

The Hong Kong Polytechnic University supports the Sustainable Development Goals





THE HONG KONG
POLYTECHNIC UNIVERSITY
香港理工大學

Preface

As an innovative world-class university guided by our Strategic Plan for 2025/26–2030/31, The Hong Kong Polytechnic University (PolyU) is charting a course that strengthens our contribution to Hong Kong’s transformation into an international innovation and technology centre while also supporting our Nation in becoming an education leader worldwide. This forward-looking Plan ensures our teaching, research and knowledge transfer meet the highest international standards, aligned with societal needs and the UN Sustainable Development Goals (SDGs).

Our progress is evident. In the Times Higher Education (THE) Impact Rankings 2025, PolyU leaped to 56th place globally and 2nd locally, excelling in “Good Health and Well-being” (SDG3) and “Quality Education” (SDG4). Our pioneering Service-Learning programme continues to nurture socially responsible leaders while creating benefits for communities in need, embodying the University’s motto: “To learn and to apply, for the benefit of mankind.”

At the same time, research and innovation remain central to our mission. The establishment of the PolyU Academy for Artificial Intelligence (PAAI), the expansion of the PolyU Academy for Interdisciplinary Research (PAIR) into 19 research institutes and centres, and the establishment of Mainland Translational Research Institutes (MTRIs) across various cities in the Chinese Mainland have strengthened our capabilities in conducting cutting-edge research to address societal challenges. Meanwhile, the formation of the Faculty of Computer and Mathematical Sciences (FCMS) will play a pivotal role in nurturing leading talents in the AI era.

We also engage in global conversations to shape the future of AI. We co-hosted the THE Global AI Forum 2024, bringing together thought leaders to address the opportunities and challenges of this transformative technology. At a PAIR Public Forum, we highlighted the impact of the DeepSeek AI model, and demonstrated that high-performance AI can be achieved with fewer resources. Moreover, we became the industry’s first to provide a fully open-source, end-to-end FP8 low-bit training suite—covering both pre-training and post-training. This is not only a technological disruption but also a milestone in the democratisation of compute power. By transforming expensive and scarce computational resources into accessible public capabilities, AI creativity is no longer the privilege of a few giants, but a productivity engine available to everyone.

Sustainability remains integral to our operations. With guidance from the University’s Campus Carbon Neutrality Committee and implementation of our Carbon Neutrality Funding Scheme, we are pursuing innovative projects and setting ambitious targets, including achieving carbon neutrality on campus by 2045, five years ahead of Hong Kong’s goal of 2050.

This report shows how PolyU is uniting vision, innovation, and responsibility to drive impact, empower a brighter future, and tackle the world’s most pressing challenges.

Professor Jin-Guang Teng, BBS, JP
President

CONTENTS

Goal 1: No Poverty	01
Goal 2: Zero Hunger	05
Goal 3: Good Health and Well-Being	09
Goal 4: Quality Education	13
Goal 5: Gender Equality	16
Goal 6: Clean Water and Sanitation	19
Goal 7: Affordable and Clean Energy	21
Goal 8: Decent Work and Economic Growth	25
Goal 9: Industry, Innovation and Infrastructure	28
Goal 10: Reduced Inequalities	32
Goal 11: Sustainable Cities and Communities	36
Goal 12: Responsible Consumption and Production	39
Goal 13: Climate Action	42
Goal 14: Life below Water	45
Goal 15: Life on Land	48
Goal 16: Peace, Justice and Strong Institutions	51
Goal 17: Partnerships for the Goals	53





Research & Innovation

Transforming Youth Mobility with Research-Driven Insights

PolyU was commissioned by the Government of the HKSAR to evaluate the effectiveness of the “Strive and Rise Programme” (the Programme), which supports underprivileged children and helps them break the cycle of intergenerational poverty. The research team conducted a comprehensive evaluation of the first cohort of over 2,500 participants, focusing on developmental progress across eight key indicators, including goal setting, financial planning, interpersonal skills, confidence, self-esteem, sense of responsibility and empathy, resilience, and sense of community belonging.

Participants, together with their parents and mentors, were engaged through questionnaires and interviews to measure programme outcomes. The results were

highly encouraging: these grassroots teenagers reported significant improvements across all indicators, with most experiencing positive change in at least one area and around 70% showing progress in three or more, particularly in interpersonal skills, resilience, and sense of belonging. On average, participants rated themselves over 10% higher in financial planning ability, reflecting tangible growth in essential life skills. Mentors and parents also acknowledged positive changes of the youth.

These findings reaffirm the effectiveness of the Programme in empowering underprivileged youth, while also providing valuable insights to enhance its long-term impact and benefit.

Advancing Collaborative Research to Address Poverty in Central Asia

The Department of Applied Social Sciences has partnered with Al-Farabi Kazakh National University (KazNU) to launch a research initiative aimed at addressing the needs of children, youth, and families living in poverty in Kazakhstan and Central Asia. With a grant of HK\$2 million, the project adopts a collaborative practice research approach that actively engages educators, researchers, practitioners, service users, and policymakers. Grounded in lived experience, the study seeks to co-create a culturally appropriate model of social work practice.

The initiative aspires to mitigate the challenges faced by families in poverty by enabling improved access to education, healthcare, social services, and other

resources. In addition to benefitting over 1,000 underprivileged families, the project fosters academic and professional exchange among social work educators, practitioners, and policymakers across Hong Kong, Chinese Mainland, Kazakhstan, Central Asia, and the broader international community.

Through this collaboration, the project not only develops innovative practice models tailored to local contexts, but also deepens research and academic ties between PolyU and KazNU. Ultimately, it lays the foundation for a joint education and research centre dedicated to social work and social development in Central Asia and the Belt and Road region.

01

02

03

04

05

06

07

08

09

10

11

12

13

14

15

16

17

Teaching & Learning

Understanding Poverty through a Comparative Lens

The Department of Applied Social Sciences led the Winter Institute 2023 in collaboration with the Crown Family School of Social Work, Policy, and Practice at the University of Chicago and the Department of Sociology at Peking University. Taking place in Hong Kong, Hanoi, and Ho Chi Minh City, the initiative exemplified the successful collaboration between the three universities in promoting academic exchange and fostering knowledge on pressing social challenges across diverse contexts.

In Hong Kong, PolyU academics facilitated engaging lectures and discussions, encouraging participants to share insights on topics such as social class, poverty and inequality drawn from their own policy environments; in Vietnam, lectures delivered by the University of Social Sciences and Humanities, Vietnam National University, Hanoi (VNU Hanoi), and the University of Labour and Social Affairs explored social security systems, migration, and changing livelihoods. Besides, field visits to NGOs and social enterprises highlighted impactful community initiatives benefitting people with disabilities, rural women, farmers, and disadvantaged children.

Integrating classroom learning with real-world engagement, the Winter Institute broadened students' understanding of social welfare policy development and service delivery in varied socio-economic settings. It also strengthened analytical and cultural competence, equipping them to apply comparative perspectives in tackling poverty and inequality, and underscored the University's role in cultivating globally engaged professionals.



Cultivating Future-Ready Leaders for a More Equitable Society

"Service Leadership", offered as part of the General University Requirement subject, empowers students to develop the leadership mindset and values for tackling pressing societal issues, including poverty. Centred on the "3Cs" of leadership competence, moral character, and care, the subject combines conceptual learning with experiential activities, helping students translate leadership theories, including service leadership principles and Confucian virtues, into meaningful actions.

The curriculum challenges students to view leadership as a social responsibility to serve others, particularly in addressing poverty and promoting inclusive practices. Classroom learning is reinforced through group projects, reflective writing, and critical self-assessment, enabling students to identify personal

strengths, address gaps, and commit to lifelong growth. Moreover, they are well-equipped to drive positive change, contributing to the global effort to alleviate poverty, as they are encouraged to advocate for equitable resource distribution and to design solutions that improve the lives of marginalised individuals and communities.

This subject is a core component of PolyU's "Leadership and Intrapersonal Development Programme", which received the **Gold Award in the Nurturing Well-being & Purpose category at the Wharton-QS Stars Reimagine Education Awards 2021** for its impact in enhancing well-being, motivating self-improvement, and inspiring socially responsible leadership.

External Engagement

Inspiring Future Leaders to Tackle Social Challenges through Immersive Experiences

The Department of Applied Social Sciences organised the PolyU Igniting Social Innovation Competition to provide an impactful platform for secondary school students to engage with pressing social challenges in Hong Kong and beyond. Using advanced virtual reality and Cave Automatic Virtual Environment (CAVE)/ Hybrid Immersive Virtual Environment (HiVE) technologies, participants experienced issues such as poverty, youth mental health, housing shortages, high land prices, and ageing society in immersive and interactive ways, enabling them to develop deeper understanding and empathy.

The competition encouraged students to propose creative and viable solutions to these challenges, linking local realities with global frameworks for sustainable development. By connecting their

proposals with the United Nations' Sustainable Development Goals, participants demonstrated how social innovation can contribute to tackling poverty (SDG1), improving health and well-being (SDG3), and fostering sustainable cities and communities (SDG11).

With **over 300 students from nearly 70 secondary schools** taking part, the initiative nurtured critical thinking, problem-solving, and leadership skills among the next generation of social innovators. More importantly, it inspired young people to see themselves as active change agents, capable of designing solutions that can improve the lives of individuals, families, and communities.



PolyU's "P.A.T.H.S." Project

Empowering Children and Youth through Education and Social Support

Supported by the Tin Ka Ping Foundation, PolyU's "P.A.T.H.S." Project has reached **over 145,000 primary, and secondary school students** and supported **nearly 1,900 teachers in rural Chinese Mainland** in embedding life-skills education into their classrooms. The students have developed emotional competence, resilience, and confidence, while teachers have transformed their pedagogy from traditional, teacher-centred methods to more student-focused approaches. Parents have also been engaged through workshops and joint activities, strengthening family relationships and positive parenting practices.

Also targeting rural Chinese Mainland, the PolyU-PKU-ChicagoU Tripartite Collaborative Project, co-organised with Peking University, and The University of Chicago, has enhanced social work for children in difficult situations. Through workshops

involving **around 100 social work scholars and practitioners**, the initiative offered trainings on child welfare, protection, disability support, and family resilience. By sharing localised case studies on the impact of poverty on child development and exchanging global perspectives, participants laid the foundation for a national platform to advance child welfare practices.

In Hong Kong, the English Language Centre has supported the Sprouts Foundation to provide after-school programmes for **over 1,000 underprivileged students** each week, nurturing the seeds of confidence and self-esteem that translate into better opportunities for their future. These efforts have tripled the number of primary pupils entering highly rated secondary schools and enabled nearly all secondary participants to access tertiary education. At the same time, PolyU teaching staff enriched their sense of purpose by contributing their expertise.

Governance & Operations

Enabling Academic Pursuits through Financial Support

To ensure that financial hardship does not stand in the way of students pursuing their education, the Student Affairs Office offers a combination of deferred tuition fee payment options and financial assistance schemes, administered by PolyU and the Government of the HKSAR. These measures help ease the burden of tuition and related expenses, creating the conditions for students to focus on their studies and personal development without being constrained by financial stress.

In addition to financial assistance schemes, PolyU partners with external organisations to provide scholarships that recognise academic achievement while addressing financial challenges. A notable example is the “Building Homes with Heart Scholarship Programme”, jointly launched with the SHKP-Kwoks’ Foundation. Under this initiative, awarded undergraduate and postgraduate students



Building Homes with Heart Scholarship Programme

from the Department of Building Environment and Energy Engineering, the Department of Building and Real Estate, and the Department of Civil and Environmental Engineering each received scholarships of up to HK\$40,000.

Overall, **more than 4,900 students** have benefitted from financial support measures, while targeted

scholarships such as the SHKP-Kwoks’ Foundation awards have provided deserving students with additional resources to pursue studies in construction, real estate, and engineering disciplines, fostering an inclusive learning environment where students from all backgrounds can thrive and realise their potential.



iSpace at PolyU Library

Bridging Digital Gaps to Support Equitable Learning Opportunities

Ensuring equal access to information and technology is a cornerstone of academic success. To support students of all backgrounds, the University Library provides a wide range of resources that help level the playing field for learning and research. Among these, notebook PCs, MacBooks, iPads, and other essential digital equipment are available for loan, making sure that financially disadvantaged students are not left behind in their studies.

Beyond traditional learning resources, the Library extends opportunities for students to explore new frontiers in digital technology through its i-Space, a group work space where “i” stands for inspiration, ideation and implementation. This facility allows

students, regardless of discipline or financial background, to explore innovative tools such as the Internet of Things, virtual reality, 3D scanning and printing, laser cutting, vinyl cutting, and video production. By offering low-barrier access to these technologies, i-Space fosters creativity and practical skills that prepare students for a rapidly evolving digital world.

Concurrently, the Library also provides a range of study spaces, from quiet areas to collaborative rooms, assuring that students can study in environments suited to their needs. Overall, these efforts secure equitable access to resources, knowledge and emerging technologies, enabling students to achieve their full potential.



Research & Innovation

Advancing Food Security through Floating Urban Farming Innovation

The Sustainable and Smart Floating Structure Solution (S²FS²) represents an innovative response to urban challenges such as land scarcity and climate change. Led by the research team from the Research Institute for Land and Space under the PolyU Academy for Interdisciplinary Research, this initiative has explored how floating platforms could complement land reclamation and create adaptable, climate-resilient urban spaces.

A key application of S²FS² lies in the development of floating farms, which can integrate advanced agricultural practices such as hydroponics, aeroponics, and vertical farming. By alleviating pressure on conventional land-based farming, these

systems hold significant potential to strengthen food security in densely populated cities like Hong Kong.

Beyond agriculture, the project also served as a platform for knowledge transfer and public engagement. It offered unique opportunities for students, farmers, and the community to learn about sustainable land management, climate-resilient agriculture, and ecosystem preservation.

Through combining research innovation with practical applications, S²FS² demonstrates how floating solutions can contribute to greener, more resilient cities. It highlights the transformative role of research in shaping future urban ecosystems while advancing sustainable living practices.

Pioneering Precision Hydroponics to Tackle Nutrient Deficiencies

The Research Institute for Future Food under the PolyU Academy for Interdisciplinary Research, was awarded **over HK\$3.5 million** to carry out a research project to address the widespread deficiency of calcium, iron, and iodine among Hong Kong residents through the development of biofortified hydroponic vegetables using precision nutrient solutions. Leveraging PolyU patented technologies and an indoor controlled-environment hydroponic platform, the project focuses on optimising nutrient forms and concentrations to enhance both the nutritional value and yield of commonly consumed vegetables.

In collaboration with **around 50 local hydroponic enterprises**, lab-developed techniques will be scaled up in pilot production facilities, with standard operating procedures established to ensure consistency and quality. Comprehensive evaluations including nutritional analysis, food safety, sensory



quality, and intestinal absorption studies are being conducted, alongside investigations into nutrient retention after common cooking methods. To support knowledge transfer, technical workshops for industry partners and public education activities on food sustainability such as farm tours, tasting sessions, and seminars will also be organised.

By promoting healthy eating, reducing carbon footprints, and enhancing the competitiveness of local hydroponic produce, the project contributes as well to Good Health and Well-being (SDG3) and Climate Action (SDG13). Ultimately, it aims to foster sustainable agriculture, food security, and a culture of sustainable living in Hong Kong.

Teaching & Learning

Educating Next Generation to Support Local and Rural Farmers

PolyU integrates support for farming communities into diverse academic disciplines, combining scientific expertise, ethical practice, and community engagement to address food sustainability. In the Department of Applied Biology and Chemical Technology, the service-learning subject “Educating Rural Farmers on Healthier Food Production” enables students to work alongside farmers in Chinese Mainland and Hong Kong to improve agricultural productivity and promote sustainable practices.

