr Kwok Ying POON, JP ***Director, Electrical and Mechanical Services Department, HKSAR Government***
Department of Building and Real Estate	Dr Tin Cheung CHEUNG, SBS ***Chairman, Hong Kong Green Building Council***
Department of Civil and Environmental Engineering	Mr Tony YAU, JP ***Director, Highways Department, HKSAR Government***
Department of Land Surveying and Geo-Informatics	Mr Kelvin LO, SBS ***Director (Development and Works), Hospital Authority***

Supporting FCE

FCE introduces tiered recognition programme to sustain ongoing support for Faculty development

To ensure that the FCE Fund will sustain its support for the continuous advancement of the Faculty's education and research, the Faculty has introduced a tiered recognition programme that encourages continuous generosity and involvement. This initiative acknowledges the generosity of donors by offering meaningful tokens of appreciation, thereby strengthening their connection to the Faculty. Through this initiative, FCE aims to build a more engaged and supportive FCE community.

We warmly invite our esteemed alumni and friends to support the Faculty through the FCE Fund. Your contributions are vital to the Faculty's future development.

Recognition Tiers:

Bronze (HK$500-$4,999)	:	FCE-branded thank-you gift (limited edition)
Silver (HK$5,000-$49,999)	:	All Bronze benefits & a personalised thank-you letter from the Dean
Gold (HK$50,000-$99,999)	:	All Silver benefits & a post on the Faculty's social media platforms
Diamond (HK$100,000 or above)	:	All Gold benefits & recognition in the Faculty e-newsletter

FCE Fund – Give Now!

Friends and valued partners of FCE show support at PolyU Gala Dinner 2024

On 2 December 2024, the University held a Gala Dinner at the Hong Kong Convention and Exhibition Centre, themed "Unite·Innovate·Impact", to celebrate the 30th anniversary of PolyU achieving university status and to solicit contributions to support university development.

FCE and the four departments each hosted one table at the Gala Dinner, welcoming outstanding alumni, industry leaders, and senior government officials as guests. Accompanied by senior management of the Faculty and the four departments, guests enjoyed musical performances and showed their generous support for PolyU through the live auction.

Inaugural J.M. Ko Award honours two young researchers in structural engineering

The J.M. Ko Award, which is named after PolyU's first Chair Professor of Structural Engineering and current Emeritus Professor (Structural Engineering) - Prof. Jan-ming KO, was established by the Department of Civil and Environmental Engineering (CEE) in 2w023 to recognise exceptional young researchers around the world who have made outstanding contributions of high originality and lasting importance to the science and technology of structural engineering.

At the inaugural award ceremony & International Symposium on Advances in Structural Engineering held on 19 January 2024, which was supported by various industry and academic partners, two exceptional young researchers, Prof. Eleni CHATZI of ETH Zurich and Prof. Xinzheng LU of Tsinghua University, were honoured.

The two awardees each delivered a distinguished lecture after the ceremony, followed by invited presentations from six esteemed scholars in the structural engineering field from Mainland China, Japan, the United States and Australia. Also attended the event were Prof. Jin-Guang TENG, President of PolyU, Prof. Xiang-dong LI, Dean of Faculty, and Ms Ltilian CHEONG, Under Secretary for Innovation, Technology and Industry of the HKSAR Government.

Construction and Environment is published by the Faculty of Construction and Environment for students, staff, alumni and friends of the Faculty. The magazine contains information known as of December 2024. Please visit the FCE website for news of the Faculty. You are also invited to extend your support to the FCE Fund through a donation to advance the mission of the Faculty and make a meaningful impact.

We welcome your comments and articles. Please send all correspondence to:

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