Particularly, projects in Deyang, Sichuan have enhanced mushroom, fruit, and paddy crop yields, while partnerships with the Hongchi Association, an NGO in Hong Kong have strengthened local farming operations. Students have also organised workshops on digital agriculture and organic farming for local students in Sichuan and elderly participants in Hong Kong, benefitting farming households in both regions.

In a related initiative, the School of Hotel and Tourism Management incorporates community-focused thinking into the subject “Business Ethics, Social Responsibility and the Law”. In exploring stakeholder management, students examine the importance of local sourcing, recognising how food supplies from



Service-learning subject “Educating Rural Farmers on Healthier Food Production”

local farmers and small businesses can contribute to sustainable tourism and strengthen rural economies.

Through hands-on agricultural projects and critical analysis of supply chain ethics, students gain practical skills and broadened perspectives,

preparing them to champion sustainable food systems that support both community well-being and environmental stewardship.



Enhancing Food Security through Student-Led Consultancy Solutions

A postgraduate team from the School of Hotel and Tourism Management applied their analytical and problem-solving skills to support Foodlink Foundation, a charity working with Hong Kong’s hospitality sector to reduce food waste and combat hunger, where they conducted an in-depth consultancy project to help the organisation refine its strategy in a post-pandemic context. The team began with a detailed assessment of Foodlink’s operations, strengths, and areas for growth. Site visits allowed them to observe the charity’s food collection and distribution processes, while interviews with key stakeholders provided valuable insights into the challenges and opportunities within the sector. Meanwhile, comparative analysis of local and international food donation models further informed their recommendations.

Their final proposals addressed three strategic areas — operations, marketing, and fundraising — and included practical measures such as partnering with local schools, integrating smart technologies like food collection boxes and mapping tools, expanding the use of shared kitchens, and participating in high-profile community events to increase visibility. Overall, the project enabled students to develop consultancy expertise while delivering actionable solutions that can help Foodlink broaden its reach, strengthen community partnerships, and enhance its impact in addressing food insecurity in Hong Kong.

External Engagement

Reducing Waste and Rethinking Food Resources for Future Generations

In collaboration with the Consulate General of France in Hong Kong and Macao, PolyU continues its annual Sustainability Lecture Series with a timely focus on sustainable food systems. Supported by the Department of Food Science and Nutrition and the Research Institute for Future Food (RiFood), “Sustainable Food System: From Production to Waste Management” addressed the entire food cycle from food production and sustainable consumption to waste management, offering a comprehensive perspective on one of the world’s most pressing sustainability challenges.

Academic and industry experts from France and Hong Kong engaged in dynamic dialogue and knowledge exchange on how societies can better steward food resources. Panel discussions explored sustainable farming and food innovation as the first step toward responsible consumption, while also examining how technology can transform food waste into valuable resources. Participants also visited the University Research Facility in 3D Printing and RiFood to witness how advanced technologies are shaping more resilient food futures.

By fostering global collaboration and raising public awareness of food waste reduction, the event

encouraged collective responsibility for building fairer, more resource-efficient systems. Ultimately, it showcased how sustainable practices across the food chain can protect the planet, improve public well-being, and secure a nourishing future for generations to come.

Driving Improved Nutrition through Research and Advocacy

The Department of Food Science and Nutrition (FSN) continues to play a pivotal role in advancing evidence-based strategies for improved nutrition, particularly for vulnerable groups such as postpartum women. In collaboration with the Hong Kong Midwives Association, the department organised a cooking competition and award presentation ceremony to promote the role of plant-based food in supporting maternal health.

By comparing dietary data of postpartum women from 2014 and 2024, PolyU’s researchers found encouraging increases in vegetable, dietary fibre, and vitamin A intake. However, many mothers still struggle with obesity and dyslipidemia, underscoring the urgent need for greater awareness and accessible dietary solutions. The competition helped bridge this gap by showcasing simple, nutritious, and appealing plant-based recipes tailored for postpartum diets.

The department also created space for public dialogue through a seminar that critically examined global sugar guidelines. The discussion emphasised the importance of evidence-based policymaking, highlighting the complex role of sugar in nutrition and food processing. It cautioned that overly simplistic restrictions may inadvertently encourage reliance on artificial additives, with unintended health risks. Such critical approach helps dissect the intricacies of diet, health, and consumer behaviour, ultimately contributing to stronger public health strategies.



FSN Cooking Competition Award Presentation Ceremony



Governance & Operations

Encouraging Sustainable Food Practices through Organic Urban Farming

PolyU continues to embrace the global urban farming movement by providing innovative and practical opportunities for the PolyU community to engage in sustainable food practices. Building on its long-standing initiative of organising organic farming on campus since 2015, the University has created spaces where students and staff can learn about sustainable agriculture, cultivate fresh produce, and enjoy the benefits of enhanced social interaction. An online sharing session entitled "Regrow Vegetables from Kitchen Scraps" was also held to provide practical tips on how everyday household waste can be transformed into new sources of fresh produce. These activities, which have engaged **around 200 staff and student participants**, not only encourage hands-on experience in growing chemical-free fruits and vegetables but also contribute to environmental sustainability, food security, and improved nutrition within the campus community.



Minimising Food Waste on Campus

PolyU was awarded a **Certificate of Continued Support for the Food Wise Hong Kong Campaign** by the Environmental Protection Department of the Government of the HKSAR. This recognition highlights the University's dedication to reducing food waste and encouraging sustainable habits within the campus community.



Research & Innovation

Shaping the Future of Eye Care with Collaborative Research

Establishing the “PolyU-Rohto Centre of Research Excellence for Eye Care” (the Centre) marked a milestone in driving forward innovation in eye health. PolyU and Rohto, a leading eye care brand under Mentholatum, also jointly released the advocacy paper entitled “Promoting Healthy Vision and Prioritising Standardised Diagnosis of Eye Fatigue” at the launch ceremony of the Centre.

The Centre seeks to tackle the growing issue of eye fatigue, an increasingly prevalent condition in modern digital societies that already affects a large proportion of both adults and children. Current diagnostic methods often rely on subjective measures and lack unified evaluation standards, leading to limited public and clinical awareness. Consequently,

by gathering teams of ophthalmic experts and building global collaborative networks, the Centre will pioneer objective diagnostic systems and innovative solutions to address this pressing issue.

In addition to advancing diagnosis and treatment, the Centre aims to enhance public awareness of eye fatigue, establish preventive strategies, and develop new technologies for eye care. Through these initiatives, the partnership contributes to safeguarding eye health, improving quality of life, and shaping future research in vision science.

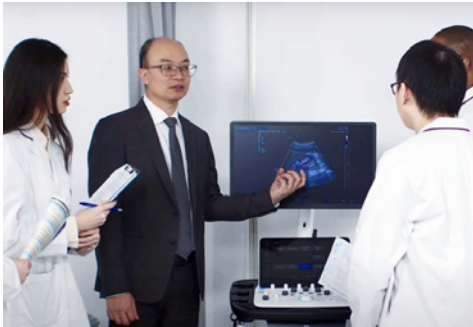


Redefining Kidney Care with Smart Technology

Chronic kidney disease (CKD) affects about 10% of the global population, with renal fibrosis being a progressive condition that can lead to end-stage renal failure. Early diagnosis and active monitoring are therefore crucial in preventing disease exacerbation. To address this need, the Department of Health Technology and Informatics teamed up with The Fifth Affiliated Hospital of Sun Yat-sen University to develop Smart-CKD, an innovative non-invasive diagnostic device that advances clinical management of CKD through informatics technology.

Recognised with a **Gold Medal at the 49th International Exhibition of Inventions Geneva**, the device integrates ultrasound imaging and selected clinical variables, such as age, renal length, and interlobar renal artery flow velocity, to assess the risk of renal fibrosis. By leveraging machine learning, Smart-CKD provides clinical insights that guide treatment decisions and enable timely preventive measures. Unlike renal biopsy, which remains the gold standard but is invasive and carries potential complications, Smart-CKD offers a cost-effective and safer alternative for disease staging and follow-up monitoring.

Designed to be practical and accessible, Smart-CKD can be used through a web-based platform or offline formats, ensuring flexibility in different clinical settings. Importantly, it has demonstrated promising diagnostic efficiency of 80%, empowering healthcare professionals to make informed decisions and improving patient prognosis.



Teaching & Learning

Caring for Elderly's Physical and Mental Health through Social Innovation Developed by Students

Offered by the Department of Management and Marketing, the subject "Social Innovation" empowers students to develop impactful solutions for pressing societal issues. Students collaborated closely with **over 30 elderly volunteers through partnerships with three elderly centres and the NGO Eldpathy.**



By engaging in months of dialogue and joint activities, students gained first-hand insight into the daily challenges faced by Hong Kong's ageing population. Together with the elderly volunteers, they visited underprivileged senior residents who live alone, aiming to alleviate social isolation and better understand their needs. These interactions inspired innovative business proposals, including assistive walking sticks for stair navigation, social games and events to combat loneliness and enhance mental health, and fitness gadgets designed to promote physical well-being among the elderly.

Beyond innovation, the experience nurtured mutual understanding and respect between generations. Students not only developed practical, human-centred solutions but also recognised the elderly population as valuable contributors to society; meanwhile, the retirees involved found renewed purpose and improved mental well-being through their participation. Such a meaningful exchange has proven to be a powerful exercise in empathy, collaboration, and social responsibility.

Advancing Rehabilitation Sciences through Belt and Road Collaboration

PolyU and the Mongolian National University of Medical Sciences (MNUMS) signed a landmark Memorandum of Understanding, marking the University's first academic partnership with a Mongolian tertiary institution. The collaboration, led by the Department of Rehabilitation Sciences, will see the establishment of Mongolia's first Assistive Technology Rehabilitation and Education Centre at MNUMS.

Drawing on PolyU's experience of nearly half a century in rehabilitation sciences, this initiative will support the training of local rehabilitation professionals by introducing advanced technologies such as 3D scanning and printing for rehabilitation as well as eye-tracking systems for augmentative and alternative communication. Importantly, it will also

offer faculty members and students from the Department of Rehabilitation Sciences a platform to expand their perspectives and gain wider international exposure. Ultimately, the centre aims to empower individuals with disabilities with greater independence and a more sustained quality of life.

Such collaboration expands PolyU's academic and research footprint in the Belt and Road region, while also benefitting the Mongolian healthcare sector by enhancing professional capacity and fostering cross-border research and innovation, as well as knowledge exchange between the two universities.

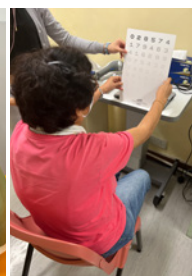




The 21st Hong Kong International Optometric Symposium



"From Eye Health to Dementia" programme



External Engagement

Advocating Eye Health in Global, Technological, and Elderly Care Settings

PolyU actively promotes lifelong eye health through global collaboration and knowledge exchange. As part of this effort, the University joined the World Health Organisation (WHO) Global SPECS Network to support the 2030 goal of increasing global effective coverage of refractive error by 40%.

Recognising the growing influence of AI tools like ChatGPT and the rise of telemedicine, the School of

Optometry co-organised the 21st Hong Kong International Optometric Symposium with the Hong Kong Trade Development Council and The Hong Kong Optometric Association. Themed "Empowering Community Eye Care through Artificial Intelligence and Telemedicine in Optometry", the event attracted **over 850 in-person and 1,500 online participants**. Experts discussed how technology could enhance quality of life for the visually impaired, reduce burdens on healthcare staff, and shape future career paths in optometry.

Additionally, via the PolyU Jockey Club Operation Solnno, the Jockey Club Design Institute for Social Innovation launched the "From Eye Health to Dementia" programme to raise awareness of the link between eye health and dementia among elderly people, caregivers, and social workers. The programme aimed to foster dementia-friendly communities. Public seminars and co-creation workshops explored early detection of visual symptoms linked to cognitive decline. **Around 60 elderly participants** also received comprehensive eye examinations at PolyU's Optometry Clinic as part of this initiative.



JCSAH Project Achievement Sharing Day



Day Experience Centre on PolyU campus

Leveraging Technology to Promote Autonomous and Person-Centred Eldercare

PolyU launched the Jockey Club Smart Ageing Hub (JCSAH), a cross-disciplinary project funded by The Hong Kong Jockey Club Charities Trust, to tackle emerging challenges faced by Hong Kong's ageing population. By introducing innovative gerontechnology, the project aims to improve the quality of residential elderly care. Over the first six years, PolyU partnered with six NGOs to establish Real-Life Hostels that integrate solutions like eNightLog bed-leaving monitoring and smart toilet sensing systems, benefitting **3,500 elderly and disabled individuals**, while easing the burden on frontline healthcare workers. To raise public awareness, a Day Experience Centre was set up on campus, showcasing over 2,000 gerontechnology tools both physically and online. More than 1,200 public education activities have also reached **over 40,000**

people, promoting gerontechnology's benefits across the community. Moving into the next phase, PolyU plans to continue supporting elderly care by collaborating with over 10 residential homes to encourage broader gerontechnology adoption, thereby reshaping the elderly care industry.

Additionally, as the only WHO partner in Asia-Pacific focused on healthy ageing and committed to developing evidence-based, community-driven, and technology-supported strategic WHO initiatives in Western Pacific regions, the "PolyU WHO Collaborating Centre for Community Health Services" hosted bi-monthly webinars on "Embracing Ageing in the Western Pacific". Topics included but not limited to supported decision-making, home-based robotic care, real-time trackers for cancer patients, and patient-managed and nurse-led programmes to improve older adults' functional and cognitive health as well as independence.



PolyU Positivity Week



Resilient Students Training (ReST) Hub

Governance & Operations

Boosting Positive Mental Health and Resilience on Campus

PolyU offers a variety of initiatives dedicated to supporting student mental health and well-being. The PolyU WellMind GO mobile application engages **around 800 students** through interactive activities that promote mental health awareness and relaxation exercises. Similarly, workshops on supporting emotionally unstable students equip PolyU staff with skills to recognise emotional needs and provide effective support. Besides, the PolyU Positivity Week reached **over 1,000 students**, fostering gratitude and gentleness on campus through creative therapy sessions and peer-led activities, encouraging a positive and supportive environment.

Central to these efforts is the Resilient Students Training (ReST) Hub and its flagship Mission ReST programme. Supported by **the "Seal of Love Charitable Foundation Health and Service Impact**

Fund" of over HK\$40 million, this trauma-informed, strengths-based initiative empowers students through self-discovery assessments, game-based challenges, and peer collaboration to build resilience. The ReST Hub also offers an online training module which was designed to equip staff with the knowledge and skills to support students affected by stress and trauma, fostering a campus culture of compassion and understanding.

Importantly, mental health promotion extends across the entire PolyU community. While the University Health Service (UHS) Mental Health Week provides wellness workshops, emotional sharing sessions, and creative activities to raise awareness and promote well-being; PolyU staff partook in the "Be My Own Chief Happiness Officer" programme aiming at cultivating workplace happiness and resilience, encouraging strategies that support both personal fulfilment and organisational success.

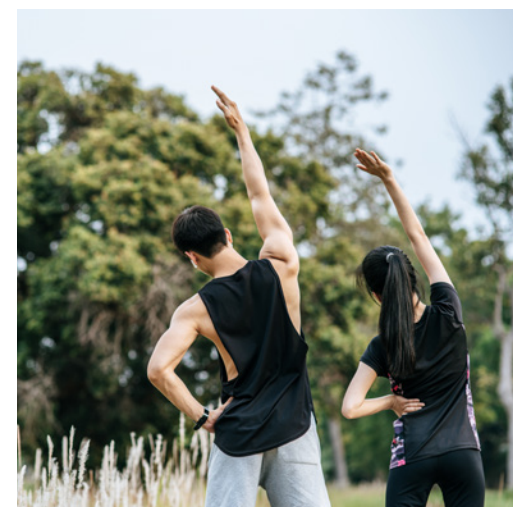
Embracing a Holistic Approach to Physical Health and Wellness

PolyU continues to promote physical well-being through a series of engaging and informative initiatives for students and the wider university community, key of which is the Sports Festival, jointly organised by the Student Affairs Office and the University Health Service. The event featured a range of taster sessions such as yoga, mobility stick, and massage ball exercises, offering participants a hands-on introduction to accessible fitness routines. Alongside these sessions, a sports nutrition talk offered participants practical insights into the relationship between diet, performance, and recovery, supporting them in building healthier lifestyles.

Adding to this campus-wide celebration of fitness were other health initiatives that encouraged greater awareness of key physical health concerns. For

instance, the Cardiovascular Health Awareness Campaign featured blood screening, health talks, and massage workshops, promoting early detection and prevention while encouraging healthier everyday habits.

To support overall well-being amongst students, education on sexual and reproductive healthcare topics was also prioritised. Through vaccination campaigns, sexual health talks, and a dedicated sexual health service hotline, students received accurate information and professional guidance on topics such as sexually transmitted infection prevention, contraception, and healthy relationships. All in all, these programmes reflect the University's holistic approach to student wellness, promoting long-term physical health through education, empowerment, and accessible support.



Research & Innovation

Informing Pedagogy with Integrated Learning Analytics

The Educational Development Centre has created the Learning Analytics Platform (LAP), an advanced educational system that consolidates data from multiple sources to provide a holistic view of student learning. Designed to integrate seamlessly with the University's infrastructure, LAP simplifies the process of data collection and analysis while offering meaningful visualisations and insights. The platform empowers diverse stakeholders, including faculty management, programme leaders, and academic staff, in order to gain actionable understanding of learning progress and outcomes.

Beyond serving as a data repository, LAP is designed to guide stakeholders in applying the information systematically for quality assurance, fostering an evidence-based approach to pedagogy. By enabling continuous monitoring and informed decision making, the platform supports the ongoing enhancement of teaching strategies and learning experiences. Honoured with the **Learning Experience Award in the Adult Learning Track of EdTech Heroes Award**, organised by Esperanza, LAP is an example of innovative application of learning analytics that is believed to ultimately promote academic excellence.



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06

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08

09

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12

13

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15

16

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Transforming Classroom Experiences with Immersive Technology

PolyU has been pioneering innovative approaches to education through immersive technologies and student-staff collaboration. The Hybrid Immersive Virtual Environment (HiVE), developed with support from the PolyU Large Equipment Fund, integrates blended learning and flipped classroom strategies to create dynamic and interactive learning experiences. By empowering students to take ownership of their learning and strengthening peer support and staff-student partnerships, the initiative has benefitted both teaching and learning communities across the University.

Led by the team comprising members from the Department of Applied Social Sciences and the Educational Development Centre, the project has

received international and local recognition for its transformative impact. This cross-departmental team won the **Silver Award in the Asia Region of the QS Reimagine Education Awards 2023** for their immersive learning project, embedding immersive environments such as the Cave-cum-Studio Device and HiVE into General University Requirements courses like "From Gloom to Bloom: Global New Urbanism", enabling students and teachers to co-create content on topics including intangible cultural heritage and sustainable urbanism. The initiative was also awarded the **Grand Award (Higher Education) at the EdTech Heroes Award** presented by Esperanza.

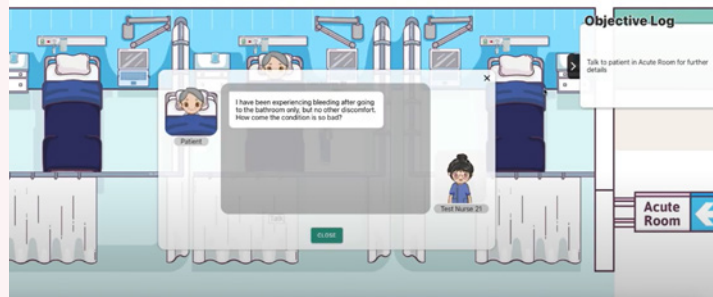
Teaching & Learning

Delivering Future-Ready Learning to Empower Students

The University is integrating cutting-edge technologies, including generative artificial intelligence (GenAI), virtual and augmented realities (VR/AR), and robotics, into its teaching, learning, and research practices. Spearheading this movement is the Institute for Higher Education Research and Development, which was established to drive innovation in higher education with a strong emphasis on AI-enhanced learning. Moreover, PolyU positions itself at the forefront of global educational technology development as it introduced the Hybrid Immersive Virtual Environment, the world's first large-scale fully immersive VR classroom, to redefine educational experiences.

Across departments, technology is already making a tangible impact: the Department of Building Environment and Energy Engineering, supported by the UGC's Fund for Innovative Technology-in-Education, uses VR and robotics to simulate large-scale fire tests, offering students a realistic and interactive learning experience; the School of Nursing's v-Care, a metaverse game serves as a clinical education activity in primary healthcare for physiotherapy students, enhancing knowledge retention, collaboration, and communication; the Department of Electrical and Electronic Engineering has launched two GenAI-powered platforms – AIREAS and NinjOrAltor – to deliver instant, actionable feedback on writing and presentation skills.

With early access to advanced technologies, students can effectively be equipped with future-ready skills while benefitting from collaborative, engaging, and effective learning tailored to meet the demands of a rapidly evolving, increasingly interconnected society.



Service-Learning programme

Championing Global Citizenship at Home and Beyond

PolyU is committed to cultivating culturally sensitive graduates with an international vision through innovative and inclusive educational approaches. Recognised with the **2023 University Grants Committee Teaching Award (Collaborative Teams)**, the School of Nursing's "Internationalisation at Home" (IaH) initiative has reshaped nursing education by embedding global competence and cultural awareness into the curriculum. Through worldwide collaborations, student-led simulations, and discussions on cross-cultural healthcare ethics, this education model equips both PolyU and overseas students with the skills to navigate evolving clinical environments. The team is working on amplifying the impact of IaH across disciplines by integrating virtual reality technology to provide an immersive learning experience.

Besides, the University's Service-Learning (SL) programme offers students transformative opportunities to apply academic knowledge in real-world contexts. From local communities to overseas destinations such as Chinese Mainland,

Southeast Asia, and Africa, SL projects promote cultural immersion, social awareness, and transnational collaboration. Students have contributed over 1.6 million service hours and engaged in initiatives such as rural electrification and community textile training in Rwanda, which faithfully reflect the University's commitment to addressing global issues through applied knowledge and technology.

These immersive, interdisciplinary educational experiences with a focus on reflective practice and collaboration encourage students to embrace diverse perspectives, develop leadership and communication skills, and contribute to an inclusive society.

4,500+  **students**

enrolled in

 **60+** **service-learning subjects**

External Engagement

Engaging Young Innovation and Technology Talents

PolyU places great emphasis on providing young people with enriching and diverse learning opportunities. The University's Junior Research Mentoring Programme aims to cultivate young talent capable of driving future innovation. Since its launch in 2021, the Programme has attracted **520 students from nearly 110 local and international secondary schools**, who completed over 140 research projects, covering topics from fields such as design, language, rehabilitation sciences and various engineering specialisations. Through hands-on experience in research design, data collection, analysis, and reporting, students developed practical skills and a deeper understanding of scientific inquiry. Guided by PolyU academics, some students even presented their findings at international conferences, gaining exposure to the global academic community.

Importantly, these student-led projects reflected current local and global trends. For example, one team explored "Activewear Design in the Digital Age", using advanced tools like 4D body scanners and motion capture systems. Another group examined how elderly patrons interact with self-service technologies in restaurants, highlighting opportunities for social inclusion in hospitality design. Meanwhile, one team focused on automation and robotics technologies and considered the development of indoor self-driving robots, learning about programming, sensors, lidar systems, and AI. By engaging in these projects, students acquired valuable skills to create innovative, technology-driven solutions to real-world problems, igniting their passion for research and preparing them for future academic and professional pursuits.



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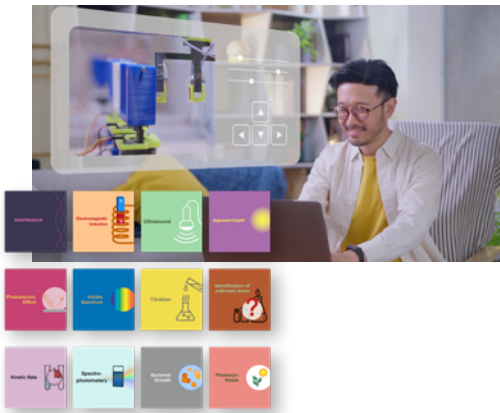
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Propelling Remote STEAM Learning through a Web-Based Laboratory Platform

To address the shortage of laboratory resources that limits STEAM education in local Hong Kong schools, the Department of Applied Physics developed Borderless Lab 365, a web-based remote laboratory platform, with funding support of **HK\$14 million from the Education Bureau Quality Education Fund under e-Learning Ancillary Facilities Programme**. Currently adopted by **about 20 secondary schools**, it has enabled **over 2,000 students** to conduct experiments independently anytime and anywhere. The next phase will extend free access to nearly 50 additional primary and secondary schools. Through the platform, students can remotely operate laboratory instruments like microcontrollers and sensors using their smartphones, download real-time experimental data,

and reduce errors through computerised control of experimental parameters.

These custom-designed, scientific experiments are centrally maintained by PolyU academics and shared across participating schools, broadening the range of experiments available and lowering development costs. In the set-up, teachers first design experimental procedures on the system, after which students schedule sessions to use laboratory equipment to explore topics in physics, chemistry, and biology or to complete online assignments in real-time. Looking ahead, PolyU plans to enhance the Borderless Lab 365 by integrating virtual and augmented reality technologies, further enriching the experimental experience and supporting more engaging, flexible STEAM learning opportunities for students across Hong Kong.

Governance & Operations

Elevating Learning through Strategic Reforms across Academic Levels

PolyU continues to enhance educational pathways for students across all levels. At the undergraduate level, the University has transitioned from programme-based to department-based admissions and is implementing faculty-based admissions. This system enables first-year students to follow a Common Year One curriculum before confirming their programme choice, allowing them to explore options and develop a broader academic foundation, which effectively

supports flexible study pathways and equips students with the agility to navigate a fast-changing world.

Meanwhile, to enhance the quality and global relevance of research postgraduate education, the Graduate School has launched the Unified Collaborative PhD Framework. This structured framework streamlines collaborative PhD programmes at all levels, namely university, faculty, and department, standardising criteria, partner engagement, and financial arrangements, opening new opportunities for impactful partnerships and attracting high-calibre candidates from around the world.

To further strengthen this effort, the Graduate School also established the Advisory Committee, comprising esteemed scholars and industry leaders. Serving as a bridge between academia and industry, the committee provides strategic advice on programme development and fosters meaningful opportunities and resources that enhance the professional competencies and all-round development of postgraduate students.

Library houses extensive collections

9.7 million; 99.8% of journals and 90% books are accessible online





Research & Innovation

Exploring Gendered Impacts of Parental Migration on Youth in Southeast Asia

The Department of Applied Social Sciences conducted one of the first longitudinal studies examining how parental migration shapes the transitions of Thai youth into adulthood, with a specific focus on gendered experiences. Using two waves of survey data from over 870 households between 2008-2010 and 2019, the study assessed the long-term effects of parental migration on young adults' labour participation, marriage, and childbearing.

The findings revealed that maternal or biparental migration had stronger effects on young people's labour activities and age at marriage compared with paternal migration, and these impacts were more pronounced among males. The results also showed that the impacts on youth's transitional outcomes depended on whether parents migrated internally or internationally. By uncovering these nuanced and context-dependent outcomes, the study contributes valuable empirical evidence to advance understanding of gender-specific influences of parental migration in Southeast Asia, with broader implications for promoting gender equality in the region.

Examining Migration through the Lens of Gender and Education

The Department of Applied Social Sciences has conducted a study to examine how parental and sibling migration affect the educational outcomes of left-behind children in rural China, where large-scale rural-urban migration has reshaped family structures. While previous studies focused mainly on parents, this project assessed the overlooked role of sibling migration and the channels through which migration impacts children's development.

Using data from the China Family Panel Studies with the coverage of more than 2,300 children aged 10-15 from rural China, the study applied a conceptual framework and structural equation models to trace how migration influences educational expectations and cognitive performance. The findings showed that sibling migration exerts a more negative effect than parental migration, with particularly adverse outcomes for girls.

Remittances did not fully offset the harm caused by the absence of siblings since they might not contribute to educational investments in left-behind children, and the children might also need to alter their time allocation on housework and study. In sum, this study contributes to a deeper understanding of how different forms of migration shape children's educational trajectories and underscores the importance of integrating gender perspectives into policy interventions aimed at supporting rural left-behind children.



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Teaching & Learning

Promoting Inclusive and Equitable Practices through Diversity Education

Hosted by the Department of Applied Social Sciences, the subject “Understanding Diversity” equips students with the knowledge and skills to address inequality and foster inclusive societies. Focusing on diversity, discrimination, and intersectionality, the course examines gender roles, socio-economic oppression, and barriers related to race, ethnicity, age, ability, and religion. Students then explore the experiences of women, diverse sexualities, and transgender individuals, gaining insight into the social construction of gender and systemic inequities.

Throughout the course, interactive lectures, case discussions, and project presentations encourage critical thinking and active participation, allowing students to analyse anti-discriminatory practices and policy responses in real-world contexts, through which students can develop a nuanced understanding of societal challenges and are empowered to challenge stereotypes and discriminatory norms.

The course nurtures students’ capacity to promote gender equality and implement inclusive practices within their communities and workplaces. By fostering awareness of diverse identities and social barriers, it cultivates students’ ability to advocate for equitable opportunities and contribute to cohesive societies that value and respect all individuals. In doing so, students not only enhance their academic knowledge but also gain practical skills to create meaningful social impact.

Fostering Inclusive Communication through Gender-Sensitive Analysis

Hosted by the Department of Chinese and Bilingual Studies, the subject “Communication in Multicultural and Multilingual Context” equips students with the skills and perspectives to analyse the complex factors shaping corporate communication in multilingual and multicultural environments. A distinctive feature of the course is its focus on gender as a critical influence on communication styles, strategies, and outcomes, particularly where cultural norms and gender expectations intersect.

Through a combination of theoretical study and real-world case analysis, students learn to identify and address gender-based inequalities and biases in workplace communication. They explore how gender roles and stereotypes can shape leadership dynamics, branding approaches, and public relations strategies, which often influence organisational culture and performance.

The subject encourages students to develop and propose inclusive communication practices that promote equity, challenge stereotypes, and empower underrepresented genders in corporate contexts. By integrating gender as a central analytical lens, the learning experience not only enriches academic understanding but also prepares graduates to become advocates for equitable communication. This ensures they are ready to design and implement strategies that foster inclusivity and fairness, strengthening professional practices in diverse global workplaces.

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External Engagement

Breaking Barriers for Women in Leadership

PolyU continues to foster inclusive leadership and workplace diversity by convening dialogues and symposia that bring together academics, practitioners, and industry experts to address the challenges faced by women in leadership. The Department of Management and Marketing (MM) launched two major initiatives to highlight the urgent need to build supportive ecosystems for women across academia, corporations, and entrepreneurial ventures.

As committee members of the Women's Development Support Committee under the International Association for Chinese Management Research, professors from MM hosted an online dialogue entitled "Women Leadership, Practical Insights and Research Overview". The session provided a platform for female executives, scholars, and participants to share their experiences and strategies for navigating workplace bias, balancing family with career, and breaking through career bottlenecks. Through interactive Q&A and small-group discussions, the dialogue encouraged reflective conversations on the unique strengths women bring to leadership and how these can be cultivated for broader impact. **Around 50 researchers and practitioners** benefitted directly, gaining actionable insights to advance their careers and contribute to more inclusive workplaces.

Building on this momentum, the symposium titled "Building Bridges: Fostering Diversity and Inclusion in the Entrepreneurial and Corporate Landscape" gathered academics and industry leaders for deeper dialogue on workplace diversity. A featured talk,



Symposium titled "Building Bridges: Fostering Diversity and Inclusion in the Entrepreneurial and Corporate Landscape"

"Queen Bees, Allies, or Martyrs: Women in C-Suites, Venture Capital, and Startups", introduced the 4-Me framework, a lens for understanding the unique pressures women face as they rise in leadership. From isolation in male-dominated networks to the paradox of navigating conflicting expectations, the framework highlighted systemic barriers that shape women's career trajectories. Drawing on studies from

Singapore, China, and the venture capital industry, the speaker also revealed both the opportunities and limitations of women supporting one another in competitive environments. **Over 100 managers, human resources practitioners, and postgraduate students** attended the symposium, gaining valuable perspectives to strengthen their professional practices and promote diversity in their organisations.



Governance & Operations

Empowering Women through Inclusive Campus Design and Policies

Amidst the increasing presence of female students, staff, and visitors on campus, the Campus Development Office has been enhancing facilities to create an inclusive and supportive environment tailored to their needs. Additional female washrooms have been introduced in key buildings, and dedicated lactation rooms provide discreet, comfortable, and fully equipped spaces for breastfeeding and pumping during breaks.

Night-time lighting in frequently used outdoor areas, such as University Square, has also been upgraded to improve safety and security, allowing all users –

particularly women – to feel confident moving around the campus after dark. These improvements exemplify PolyU's commitment to fostering a campus culture that empowers women to thrive.

Importantly, the University also promotes equal opportunities across all areas, including gender equality, as outlined in its Statement on Human Resource Policies, General Code of Ethics, and Statement on Equal Opportunities. A Policy on Sexual Harassment ensures fair representation of both genders among advisers or conciliators handling allegations related to harassment or ethical violations, reinforcing PolyU's dedication to an equitable and safe environment for everyone.

6 CLEAN WATER AND SANITATION



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Research & Innovation

Driving Clean Water Innovation with Solar-Driven Technologies

The Department of Applied Physics and the Materials Research Centre have advanced knowledge in interfacial solar steam generation (ISSG), a promising solution to the escalating challenge of global water scarcity. By harnessing solar energy, ISSG enables efficient desalination and purification, making it highly relevant for sustainable access to clean water.

The study offers a comprehensive review of the mechanisms that underpin ISSG, with a focus on the photothermal behaviours of different materials, including nanoparticles that enhance vapor generation. It also investigated the influence of substrate design and composition on evaporation efficiency, with innovations such as multi-surface evaporators showing potential to maximise energy

capture. The research further evaluated thermal management strategies, proposing new water transport pathways to improve heat distribution and efficiency.

Beyond efficiency, the review addresses critical challenges including salt accumulation, biofouling, corrosion, and oil fouling, while offering insights into mitigation strategies. By integrating these perspectives, ISSG demonstrates strong potential across applications ranging from seawater desalination and wastewater treatment to oil-water separation and sterilisation, supporting cleaner water solutions for both industrial use and healthcare while addressing one of the world's most pressing sustainability challenges.



Reinventing Sanitation with Autonomous Washroom Cleaning Technology

Developed by the PolyU start-up ZeeqClean Technology Limited, the ZC-01™ is an innovative commercial washroom cleaning robot designed to meet the growing cleaning needs of large public and commercial facilities. Targeting spaces such as commercial and government buildings, airports, conference venues, and highway rest areas, the ZC-01™ can operate in both manual and automatic modes to deliver efficient and hygienic cleaning at scale.

Equipped with non-visual LiDAR and infrared sensors, the robot performs adaptive navigation to clean toilets and urinals in a fully contactless way. Its integrated

drying and UV sterilisation functions further enhance hygiene, while built-in systems record energy and chemical usage to support environmentally responsible cleaning practices. By reducing labour-intensive tasks and addressing work aversion in commercial cleaning, the ZC-01™ also offers practical social benefits alongside operational cost savings.

This breakthrough solution demonstrates how robotics can transform sanitation services by improving efficiency, sustainability, and working conditions, earning international recognition with a **Silver Medal at the 49th International Exhibition of Inventions Geneva**.

Teaching & Learning

Building Expertise in Water Treatment and Waste Management

The Department of Civil and Environmental Engineering offers specialised subjects that equip students with the knowledge and skills to address Hong Kong's pressing environmental engineering needs.

The subject "Water and Waste Management" provides a comprehensive understanding of environmental issues associated with water, wastewater, and solid waste. Students explore municipal water supply and sewerage systems, quality standards for potable

water and sewage effluents, and the design principles of treatment facilities. They also examine physical, chemical, and biological treatment processes for controlling water quality, with a focus on sustainable waste management practices.

Building on the theoretical foundation, the subject "Water and Wastewater Treatment Techniques for Civil Engineering" focuses on the practical and technical aspects of water treatment, purification and wastewater disposal. Through laboratory work, students familiarise themselves with treatment

methods for water, sewage, and sludge, and learn to design unit treatment processes. The subject also addresses operational, legislative, and sustainability considerations critical to modern engineering projects.

These subjects not only prepare students to formulate effective solutions, design and operate treatment facilities, and contribute to sustainable water and waste management in Hong Kong, but also help them hone analytical, creative, and collaborative skills essential for the profession.

External Engagement

Conserving Water Resources with Novel Fog Collection Systems

The PolyU Academy for Interdisciplinary Research hosted a seminar on innovative approaches to fog collection, offering fresh perspectives on tackling global water scarcity. Water shortage remains one of the most pressing challenges of our time, demanding sustainable design solutions that make better use of available water resources.

The seminar introduced a cutting-edge fog collection technology that employs microfibres fabricated through near-field electrospinning. Unlike conventional methods based on larger fibres, this novel design enhances collection efficiency to a record level. The interaction between fog droplets and micro-scale waterdrops on the fibres creates a unique airflow dynamic, enabling the system to capture and harvest fog with unprecedented effectiveness.

The hybrid seminar attracted **over 130 participants**, while live broadcasts engaged **around 13,000 online viewers** from more than 30 countries and regions, all of whom gained valuable insights into how interdisciplinary research can drive innovative responses to environmental challenges, particularly in ensuring sustainable access to clean water.

Transforming Rural Cambodian Lives through Sustainable Safe Water Initiatives

Hosted by the Department of Building Environment and Energy Engineering, the service-learning project in Cambodia enabled PolyU students from the subject "Living Environment for Low-Income Communities" to put their technical expertise into practice while contributing to community well-being. Partnering with



the Cambodian Children's Advocacy Foundation Organisation, the student team installed water filtration systems in a local learning centre, directly benefitting **over 300 children** in remote villages.

The initiative addressed pressing challenges of clean water access by introducing sustainable water treatment solutions that improve both sanitation and daily living practices. Beyond the technical installation, the project prioritised education and awareness-raising. Students worked alongside local youths and staff to conduct training sessions on system operation and maintenance, ensuring long-term reliability and empowering the community to manage their own resources.

This collaborative partnership not only secured safe drinking water but also sparked a broader community campaign promoting healthy practices, better public health, and sustainable consumption of water resources. By embedding education into every stage of the project, the team encouraged a sense of ownership among villagers, enhancing the likelihood of lasting impact.

Governance & Operations

Promoting Clean Water Access and Water-Smart Practices

Ensuring access to clean and safe drinking water and promoting sustainable water practices, PolyU has implemented a range of initiatives across the campus. **Around 70 drinking water dispensers** provide free, sanitised water, reducing reliance on single-use plastic bottles and supporting environmental sustainability, aligning with the principles of Responsible Consumption and Production (SDG12). Staff pantries are also equipped with hot water boilers, offering drinkable hot water to further minimise plastic waste while meeting the needs of the University community.

In parallel, the University has been advancing conscious water usage through measures under the Water Conservation Policy since 2014. Sustainable features are integrated into smart building design and refurbishment, including grey water reuse, careful management of water supply, and maintenance practices that reduce wastage. These initiatives raise awareness about water source and the importance of water conservation, encouraging the community to value water as a critical resource and understand the significance of careful extraction, treatment, and supply management.

7 AFFORDABLE AND
CLEAN ENERGY



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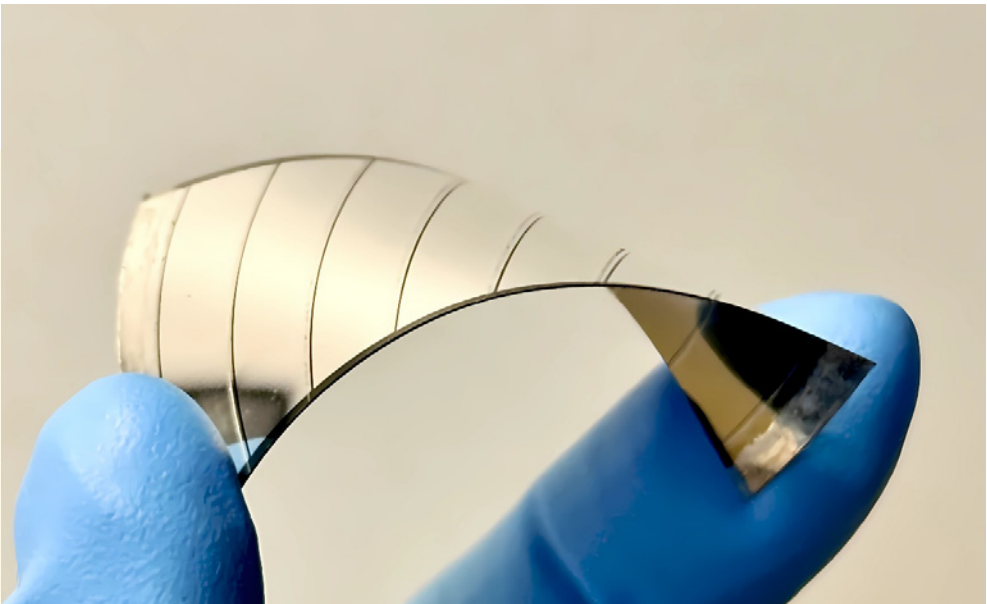
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Research & Innovation



Transforming Energy Access with Innovative Solar Module Design

Researchers from the Department of Applied Physics and the Research Institute for Intelligent Wearable Systems under the PolyU Academy for Interdisciplinary Research, have developed a flexible perovskite solar module that combines high efficiency with exceptional versatility. Adopting advanced surface reconstruction technology, the invention enhances the stability and performance of perovskite materials, significantly improving the durability and power conversion efficiency of the solar module to a level comparable with traditional solar cells.

This lightweight, thin, and adaptable module is capable of conforming to a wide variety of surfaces and shapes, which enables integration into clothing, backpacks, vehicles, and the curved exteriors of

buildings. These features make it suitable for diverse applications across industries, supporting more widespread adoption of renewable energy. Beyond technical performance, the invention also contributes to reducing manufacturing costs and increasing accessibility, accelerating the transition towards a sustainable energy future.

In addition to its role in advancing clean energy, the invention, which won a **Gold Medal at the 49th International Exhibition of Inventions Geneva**, also contributes to Responsible Consumption and Production (SDG12) by promoting cost-effective, resource-efficient solar module manufacturing.

Spearheading Sustainable Energy Innovations with Cross-Border Collaboration

To tackle the surging power demand brought by extreme weather events, ageing power networks, and the rapid integration of renewable energy systems, PolyU has established the Research Centre for Grid Modernisation (RCGM). The Centre serves as an international platform to advance research, development, and knowledge transfer on sustainable energy systems, fostering collaborations with academia, industry, and governments worldwide.

At its launch ceremony, RCGM announced the establishment of the "PolyU-Autosun Joint Laboratory for Sustainable PowerTech Research in Modern Grid" in collaboration with Shenzhen Auto Electric Power Plant Company Limited, with a focus on electric vehicle charging technology, smart microgrids, advanced energy storage systems, and health monitoring of power equipment.

By harnessing emerging technologies such as sensors, 5G/6G communications, artificial intelligence, and big data analytics, RCGM aims to spearhead innovations in power grid modernisation, enabling the development of secure, sustainable, and affordable energy systems. This initiative supports the carbon neutrality goals of Hong Kong and Chinese Mainland, while contributing to Climate Action (SDG13) by addressing energy transition and climate resilience.





Teaching & Learning

Creating Sustainable Impact in Rwandan Off-Grid Communities

PolyU continued its commitment to global citizenship and sustainable development through the "Wong Tit Shing Sustainability Education Project: Habitat Green in East Africa". Jointly coordinated by the Department of Electrical and Electronic Engineering, the Department of Computing, and the Service-Learning and Leadership Office, this service-learning project sent students to Rwanda to install solar power systems in underserved villages, during which they were presented with significant logistical and personal challenges.

It was apparent that delivering solar energy solutions to remote villages in the Rwamagana district proved physically demanding; students had to navigate

difficult terrain and intense weather conditions, often carrying heavy equipment over long distances to access hillside homes that were lacking electricity. Besides, unfamiliarity with the culture, language, environment, and customs further tested their adaptability and resilience.

Despite these obstacles, the project achieved a substantial impact: **more than 400 underprivileged families** now benefit from stable electricity for lighting, communication, and daily activities. In addition to system installation, students provided technical training to local youth, promoting long-term community self-reliance and sustainable energy use. Concurrently, it also contributes to building

Sustainable Cities and Communities (SDG11) by improving access to essential infrastructure and clean energy.

This initiative exemplifies the University's pioneering integrated approach to education, combining academic knowledge with civic responsibility. The experience strengthened students' intercultural competence and leadership skills, while advancing the University's mission to nurture socially responsible professionals and leaders with a global perspective.

External Engagement

Strengthening Belt and Road Sustainable Energy Collaboration

As a founding member of the University Alliance of the Silk Road, PolyU co-organises the annual “Belt and Road Advanced Programme in Power and Energy” with Xi’an Jiaotong University, the State Grid Corporation of China, and The Hongkong Electric Company Limited. The Programme fosters international knowledge exchange and collaborative initiatives to accelerate green energy development, so contributing to global energy sustainability. This year’s theme, “Low Carbon Transition: Latest Development of Green Energy”, brought together **nearly 30 engineers, researchers, and managers** from around ten Belt and Road countries and regions to discuss strategies for co-creating a new digital grid to support a sustainable future.

Participants engaged in lectures, seminars, and field trips in Chinese Mainland and Hong Kong, exploring the latest green energy technologies and management practices. They examined how integrating energy, transport, and digital networks could address sustainability challenges and advance the transition to the fifth industrial revolution. The Programme also highlighted innovations like an AI-powered cable fault prediction model co-developed by Hongkong Electric and PolyU, which has reduced cable-related incidents by 40%. **With over 830 participants** from nearly 50 countries and regions and 10,000 contact hours since its inception, the Programme is a flagship Belt and Road initiative, with plans to expand it into a decade-long collaboration for a smarter, greener energy future.



Micro Flow and Interfacial Phenomena Conference 2024

Distinguished Lecture and Conference Series on Energy and Smart Technology

The PolyU Academy for Interdisciplinary Research (PAIR) has hosted a series of distinguished lectures and conferences on energy, bringing international academic, research, and industry communities together for interdisciplinary knowledge exchange. Overall, these three events brought together **over 630 in-person participants and approximately 50,000 online viewers**, underscoring PolyU’s commitment to driving interdisciplinary innovation in energy and smart technology.

The lecture “New Journey of Energy Revolution and Automotive Revolution”, which was delivered by a renowned pioneer in electric vehicles, emphasised the need to integrate energy, mobility, information, and humanity to achieve sustainable human–nature development, and explored key technologies such as electric vehicle powertrain, batteries, and the Internet of Vehicles. Meanwhile, the lecture “Battery Fast Charging for Sustainable Electrification” provided a platform for discussions on fast-charging and high-temperature-stable technologies, reinforcing the vision and underlying research opportunities for

affordable and reliable mobile energy storage that is essential for propelling sustainable electrification in electric vehicles.

PAIR and Chemical and Biological Microsystems Society also co-organised the “Micro Flow and Interfacial Phenomena Conference 2024”, which gathered leading experts in thermodynamics, microfluidics, and biomedical engineering. The Conference fostered interdisciplinary exchange with a focus on energy applications involving microchannel flow or microscale surface phenomena.

Governance & Operations

Championing a Sustainable Culture of Environmental Excellence

PolyU pushes forward with demonstrating its strong commitment to sustainability and climate action through a range of energy conservation initiatives and recognised achievements. As a long-standing supporter of the Energy Saving Charter, the University actively promotes energy efficiency across campus by encouraging the community to adopt simple yet impactful practices such as maintaining indoor temperatures between 24°C and 26°C in summer, switching off unused electrical appliances, and choosing energy-efficient systems, reinforcing a culture of collective environmental responsibility.

In recognition of its continued excellence, PolyU has received multiple sustainability accolades. The University was awarded the **Platinum Award under**

the Charter on External Lighting launched by the Environment and Ecology Bureau, acknowledging responsible lighting practices that minimise light pollution and support a greener urban environment. In addition, PolyU has achieved the **Excellent Level in the Energywise Certificate**, granted under the Hong Kong Green Organisation Certification scheme. Furthermore, the University has also retained its designation as a **Hong Kong Green Organisation**, a status it has consistently held since 2016.

All these achievements reflect PolyU's deep-rooted commitment to energy conservation and sustainable development, while inspiring members of the University community to take meaningful actions that support long-term environmental goals.



Optimising Energy Use with Smart Technology

PolyU deepens its focus on embracing smart technology in its sustainability efforts, with the launch of the Energy Smart Platform to support energy efficiency across campus. This platform is powered by a smart electric metering system installed on electrical circuits and distribution boxes of participating units, enabling real-time monitoring and analysis of electricity usage. Through this system, departments and offices can gain valuable insights into their energy consumption patterns for facilities such as lighting, computer equipment, and laboratory systems round the clock every day. Such a data-driven approach allows them to identify areas for operational efficiency, verify the effectiveness of implemented energy-saving measures, and track their own performance over time.

The Energy Smart Platform plays a vital role in promoting behavioural change on the demand side. By empowering users with accessible and actionable information, it motivates them to adopt more sustainable practices and reduce overall energy use. The initiative also supports the University's broader sustainability goals by implementing energy-smart campus management and engaging the campus community in a joint effort to lower its environmental impact.

8 DECENT WORK AND ECONOMIC GROWTH



Research & Innovation

Revolutionising Tourism Governance through Digital Transformation

The Research Centre for Digital Transformation of Tourism was established under the PolyU Academy for Interdisciplinary Research to advance digital solutions that optimise travel experiences, strengthen sustainability, and reshape the future of tourism and hospitality.

It spearheads interdisciplinary research in two core areas. The first "Digital Tourism Decision-Making and Monitoring" focuses on developing a cloud-based digital monitoring system for the sustainable development of the tourism and hospitality industry in the Greater Bay Area. This includes real-time indexes for monitoring tourism sentiment and satisfaction, as well as advanced forecasting tools for tourism demand and its associated carbon emissions, offering critical insights to policymakers and industry leaders.

The second area "AI-Driven Business and Experience Innovations", leverages artificial intelligence, machine learning, robotics, and generative technologies to optimise business processes, personalise customer experiences, and support data analysis.

By forging close collaborations with stakeholders, the Centre will introduce new solutions such as automated forecasting systems, a digital twin system for monitoring hotel carbon emissions, decision-support tools for environmental sustainability management, and policy simulation toolboxes for sustainable tourism, thereby digitally transform tourism, enhance governance, and contribute to international collaboration, ultimately advancing sustainability and improving the well-being of global citizens.



Reinvigorating Activewear with Intelligent Perspiration Management

The researcher team led by the School of Fashion and Textiles, the Research Centre of Textiles for Future Fashion under the PolyU Academy for Interdisciplinary Research, and the Research Institute for Intelligent Wearable Systems, has developed iActive™, a pioneering sportswear range that introduces intelligent perspiration management inspired by natural systems. This innovation, which was awarded a **Gold Medal at the 49th International Exhibition of Inventions Geneva**, features artificial sweat glands embedded in skin-like

anti-heat textile fabrics and a root-like liquid transport system aligned with the body's sweat map. Such a design enables sweat to dissipate three times faster than the maximum human sweating rate, creating a breathable and dry skin microclimate. Meanwhile, a mobile app further enhances the iActive™, allowing users to wirelessly adjust sweat levels for personalised comfort.

Compared to conventional fabrics, iActive™ is 60% lighter and 50% less clingy when soaked, boosting performance and preventing the discomfort after



intensive activities. The technology is well-suited to protective workwear in high-intensity professions such as healthcare, construction, and law enforcement, as well as for people with hyperhidrosis.

Concurrently, Omni-Cool-Dry™, a premium fabric inspired by volcano-dwelling beetles, was also developed by the research team to provide ultra-fast sweat dissipation and passive cooling by reflecting solar radiation and emitting body heat. The research team is planning to integrate these advanced properties into iActive™ to further enhance cooling capabilities.

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Teaching & Learning

Nurturing ESG Leaders through Interdisciplinary Learning and Industry Dialogue

Amidst the growing global demand for sustainable investment and climate action, the School of Accounting and Finance and the Department of Civil and Environmental Engineering jointly offer the “Master of Science in ESG and Sustainability” to address the pressing need for professionals who can lead the transition to a low-carbon, sustainable economy. As the first master’s programme of its kind in Hong Kong, it equips students with interdisciplinary knowledge in ESG strategies, green finance, corporate governance, and climate risk.

With the aim to enrich academic learning with practical insights, the programme hosted a thought-provoking series of ESG Leadership Talks, which provided students with a platform to explore current sustainability challenges, professional practices, and future opportunities, as well as brought together industry leaders to discuss the evolving role of ESG across diverse sectors.

The talks covered topics ranging from climate change and professional services to ESG disclosure and purpose-led business models, enabling students to engage directly with practitioners in critical discussions. The series aimed to deepen students’ understanding of emerging ESG trends while cultivating their strategic, analytical, and leadership skills required to address the real-world complexities of sustainability challenges, reinforcing the University’s commitment to nurturing socially responsible leaders who are ready to drive meaningful change in business and society.

Advocating Mental Well-Being in the Contemporary Workplace

The Department of Management and Marketing offers the subject “Well-being at Work” to equip students with the skills to identify and address psychological and socio-emotional issues in the contemporary workplace. Recognising that well-being is fundamental to productivity, the subject aims to break

down the common misconception that supporting employee wellness is either costly or incompatible with organisational goals.

Covering key topics such as stress, burnout, multitasking, anxiety, microaggressions and workplace bullying, the subject combines theory with practice to help students understand their own well-being while designing systems and cultures that champion mental health across diverse teams. With an emphasis on applying knowledge to real-world contexts, students are empowered to foster inclusive and supportive workplaces that enhance engagement and resilience, creating a ripple effect that benefits both organisations and the wider community.

5,000+ students 
completed the Work-Integrated
Education (WIE) programme

Offered
880+ 
internship placements



01

02

03

04

05

06

07

08

09

10

11

12

13

14

15

16

17

External Engagement



Outstanding ESG Enterprises Recognition Scheme

Enhancing Environmental, Social and Governance (ESG) Awareness and Support for Enterprises of All Sizes

PolyU and Sing Tao News Corporation have signed a Memorandum of Understanding to promote ESG principles through academic and industry exchange, as well as impactful and educational initiatives targeted at stakeholders across different sectors. The Outstanding ESG Enterprises Recognition Scheme honoured more than 20 exemplary companies from areas such as real estate, finance, and public affairs for their ESG achievements. Through providing professional guidance and training to participating enterprises, the Scheme aims to promote green finance in industry, create a favourable investment climate, and raise public awareness of the importance of ESG in social sustainability.

Moreover, with a view to assisting local small and medium enterprises (SMEs) in navigating the evolving ESG landscape, PolyU's Policy Research Centre for Innovation and Technology collaborated with The ESG

Consortium and Sing Tao to host the forum "Charting the Path: ESG Policies and SMEs in Hong Kong's Green Finance Journey". The Forum gathered experts and industry leaders to explore how ESG policies and green finance can support SMEs in gradually aligning with international disclosure standards amidst the transition to a low-carbon economy. Focusing on the availability of resources, discussions during the Forum underscored the need for tailored policy support, funding access, digital tools, and simplified ESG frameworks to help SMEs overcome sustainability challenges and remain globally competitive.



Forum on "Charting the Path: ESG Policies and SMEs in Hong Kong's Green Finance Journey"

Governance & Operations

Fostering Institutional Integrity and Positive Workplace Culture

PolyU strives for fostering a safe, healthy, and equitable working environment for all staff members. Recognising that cooperation and harmony are essential to institutional success, the University has established clear and transparent processes to uphold fairness in its employment practices. A formal appeal mechanism, guided by detailed procedures, ensures that staff grievances and human resources-related issues are handled responsibly by the University Grievance Committee. Besides, in support of open communication and continuous

improvement, the PolyU Staff Association serves as a registered trade union welcoming all full-time staff members, excluding senior management, and provides them with a platform to voice concerns and contribute to discussions on workplace policies. Regular meetings with university management allow for proactive engagement on matters that shape the professional environment.

Additionally, to reinforce a culture of workplace safety, the Health and Safety Office also promotes innovation in work safety through initiatives such as the PolyU Occupational Safety and Health Excellence

Universities as Catalysts for Sustainable Tourism

The Communities of Practice on Education for Sustainable Development and the Educational Development Centre co-organised the "Pathways to a Sustainable Future: Universities as Agents of Change" seminar that used the case study of the active collaboration between Griffith University and EarthCheck for the purpose of examining how universities can play a unique role in mentoring communities to embrace sustainability. Having been cited as a critical component of the "Towards 2032: Reshaping Queensland's Visitor Economy to Welcome the World", which identifies sustainability as a key catalyst for change in preparation for the Brisbane Olympic Games, such a collaboration aims to offer guidance to two Australian regions in the process of obtaining ecotourism certification. Through the seminar, participants were shown how universities are capable of driving change in destinations that are traditionally unfamiliar with the concept of sustainable tourism, which is essential to regenerating nature, culture, and heritage, hence making a real-world impact.



9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



01

02

03

04

05

06

07

08

09

10

11

12

13

14

15

16

17

Research & Innovation

Driving Innovation in Cooling Technologies for Sustainable Infrastructure

The scholar from the Department of Mechanical Engineering has redefined heat transfer science by overcoming the Leidenfrost effect, a centuries-old challenge that had long hindered efficient cooling in extremely high-temperature environments. By developing structured thermal armour, the team successfully inhibited the effect above 1,000°C, enabling sustained liquid cooling and extending the temperature range of superwettability. This breakthrough provides a foundation for next-generation technological advancements across industries reliant on thermal management.

The impact of this pioneering work has been recognised internationally: the scholar received the **2023 Falling Walls Science Breakthroughs of the Year Award in Engineering and Technology category**, and the **2024 Nukiyama Memorial Award** for his significant contribution to thermal science and engineering. These accolades affirm the innovation's potential in critical applications ranging from electronics cooling and data centres to nuclear energy and aerospace technologies.

Building on these achievements, the team will commercialise the Energy-Efficient Liquid Cooling System (ELCS), with the support of the “Research, Academic and Industry Sectors One-Plus Scheme” (RAISe+) of the Government of the HKSAR. ELCS integrates nano-engineered surfaces, phase-change cooling, and AI-optimised monitoring to drastically reduce the energy demand of data centres, where cooling alone used to consume 40% of total energy use. By delivering scalable, energy-efficient solutions, this research advances industry innovation and sustainable infrastructure, while contributing to Affordable and Clean Energy (SDG7).

Advancing Infrastructure Resilience through Composite Column Innovation

A novel structural solution, the Fibre-Reinforced Polymer (FRP) - Engineered Cementitious Composite (ECC) - High-Strength Concrete (HSC) composite column, has been developed to enhance the safety and resilience of infrastructure. This column is uniquely designed with three layers: an outer FRP tube, a middle ECC ring, and an inner HSC core. Unlike conventional FRP-confined HSC columns, which are prone to cracking and premature failure due to the brittleness of HSC, the addition of the ECC ring redistributes hoop stress and strain more effectively from the core to the FRP tube. This results in uniform confinement, improved efficiency, and greater deformability.

The research demonstrates that the composite column possesses excellent compressive performance, combining high loading capacity with superior ductility. These qualities make it especially suitable for large-scale infrastructure in marine environments and coastal regions, where durability and resilience are critical.

The significance of this innovation has been recognised with a **Gold Medal at the 49th International Exhibition of Inventions Geneva**, underscoring its potential to transform structural engineering practice and contribute to the development of safer, longer-lasting infrastructure.

Teaching & Learning

Strengthening Next-Generation Entrepreneurship through Cross-Institutional Partnership

PolyU has entered into a strategic agreement with Guangdong University of Technology to jointly nurture a new generation of innovative and entrepreneurial talent. As part of this collaboration, the “Guangdong-Hong Kong-Macao Greater Bay Area Immersive Experience Project” was launched to strengthen talent exchange and support entrepreneurial initiatives through a shared credit system.

Leveraging the educational and professional resources of both institutions, the initiative fosters a high-quality talent ecosystem that supports innovation, entrepreneurship, and knowledge transfer across the region. In particular, students are encouraged to co-develop and launch start-up projects, which will be supported for further incubation and implementation in Hong Kong, Macao, and Guangdong.

This cross-border partnership offers students a wealth of opportunities to develop their innovative and entrepreneurial skills through initiatives such as establishing a service consultation hub for talents from both institutions, co-organising international exchange activities, and promoting entrepreneurial cooperation projects. By jointly cultivating high-quality innovative and entrepreneurial talent across various fields, the collaboration provides valuable experiential learning and support networks that prepare students to succeed in dynamic and competitive environments.

Unleashing Artificial Intelligence Skills in Future-Ready Talent

To respond to the growing demand for an aptitude for AI, the Department of Data Science and Artificial Intelligence was established to offer provident programmes, aiming to equip students with interdisciplinary knowledge in areas such as big data, blockchain, and metaverse, thereby cultivating future leaders who can think critically, solve complex problems, and stay relevant and competitive in the fast-changing job market and ever evolving society.

Complementing the academic training, the PolyU Library organised a seminar designed to broaden students’ understanding and hands-on experience with

generative AI. Through case studies, demonstrations of AI tools, and discussions on ethical considerations, participants explored both the opportunities and challenges of AI-generated content, gaining insights into how AI technologies can be responsibly applied across various industries.

By bridging theory and practice, the University is committed to nurturing technically competent and ethically grounded future-ready change-makers in the AI-driven era, who are capable of harnessing the power of AI responsibly to drive technological advancement and contribute to society.



External Engagement

Sustainable Solutions for Land Reclamation and Nature-Based Urban Development

To facilitate experience sharing and knowledge exchange on viable and more sustainable approaches to land reclamation in Hong Kong, the Department of Civil and Environmental Engineering and the Geotechnical Division of the Hong Kong Institution of Engineers co-hosted the “International Symposium on Reclamations Using Local Dredged Sediments” to provide a platform for **over 260 Hong Kong, Chinese Mainland, and international practitioners and experts in reclamation technologies** to engage in discussions on practical, eco-friendly, and sustainable solutions to land scarcity and soft ground issues. Through talks, technical visits, and case studies, participants identified that locally dredged marine sediments can effectively mitigate problems such as limited supply and rising costs of conventional fill materials, thus helping provide a constructive answer to land scarcity.



International Symposium on Reclamations Using Local Dredged Sediments

Meanwhile, the Research Institute for Land and Space convened **almost 40 global experts and scholars** to discuss integrating nature into the lifecycle management of urban infrastructure at the “International Conference on Nature-Based Solutions for Urban Infrastructure”. **Over 200 international participants** engaged in keynote speeches, technical

sessions, a poster exhibition, and a hands-on workshop, exploring how nature-based strategies can enhance urban resilience, environmental quality, and liveability. It is hoped that such applied knowledge will help promote a sustainable, research-backed blueprint for future urban and land development in Hong Kong and beyond.



Promoting Geotechnical Innovations for Sustainable Development

The “International Symposium on Innovations in Geotechnical Engineering towards Sustainability” brought together global experts to explore the critical role of geotechnical engineering in advancing sustainable development. Organised by the Department of Civil and Environmental Engineering, the Symposium was attended by **around 400 international participants** and featured **almost 70 speakers and nearly 200 emerging researchers** from around the world, serving as a vibrant platform for sharing cutting-edge research and fostering collaboration between academia and industry.

Presentations and discussions focused on energy-efficient, environmentally friendly, resilient, and sustainable geotechnical systems, showcasing breakthrough technologies and highlighting innovations in geomechanics that support the transition to a more sustainable society. Moreover, by connecting researchers and professionals from diverse backgrounds, the Symposium facilitated knowledge exchange and interdisciplinary cooperation, reinforcing the role of geotechnical engineering as a dynamic interface between human society and the earth system, which is paramount to making significant contributions to developing innovative solutions for sustainable development.

Governance & Operations

Accelerating Innovation through Strategic Entrepreneurial Support

PolyU continues to nurture an innovation-driven entrepreneurial ecosystem through the comprehensive PolyVentures platform, supporting students, alumni, and researchers from ideation to acceleration. The Micro Fund Scheme backed a record number of **over 100 startups**, around 60% of which progressing into Hong Kong Science & Technology Parks Corporation (HKSTP)'s Ideation and Incubation Programmes. Concurrently, the Greater Bay Area Startup Postdoc Programme, the first of its kind among local universities, further encouraged tech-based entrepreneurship, supporting **over 20 postdoctoral fellows** to date and earning **more than 20 awards with nearly HK\$30 million in follow-on funding**.

The University also offered the Proof-of-Concept Funding Scheme to accelerate development, which engaged **nearly 90 students** and led to more than 40 projects, around half of which entered HKSTP's Ideation Programme. Meanwhile, **over 20 high-potential technology ventures** received financial support ranging from HK\$1 to 3 million through the Two-Tier Angel Fund Scheme.

Complementing funding with infrastructure, the PolyU Industrial Centre provides innovators with over 160 advanced facilities, equipment, and technologies to transform concepts into prototypes, while just **over 50 startup teams** were admitted to the PolyU InnoHub Hong Kong, most of whom were previously funded by PolyU entrepreneurship programmes.



PolyU Industrial Centre

Through these targeted efforts, the University has supported **over 500 active startups** and trained **more than 7,600 entrepreneurs** to date, translating research into impact and contributing to regional innovation in Hong Kong and the Greater Bay Area.



Micro Fund Scheme



Proof-of-Concept Funding Scheme

Empowering Innovative Early-Career Researchers

PolyU champions innovative, interdisciplinary research by recognising outstanding young faculty members, who have demonstrated exceptional originality and impact in addressing global challenges, with the Young Innovative Researcher Award. The exceptional researchers were selected from a competitive pool of submissions for their impactful contributions across a wide range of disciplines, including materials science, green energy, advanced manufacturing, intelligent construction, textile technology, and medical technology.

Their pioneering projects involve developing nano-porous materials to enhance hydrogen storage, designing novel computing devices to reduce energy consumption in Artificial Intelligence of Things, and establishing recycling certification systems to promote a sustainable circular economy. Other notable efforts include creating biocompatible smart wearable materials for health monitoring, advancing high-performance swept lasers for industrial and medical applications, and innovating four-dimensional real-time tumour tracking technology to improve cancer treatment.

Importantly, while each recipient receives research funding of HK\$500,000 and a personal cash prize to encourage continued pursuit of innovative and impactful research, the award reflects PolyU's dedication to nurturing ambitious young scientific talents who contribute meaningful solutions to societal challenges, supporting national objectives to foster new quality productive forces and strengthen the research and innovation landscape, further solidifying Hong Kong's position as a hub for world-class research excellence.

10 REDUCED INEQUALITIES



Transforming Hand Mobility with AI-Powered Prosthetics

The Research Institute for Smart Ageing under the PolyU Academy for Interdisciplinary Research, has developed ProRuka, a groundbreaking prosthetic hand designed to transform the lives of amputees through intuitive and precise control. Unlike conventional prosthetics, ProRuka is powered by stump muscle signals collected via wireless wearable ultrasound imaging, a technique known as sonomyography. These signals are processed by advanced AI algorithms in real time, enabling the device to decode natural control mechanisms of the human hand. Moreover, the system can not only recognise specific gestures but also determine the degree of action, allowing for highly accurate and responsive hand movements.

The prosthetic hand is 3D-printed, lightweight, and cost-effective, with a mechanical design that mirrors the natural proportions of the human hand. Its independent finger movement and ability to interpret complex gestures make it more functional than existing prosthetics. By enhancing comfort and

Research & Innovation

usability, ProRuka significantly improves user acceptance, enabling amputees to regain independence, confidence, and quality of life. The innovation has earned international recognition, including the **Gold Medal with Congratulations of the Jury and a Special Award from the Taiwan Invention Association at the 49th International Exhibition of Inventions Geneva**, as well as the **Gold Medal at the 4th Asia Exhibition of Innovations and Inventions Hong Kong**.



Revolutionising Mobility for the Visually Impaired through Augmented Reality

Vision loss is an escalating global concern, particularly with the ageing population, and adaptive technologies are crucial to empower functional performance and maintain quality of life. In response, researchers from PolyU and the University of Waterloo co-founded the Centre for Eye and Vision Research and have developed ObstAR, an augmented reality (AR) device that revolutionises navigation for visually impaired individuals. The device integrates advanced Red, Green, Blue, and depth camera systems with innovative algorithms for real-time obstacle detection, image segmentation, and information fusion, enabling precise recognition of environmental hazards such as traffic lights, zebra crossings, sharp turns, and large banners.

Having received the **Gold Medal with Congratulations of the Jury at the 49th International Exhibition of Inventions Geneva** and the **Gold Medal at the 3rd Asia Exhibition of Innovations and Inventions Hong Kong**, ObstAR provides personalised guidance through visual and auditory outputs, allowing users to navigate familiar and unfamiliar routes safely and independently. By combining AI-driven obstacle recognition with AR feedback, the system minimises reliance on traditional assistive tools like canes or human assistance, enhancing mobility freedom and social inclusion. Such a technology exemplifies the transformative potential of research-driven innovation, improving the independence, confidence, and quality of life of visually impaired individuals while advancing assistive technology for global health and accessibility.

Teaching & Learning

Advocating Inclusive Design and Adaptive Fashion

In collaboration with the Service-Learning and Leadership Office and 1Step Association, the School of Fashion and Textiles ran an impactful service-learning subject focusing on inclusive design, which aimed to equip students with knowledge and skills in adaptive clothing and accessory design, while fostering deep empathy and an acute awareness of community needs.

Students from diverse academic fields and disciplines worked closely with wheelchair users from 1Step Association, engaging in co-creation to produce customised apparel and accessories that enhance daily comfort and mobility. The collaborative process not only addressed practical challenges but also helped build inner confidence

among PolyU students and service recipients. It also offered students hands-on experience in inclusive design while enhancing their teamwork and communication capabilities.

Moreover, a photography exhibition entitled “Empowered Mobility: Inclusive Apparel and Product Designs for Wheelchair Users” was held to demonstrate how thoughtfully designed clothing can serve as a tool of care, dignity, and empowerment. Through this project, students gained a deeper understanding of the lived experiences of people with physical disabilities. Importantly, it encouraged future professionals to carry forward the values of inclusivity and user-centred thinking in their respective disciplines.



Redefining Fashion with Inclusive Artistic Expression

As part of a transformative offshore service-learning initiative, PolyU students travelled to Da Nang, Vietnam to engage in a collaborative project with **around ten persons with disabilities (PWDs)** and ten local university students. This service-learning subject, “Community Engagement through Expressive Textile Arts and Fashion”, co-organised by PolyU’s School of Fashion and Textiles and the Service-Learning and Leadership Office, Danang Architecture University, and an NGO in Vietnam, the Centre of Research and Community Inclusive Support, aimed to reduce stigma and boost self-confidence among PWDs through co-creation and creative expression.

In this project, participants co-designed expressive textile artworks and fashion prototypes, which were showcased at a public fashion show in Da Nang, promoting inclusion and dignity and making voices heard through heartfelt life stories. Beyond technical skills, the project fostered empathy, teamwork, and cultural exchange. Moreover, students learned to tailor fashion to diverse needs, while participants expressed their individuality and sense of identity. The experience also deepened mutual understanding and highlighted the power of art and design as tools for social change. All in all, this initiative not only empowered the individuals involved but also contributed to raising awareness of inclusivity and equality within the broader community.

External Engagement

Empowering Migrant Domestic Workers through Language Education and Public Dialogue

In an effort to empower migrant domestic workers and raise their quality of life, the Department of English and Communication has joined hands with the Indonesian Migrant Workers Union to offer the “English Training Programme for Migrant Workers”. Designed to enhance English language proficiency, the Programme has so far offered **over 120 linguistically diverse domestic workers** an immersive and hands-on learning experience, enabling them to acquire enhanced skills in

English language vocabulary, speaking, listening, and writing. The Programme aims to help them establish a better relationship with their employers and the local community and, importantly, to advocate for themselves. PolyU will continue to offer this programme to meet growing demand and to create a positive impact on the migrant community.

Concurrently, the Department co-organised the Migrant Worker Lives Matter Symposium with two local migrant worker NGOs, PathFinders and Mission for Migrant Workers, to address systemic issues faced by migrant domestic workers and explore ways for Hong Kong to

become a more inclusive society. **Around 140 participants**, including academics, policymakers, NGOs, migrant workers and their employers, came together and engaged in discussions on topics such as domestic work as a caring profession, migrant health, and employer–employee relationships. The Symposium called for ethical recruitment, better healthcare access, clearer rights information, and improved communication, thereby helping ensure the well-being, dignity, and inclusion of migrant domestic workers in Hong Kong.



English Training Programme for Migrant Workers



Migrant Worker Lives Matter Symposium

Fostering a Dementia-Friendly Society through Training and Education

With a view to fostering a dementia-friendly community in Hong Kong, the PolyU Jockey Club Design Institute for Social Innovation has introduced two initiatives to engage key stakeholders in specialist training and public education.

Working with the Hong Kong Institute of Certified Property Managers, the vocational training course “Property Management Service Training – Elderly

(Dementia) Care Support Skills” was developed to fill a market gap by integrating dementia awareness into property management training. The course focused on dementia basics, estate management practices, and community building to equip industry practitioners with the knowledge and skills necessary to provide targeted assistance to elderly residents in a professional and supportive manner. The pilot attracted **over 50 trainees** and has since been recognised by the Property Management Services Authority as a core component in its Continuing Professional Development Scheme.

In addition, co-organised with a local NGO, Yan Oi Tong, the Dementia-Friendly Gamified Public Education project used a simulation game toolkit to raise public awareness and establish empathy. Workshops were held to engage participants from diverse backgrounds, including teenagers and carers, to test and refine the toolkit. In the next project phase, the initiative will be taken to schools and frontline service providers, with the aim of reducing stigma towards individuals with dementia and promoting inclusive practices through experiential and game-based learning.



Property Management Service Training – Elderly (Dementia) Care Support Skills

Dementia-Friendly Gamified Public Education

Governance & Operations

Strengthening Staff Readiness for Inclusive Student Support

The University supports students with special educational needs (SEN) and enhances workplace inclusion through a range of targeted initiatives. To strengthen campus employment opportunities, the Student Affairs Office (SAO) developed two key resources: the “Employers’ Toolkit: Employing Talent with Diverse Needs” and a companion guidebook offering practical advice on workplace communication with individuals with disabilities. Both resources aim to equip staff members with the knowledge and tools to create more inclusive work environments, particularly for PolyU students with SEN.

As part of a broader effort to enhance inclusion, the Careers and Placement Section of SAO hosted a workshop entitled “Creating Inclusive Workplaces: Supporting Students with Diverse Needs in Work-Integrated Education (WIE)”. The session provided PolyU staff involved in WIE administration with practical strategies, case-based learning, and ethical guidance on supporting students with learning disabilities, mental health conditions, and other diverse needs before, during, and after work placement. These initiatives strengthen PolyU’s institutional capacity to foster workplace equity, promote disability inclusion, and better prepare all students for meaningful participation in a workplace that champions diversity, equity, and inclusion.



Companion guidebook on workplace communication with individuals with disabilities



Cultural Night Series



International Cultural Festival

Promoting Unity through Global Cultural Showcase

PolyU celebrates its rich cultural diversity through vibrant events that unite the campus community and foster mutual understanding. The inaugural International Cultural Festival spanned multiple days, showcasing a dynamic array of global traditions. Attendees enjoyed live performances, cultural workshops, food appreciation sessions, film screenings, and craft demonstrations. Drawing **over 6,000 participants**, including around 40 distinguished guests from various Consulates-General, this inclusive festival deepens appreciation for cultural diversity and promotes cross-cultural dialogue.

Alongside this flagship event, the Cultural Night Series featured celebrations hosted by student associations representing South Asia, Malaysia, Indonesia, Kazakhstan, and beyond. These evenings provided participants with immersive experiences through performances, traditional cuisine, and interactive activities. Held at the Global Student Hub, the series encourages multicultural unity by establishing connections between local and non-local students.

Overall, these initiatives enrich campus life by celebrating diversity, promoting inclusiveness, and inspiring students to broaden their perspectives through cultural exchange and shared experiences, and ultimately cultivate a welcoming and vibrant community where everyone can appreciate the rich cultural tapestry worldwide.

Research & Innovation

Integrating Solar Power and Fire Protection for Sustainable Buildings

Fire safety and energy efficiency are critical concerns in modern high-rise buildings, as combustible external wall insulation has caused tragic incidents in cities such as London, Shanghai, and Tianjin. The Department of Building Environment and Energy Engineering has thus created the Fireproof Solar PV Vacuum-Glazing (FSVG) wall panel to address these challenges by combining non-combustible construction with superior thermal insulation, soundproofing, and integrated solar power generation.

Designed as a multifunctional external wall solution, the FSVG panel reduces building cooling loads by 57%, generates 170 kWh/m² of electricity annually, and mitigates fire risks, replacing traditional curtain walls while contributing to sustainable energy use. This innovative material is particularly suitable for colder climates where external insulation is essential, providing energy efficiency without posing any fire hazard.

The invention has been recognised with the **Gold Medal at the 49th International Exhibition of Inventions Geneva** for its contribution to safer, low-carbon building design. By integrating energy generation and fireproofing, this solution advances sustainable infrastructure and building technology while promoting Affordable and Clean Energy (SDG7) and supporting Climate Action (SDG13).

Optimising Sustainable Development with GeoAI Models

The Research Centre for Artificial Intelligence in Geomatics (RCAIG), a cross-disciplinary hub that aims to develop original AI-driven technologies in geomatics, was established to provide innovative solutions to pressing environmental and societal challenges while positioning itself as a global research and development leader in GeoAI. By leveraging the potential of the Jockey Club STEM Lab of Earth Observations, RCAIG fosters interdisciplinary collaboration, knowledge transfer, and talent development to support Hong Kong, the Greater Bay Area, and beyond.

RCAIG focuses on advancing sustainable urban development by exploring human–environment interactions, applying geospatial analytics and big data, and creating Earth observation-based urban data services, while GeoAI plays a crucial role in enhancing urban resilience, improving public health and strengthening urban safety and security by transforming building monitoring with thousands of learnable parameters. This allows for the detection of disaster-damaged buildings, identification of structural changes, estimation of energy consumption, and rapid response to environmental threats such as extreme heatwaves, poor air quality, or natural disasters.



RCAIG has also developed an impervious surface area-based urban cellular automata model that uses satellite imagery to simulate the impact of changes in urban development. By characterising historical urban growth at different levels and pathways, this model captures the dynamics of urban sprawl with greater detail than traditional binary approaches, generating insights that support long-term conservation, land management, and sustainable planning at both regional and global scales.



Teaching & Learning

Developing Cultural Appreciation through Experiential Learning

To deepen appreciation of Chinese cultural heritage and promote its preservation, the Department of Chinese History and Culture has launched a range of initiatives aimed at nurturing students' cultural awareness. Since the 2022/23 academic year, the department has offered a selection of Chinese history and culture courses such as "Discovering Chinese History in Hong Kong" as part of the graduation requirements for undergraduate students. These courses enable students to explore the unique cultural fabric of the city through field studies and visits to

historical sites, enabling them to connect national heritage with local narratives and broaden their perspective on the evolution of Chinese culture in a modern urban context.

Furthermore, a workshop was organised to introduce Hakka unicorn dance, an intangible cultural heritage with over 200 years of history in Hong Kong, through virtual reality. By blending historical rituals with digital innovation, the workshop demonstrated how modern tools can inspire the next generation to help preserve and promote traditional customs to wider audiences.

11 SUSTAINABLE CITIES AND COMMUNITIES



01

02

03

04

05

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09

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External Engagement

Building Age-Inclusive Communities through Innovation in the Greater Bay Area

The Social Innovation Regional Forum was hosted by the PolyU Jockey Club Design Institute for Social Innovation (DISI) to promote age-inclusive communities through social and technological innovation across the Greater Bay Area. With the theme “Social and Technology Innovation to Shape Community Integration for All Ages”, the Forum featured four thematic sessions and a main forum, attracting **around 890 in-person and over 53,000 online viewers**.

For the first thematic session, DISI participated in the China Charity Fair in Shenzhen and showcased case studies through the “participatory design” approach, inspiring educators and social workers to promote age-inclusivity through community engagement. Meanwhile, the second session, “All Age Inclusive: Exploration Trip to Redefine Ages”, invited participants on a guided exploration of child-friendly urban spaces in Shenzhen that combined innovative service models and design approaches for intergenerational needs.

The third session, “Sparkling Insights: Age-Inclusive Ideas Exchange in Hong Kong/Shenzhen”, fostered dialogue between Hong Kong and Shenzhen professionals through presentations and roundtable discussions focused on planning communities that are inclusive for both the young and elderly. Finally, the fourth session, “Making Changes: Social Impact Jamming on Stage”, celebrated youth-led innovation. It highlighted environmental, social and governance



(ESG) principles and SDG-oriented projects, offering a platform for start-ups and young innovators to present impactful solutions, including assistive technologies and age-inclusive spatial designs.

The main forum, “Tech for Social: Community Integration for All Ages in the Greater Bay Area”, convened experts from Hong Kong and Shenzhen to share actionable insights and strategies on inclusive urban development, from housing policy and sustainable transportation design to intergenerational public spaces and smart mobility solutions. Overall, cross-border dialogue was fostered and new partnerships catalysed to co-create a more inclusive future for the Greater Bay Area.



Sparkling Creative Solutions for Future Public Housing

The Research Institute for Land and Space co-organised the HKBIM Future Public Housing Design Competition to inspire innovative interdisciplinary solutions for affordable housing in Hong Kong. **Over 250 secondary school students and around 80 public participants** used the HKBIM software platform, developed by PolyU’s Smart Construction Laboratory, to design sustainable, practical housing proposals.

At the opening ceremony, participants were introduced to the HKBIM platform, which, as a building information modelling tool, enables 3D digital representations that support project management, construction efficiency, stakeholder engagement, and risk control, capabilities that are especially valuable in addressing the complex planning and land-use

challenges associated with public housing development.

The Competition encouraged the young participants and professional designers to apply their knowledge of science, technology, engineering, the arts, and mathematics in their next-generation design proposals, promoting cross-disciplinary collaboration and creativity. It also aligned with the pushes of the Government of the HKSAR to accelerate housing supply, including transitional and modular housing, amidst growing demand and lengthy waiting times. In order to create an impact on public housing planning and development, the winning affordable homes designs may be applied to real-world public housing projects in the future, offering fresh perspectives on improving and reshaping the living environments in Hong Kong.

Governance & Operations

Enhancing Campus Environment with Clean Air

Demonstrating its ongoing commitment to health and environmental standards, PolyU received the “10 Highest Participation Award” from the Environmental Protection Department of the Government of the HKSAR for achieving one of the largest certified floor areas in the Indoor Air Quality (IAQ) Certification Scheme. All PolyU buildings have been awarded the “Good Class” IAQ Certificate, with the PolyU Library attaining the prestigious “Excellent Class” status. These achievements not only contribute to campus well-being but also support wider sustainability and health goals in institutional planning and facilities management.



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04

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Prioritising Low-Carbon Commuting

To help de-carbonise campus operations and promote sustainable transportation, the University has now equipped over ten on-campus parking spaces with semi-fast AC chargers and around 50 others with 13A socket EV chargers. These facilities are available free of charge for PolyU staff and students with valid parking permits, who can conveniently check charger availability via an online platform.

At the same time, pedestrians are given priority access at the podium level of the campus, reinforcing a safe and environmentally conscious environment for all. To further support low-carbon commuting, a network of walkways and bridges has been constructed, including direct links between Block Z and the main campus. This integrated design significantly enhances connectivity and mobility, making it easier and more pleasant for users to navigate the campus on foot, of which sustainable urban planning ensures that daily campus movement aligns with long-term environmental goals.

12 RESPONSIBLE CONSUMPTION AND PRODUCTION



01

02

03

04

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06

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Research & Innovation



Stimulating Circular Economy through Sustainable Biotechnology

PolyU start-up JAPJAP Zero Waste has developed the JAPJAP Machine, a modular food waste pre-treatment system integrating Internet of Things technology with black soldier fly-based biological recycling. Designed for flexibility and ease of use, the system supports various scenarios, including schools, businesses, and community facilities, while reducing operational costs. The JAPJAP Box, a compact intelligent recycling unit, enables real-time monitoring and control of the treatment process, making it efficient and reliable even in space-constrained environments. By leveraging black soldier flies in a modular stacking system using upcycled pallets, the machine significantly reduces food waste, providing an environmentally friendly alternative to traditional landfill disposal.

The innovative design and eco-friendly impact of JAPJAP have been recognised with multiple awards, including the **Gold Prize at the HK Techathon+**

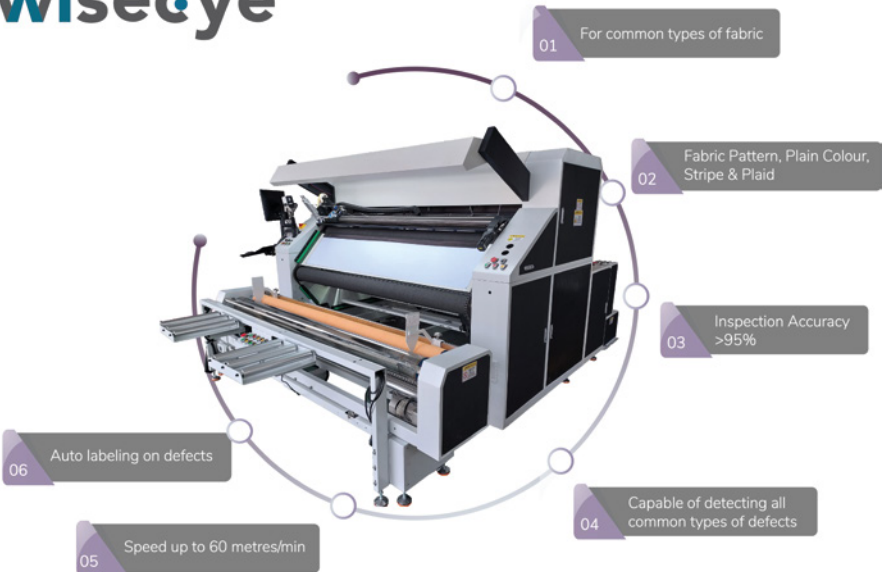
(Category – Sustainability & ESG), the **Grand Prize at the Asia Social Innovation Award**, and the **InnoTech N-Generation Award**. Supported by the Recycling Fund, the system offers on-site food waste processing and resource recovery, transforming organic waste into valuable byproducts, such as fertiliser and protein, and fostering a circular economy. This decentralised approach mitigates carbon dioxide emissions and decreases reliance on landfills, promoting sustainable urban and industrial waste management.

Optimising Textile Manufacturing with Automated Inspection

The global textile and apparel industries have long relied on human visual inspection for quality control, a process that is time-consuming, inconsistent, and prone to errors. WiseEye, a standalone AI-based system developed by the School of Fashion and Textiles, addresses these challenges by automatically detecting, classifying, and grading defects in woven, knitted, and non-woven textile materials. Designed for high-speed inspection environments, it provides instant, accurate results, reducing the dependence on highly skilled quality inspectors.

Being awarded the **Silver Medal at the 49th International Exhibition of Inventions Geneva**, WiseEye also minimises downstream wastage by identifying defects early in the production process, ensuring that defective textiles are promptly addressed. This innovation supports manufacturers in maintaining consistent quality standards, improving operational efficiency, and fostering sustainable production practices within the textile sector.

wisecye



Teaching & Learning

Co-Creating a Greener Future with Young Nepalis

The EAGLE Global Youth Leadership Programme, a year-long initiative co-organised by the Student Affairs Office, World Vision, and a local social enterprise, Dundum Solutions, arranged leadership and social innovation workshops, camps, and hands-on engagement for students to cultivate global citizenship, ethical leadership, and a strong sense of social responsibility. A key feature of the programme was EAGLE the Adventurers, in which PolyU students embarked on an expedition to Kathmandu, Nepal to collaborate with local youths to co-create impactful community projects aligned with the UN Sustainable Development Goals. Guided by design thinking and leadership training, students proposed practical, sustainable solutions to local challenges using readily available resources.

Moreover, through Poly Free TaRUN, a project designed to address the lack of waste separation at Tarun School, designated recycling bins and an incentive scheme were introduced with the support from local recycling social enterprises. Such an initiative not only improved the Nepalese campus environment but also heightened awareness of recycling practices among local students. Through this transformative cross-cultural programme, students were able to broaden their global outlook, empathy, and problem-solving abilities. It also demonstrated the powerful role of student-led innovation in fostering sustainable community impact and driving positive, actionable societal change based on environmental, social, and governance values.



01

02

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04

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09

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External Engagement

Innovative Waste Solutions for Sustainable and Circular Construction Practices

In collaboration with the International Society for the Environmental and Technical Implications of Construction with Alternative Materials, PolyU hosted the "11th International Conference on the Environmental and Technical Implications of Construction with Alternative Materials" with the theme "Innovative Valorisation of Alternative Materials and Waste towards Circular Construction".

Featuring over 160 paper presentations and insightful keynote speeches from global experts, the Conference brought together **around 300 participants** from academia, industry, and the public sector from around the world. These scholars, researchers, and practitioners engaged in discussions centred on innovative technologies and practices for converting waste and industrial by-products into sustainable construction materials.

Technical visits were arranged to Y-PARK, WEEE-PARK, T-PARK, and CIC iHub. These provided participants with first-hand insights into advanced recycling and waste-to-energy processes, as well as construction innovation. Through knowledge exchange and cross-sector collaboration, it is hoped that emerging technologies and innovative methods can contribute to the advancement of circular construction practices.



External Engagement

Championing Sustainability in the Global Fashion Industry

PolyU demonstrated its leadership in sustainable fashion with a high-impact global debut in Paris through its collaboration with the esteemed AELIS Couture and an international exhibition showcase.

The collaboration with the French fashion house featured groundbreaking sustainable textiles developed by the School of Fashion and Textiles (SFT). These innovative textiles, using a waterless metallising technology to embed nanoscale metal films onto silk organza, inject environmental responsibility into elegance. The resulting gold and silver-coated fabrics offer a luxurious aesthetic with comfort and flexibility, while producing no chemical or water waste, signalling a powerful and full-of-potential fusion of technology, design, and sustainability.

Meanwhile, the Flying High exhibition in Paris clearly signalled PolyU's strong presence in the global fashion industry. The ten interdisciplinary projects under the themes of "Style in Motion" and "Sustainability in Innovation" included innovations such as vegan antiviral leather, textiles made from waste for use in construction, interactive



Lecture Series on Sustainable Fashion Technology

optical-fibre fabrics, and sputtering-coated pollution-free fashion materials.

To showcase the University's commitment to impactful research and sustainable development, SFT also held a "Lecture Series on Sustainable Fashion Technology" to introduce attendees to pioneering concepts and real-world applications such as edible vitamin-based functional fibres and emerging sustainable fashion technologies, which help push boundaries across science, materials, and fashion, driving eco-conscious transformation in the global fashion landscape.



Flying High exhibition in Paris

Governance & Operations

Encouraging Eco-Friendly Habits and Waste Reduction on Campus

PolyU continues to nurture awareness and active participation in sustainable living among staff and students through flagship programmes like the GreenCoin initiative. This programme incentivises eco-friendly habits such as recycling disposable beverage containers and adopting reusable bags, rewarding participants with virtual coins redeemable for coupons and on-campus services. With **over 7,000 users** and **more than 300,000 recyclable items collected**, GreenCoin has become a vital driver of positive behavioural change.

To further these goals, reusable lunchbox rental and return machines have significantly cut down single-use disposable food containers on campus, alongside with signature campaigns including Low Carbon Dining Week, Campus Sustainability Week, and Urban Farming. The University's dedication to

sustainable waste management has achieved **Excellent Level in the WastewiSe Certificate under the Hong Kong Green Organisation Certification scheme**, reflecting its leadership in environmental stewardship.

With a view to further encourage green practices, the University offers a promotional wheat straw reusable cutlery set redeemable with GreenCoins, supporting efforts of the Government of the HKSAR to reduce disposable plastic products and empowering the community to cut plastic use. Additionally, the comprehensive Green Map provides an interactive guide for staff and students to sustainable features on campus, including recycling points, farming sites, and catering outlets offering "Bring Your Own" discounts, fostering engagement and making sustainable choices more accessible.

Reduction of municipal solid waste disposal to landfill (tonnes):



250+

Recycling volume at Reverse Vending Machine (RVM):



347,400+
(increased 41%, compared to 2022/23)



13 CLIMATE ACTION



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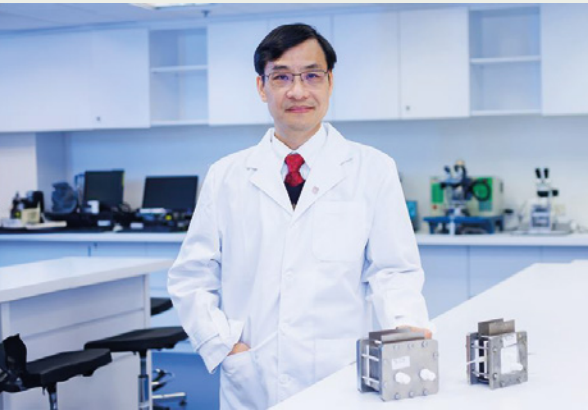
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Research & Innovation



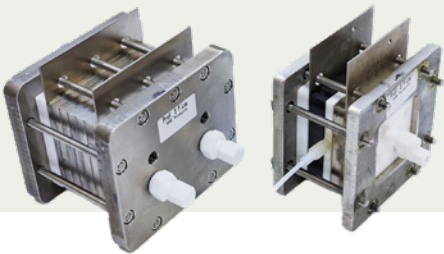
Harnessing Electrochemical Technologies for Carbon Neutrality

PolyU has developed a durable, highly selective, and energy-efficient carbon dioxide electroreduction system that converts carbon dioxide into ethylene, a key ingredient in plastics and chemical fibres. This innovative technology offers a sustainable alternative to conventional ethylene production, which generates significant carbon emissions. It therefore contributes to closing the carbon loop while supporting carbon neutrality goals. Using green electricity, the system increases its lifespan significantly and enhances industrial scalability, offering a practical solution for reducing carbon dioxide emissions in manufacturing and chemical industries.

The system's advanced design, denoted as the APMA cell, employs a metal-free anolyte and a specialised copper electrocatalyst with nanoscale features that increase reaction efficiency and selectivity. This APMA design enables continuous operation at industrial-level currents, suppressing carbonate formation, salt deposition, and unwanted hydrogen

generation, thereby ensures stable ethylene production over extended periods, making it suitable for large-scale industrial adoption.

By transforming carbon dioxide into industrially valuable chemicals, the system supports sustainable industrial practices, reduces environmental impact, and strengthens infrastructure resilience. It received a **Gold Medal at the 48th International Exhibition of Inventions Geneva**, highlighting its global recognition and industrial relevance. The technology also contributes to Industry, Innovation and Infrastructure (SDG9) and Sustainable Cities and Communities (SDG11), promoting greener production methods and a lower-carbon industrial landscape.



Revolutionising Urban Heat Mitigation with Innovative Infrastructure

Mitigating urban heat is a pressing challenge due to rapid urbanisation and global warming. With cities like Hong Kong experiencing record-breaking high temperatures, PolyU researchers from the Department of Civil and Environmental Engineering collaborated with global experts to conduct a first-of-its-kind study on the effectiveness of green-blue-grey infrastructure (GBGI) in cooling urban environments. GBGI encompasses green infrastructures such as trees, grass, and hedges; blue infrastructures including pools, lakes, and rivers; and grey infrastructures like roof gardens, pergolas, and green walls.

The study revealed regional and city-specific variations in the cooling efficiency of GBGI. Globally, GBGI reduced air temperatures by up to 18.9°C in Europe, 17.7°C in Asia, 12°C in North America, and 9.6°C in Australia. Interestingly, botanical gardens, wetlands, green walls, and attenuation ponds were

particularly effective, with reductions of up to 10°C in certain regions. In Asia, grey infrastructures achieved significant cooling, with temperature reductions; in Hong Kong specifically, parks and green roofs reduced temperatures by nearly 5°C.

To guide practical implementation, the research team proposed a nine-stage framework encompassing stakeholder engagement, feasibility studies, design, policy development, implementation, monitoring, evaluation, and upscaling. This framework provides policymakers with a strategic roadmap to optimise GBGI deployment, by decreasing energy consumption, reducing climate change impact, improving urban resilience, enhancing biodiversity, and mitigating the urban heat island effect, which also contributes to the development of sustainable, inclusive, and resilient cities (SDG11).



Teaching & Learning

Driving Sustainable Innovation for a Carbon-Neutral Campus

Organised by the Department of Civil and Environmental Engineering, the Carbon-Neutral PolyU 48 Hours Hackathon gathered students from various disciplines to tackle the global challenge of climate change and generate green solutions that aimed at advancing sustainability on campus through creativity, collaboration, and innovation.

Throughout the event, participating teams received invaluable mentorship and guidance from departmental experts and representatives from the Campus Facilities and Sustainability Office whilst engaging in climate-conscious problem solving. With creativity and determination, students refined their ideas and translated complex climate concepts into impactful proposals to promote carbon neutrality, showcasing strong critical thinking and collaboration skills throughout the process.

The teams unveiled their visionary proposals in a dynamic project showcase and prize presentation, where outstanding teams were awarded cash prizes and PolyU GreenCoins, recognising their problem-solving excellence, commitment to environmental stewardship, and contributions towards a greener campus.

This hands-on initiative not only enriched students' understanding of carbon neutrality but also inspired them to lead with purpose in sustainability-focused innovation, fostering a carbon-neutral mindset among students.



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External Engagement

Uniting Chinese Experts Worldwide for Carbon Neutrality and Sustainability

With the aim to foster international collaboration among Chinese environmental experts from Hong Kong, Chinese Mainland, Taiwan, and overseas, the Global Chinese Environmental Protection Conference was co-organised by PolyU, the Chinese Institute of Environmental Engineering, City University of Hong Kong, the Environment and Conservation Fund, the Global Chinese Environmental Protection Conference, the Environmental Science and Ecotechnology Journal, the Hong Kong University of Science and Technology (Guangzhou), National Cheng Kung University, National Taiwan University, and the Overseas Chinese Environmental Engineers & Scientists Association.

Under the theme "Towards Carbon Neutrality and Sustainable Ecological and Environmental Development", the Conference served as a dynamic platform for dialogue, field visits, and solution-driven discussions. **Around 200 international participants**

engaged in knowledge exchange and explored pressing issues such as air pollution prevention, air quality control, circular economy practices, and the challenges posed by climate change.

The Conference emphasised the shared responsibility of the Chinese community worldwide in addressing global environmental challenges and shaping a more resilient and sustainable future through cross-strait cooperation. By co-creating a sustainable pathway to environmental protection with sustainable economic development, meaningful progress can then be made towards carbon neutrality and ecological harmony.



External Engagement

Achieving Carbon Neutrality Goals through Innovative Catalysis

The 2nd Carbon-Strategic Catalysis International Conference was hosted by the Research Centre for Carbon-Strategic Catalysis, the first carbon-strategic catalysis centre in Hong Kong, and was attended by **over 400 participants and nearly 30 distinguished plenary and keynote speakers** from Australia, Chinese Mainland, and Hong Kong. The main focus of the Conference was on the development of high-efficiency catalysts within the global framework of carbon strategy. It included topics such as advanced material design for energy conversion, carbon-related electrocatalysis and photocatalysis, and energy harvesting and storage technologies.

Participating experts shared groundbreaking research and innovative approaches to catalysis and energy science, offering valuable insights and suggestions for developing strategies to accelerate carbon-neutral solutions. In addition, the Conference strengthened global research collaborations and communication between PolyU and frontier international scientists. This foundation for driving sustainable energy innovation truly reaffirms the University's commitment to contributing to Hong Kong's goal of carbon neutrality by improving research and the prospects for its practical application, as well as to addressing climate challenges through scientific excellence and collaborative innovation.

Governance & Operations

Uniting Universities for a Carbon-Neutral Future

Leading efforts for carbon neutrality by 2050 as set out by the Government of the HKSAR, PolyU co-chairs the Sustainability Performance Working Group, which submitted a joint proposal to the Heads of Universities Committee. This initiative is part of the Hong Kong Sustainable Campus Consortium, a platform established in 2010 by the HKSAR Heads of Universities Committee. The Consortium brings together local higher education institutions to collaborate on climate action and sustainable development.

Accelerating Ongoing Green Campus Efforts

To advance its goal of achieving carbon neutrality by 2045, which is five years ahead of the local official timeline, PolyU has established the Campus Carbon Neutrality Committee. Tasked with developing and monitoring a comprehensive roadmap, the committee ensures that the University's decarbonisation strategies are regularly refined and effectively implemented.

One of the key projects under the committee's responsibility is the Carbon Neutrality Funding Scheme, which supported almost ten projects that demonstrate how research-driven solutions can be integrated into everyday campus operations. Working with the Campus



Facilities and Sustainability Office and the Campus Development Office, highlights include using recycled plastic beverage bottles to decarbonise roadways, adopting precision hydroponics to reduce emissions in agriculture, and introducing sustainable methods for window cleaning.

With the campus and its development projects serving as active testbeds, PolyU continues to translate research into real-world climate solutions. These actions not only mitigate environmental impact but also contribute to a healthier, more sustainable environment for the University and the wider community.



Direct and indirect carbon emission per capita (tonnes CO₂e)

1.43

Reduced **>30%**
(compared to the peak level in 2014/15)

14 LIFE BELOW WATER



Research & Innovation

Revitalising Marine Ecosystems through Oyster Reef Rehabilitation

With research grants totalling **around HK\$1.2 million, supported by the Pew Charitable Trusts, the Hong Kong Offshore Liquefied Natural Gas Terminal Project Fisheries Enhancement Fund, and Hang Seng Bank**, the Department of Food Science and Nutrition led a project focuses on restoring Hong Kong's historic pearl oyster reefs to enhance marine biodiversity, improve water quality, and revive the local pearling industry through sustainable aquaculture. Overharvesting in the past led to the disappearance of these reefs, affecting both marine ecosystems and the livelihoods of local fishermen. Hatchery-sourced pearl oysters are used to rebuild reefs in **more than five local aquaculture zones**. Furthermore, pearl oysters have the unique ability to extract carbon from

seawater through the formation of calcareous shells and pearls, contributing to carbon neutrality initiatives.

To foster awareness about marine conservation, advanced 3D technologies that supported reef reconstruction also facilitated the development of engaging educational tools. Students can participate in guided farm tours, hands-on internships, and STEM-focused programmes centred on oyster ecology and sustainable aquaculture, deepening their understanding of marine conservation. Contributing to community development and ecological sustainability, fostering environmental awareness and resilience, the project also contributes to Zero Hunger (SDG2) and Climate Action (SDG13) by promoting sustainable aquaculture and supporting nature-based carbon sequestration efforts.



Mapping Microplastic Distribution to Safeguard Aquatic Ecosystems

With a funding of **nearly HK\$1.4 million from the Environmental Protection Department of the Government of the HKSAR**, the Department of Food Science and Nutrition conducted a baseline survey to assess microplastic pollution in Hong Kong's rivers, covering sampling sites across 10 major rivers and streams that represent diverse geographical and environmental conditions and varying levels of human activity. The study generated up-to-date data on microplastic prevalence, revealing critical insights into the distribution and severity of pollution in freshwater systems. By analysing these patterns, the research provides policymakers with evidence to implement targeted pollution control and mitigation strategies, supporting healthier aquatic ecosystems and sustainable river management.



Teaching & Learning

Advancing Sustainable Diets for Marine Biodiversity and Aquatic Ecosystems

The subject “The Environmental Impact of the Dietary Culture in China”, offered by the Department of Food Science and Nutrition, introduces students to the environmental and ecological implications of dietary culture in Chinese Mainland, with a particular focus on marine resources. Students examine the live reef food fish trade and learn how overfishing and unsustainable harvesting practices threaten biodiversity, thus leading to species extinction, and disrupting aquatic ecosystems.

By exploring the intersection of traditional food practices, food chemistry, and nutrition, students gain a deeper understanding of the social responsibilities associated with human consumption. The course encourages critical reflection on how dietary choices influence the sustainability of marine resources and overall biodiversity.

Through seminars and applied discussions, students are empowered to identify alternative food options and production methods that minimise environmental impacts. Importantly, the subject fosters an awareness of responsible consumption and equips students with the knowledge and skills to advocate for sustainable practices that protect biodiversity and support the long-term health of marine ecosystems.

Bridging Marine Health and Food Sustainability

Offered by the Department of Food Science and Nutrition, the subject “Environmental Health and Food Sustainability” engages students in understanding the intricate links between food production, environmental health, and ecosystem sustainability. By examining fisheries from environmental, ecological, nutritional, and social sciences perspectives, students gain insight into how human practices affect aquatic ecosystems and the broader environment. The subject emphasises the importance of preserving biodiversity and responsibly managing marine resources to ensure long-term sustainability.

Students investigate the consequences of overfishing and other unsustainable practices on marine life and the environment. Through analysis of current fishery methods and case studies, they explore ways to mitigate environmental harm while maintaining food supply. Topics, such as coral reefs which are crucial ecosystems supporting biodiversity and food sustainability are also discussed.

By the end of the course, students are equipped to critically evaluate the environmental impacts of food systems and to propose solutions that support both ecosystem health and sustainable food supply. The learning experience fosters a sense of responsibility for conserving biodiversity and managing marine resources, empowering students to advocate for practices that balance human needs with ecological integrity.

01

02

03

04

05

06

07

08

09

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11

12

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14

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16

17



External Engagement

Turning Plastic Waste into Ocean Protection

The Material Resource Centre of the School of Design hosted a mini-exhibition in collaboration with #tide ocean material®, spotlighting how plastic waste collected from coastlines and waterways can be transformed into durable, high-quality products. Rather than polluting oceans and harming marine life, this waste is repurposed into items ranging from watches and apparel to furniture, flooring, and even construction materials.

The exhibition not only promoted the idea of reducing ocean-bound plastic to protect the ocean but also demonstrated how innovative design and circular business models can reshape the way communities view waste. By showing how plastic waste can be reintroduced into the value chain as granules, yarn, and filament for a variety of industries, it inspired visitors to rethink everyday consumption habits.

The initiative highlighted the wider environmental and social benefits of tackling marine plastic pollution: reducing threats to biodiversity, preventing the creation of microplastics, and mitigating the economic harm caused to fisheries and tourism. Through collaboration and knowledge sharing, the exhibition engaged **around 2,000 visitors**, encouraging collective action towards healthier oceans and a more sustainable future. Importantly, #tide's work also supports vulnerable communities by partnering with local non-profits and social enterprises in the first mile of its supply chain.



Governance & Operations

Championing Marine Protection with Eco-Conscious Dining Initiatives

PolyU has been taking progressive steps to minimise the use of single-use plastics and to promote sustainable dining practices across campus. The University first introduced the “NO STRAW Every Day” arrangement, and since April 2024, all catering outlets have complied with the new Regulation of Disposable Plastic Tableware, which prohibits the distribution of plastic straws, cutlery, and plates for both dine-in and takeaway services.

To further reduce plastic waste, PolyU discontinued the sale of single-serving, less than a litre bottled water in vending machines, convenience stores, and catering outlets starting from 2017. The same restriction applies to University activities and events, encouraging the community to embrace the use of reusable water containers and reinforcing environmentally responsible habits.

The University has also pledged to promote eco-conscious food consumption in official functions. By supporting WWF-Hong Kong's Sustainable Seafood Week and signing the “Say No to Shark Fin” pledge, the University actively excludes shark fin, bluefin tuna, humphead wrasse, wild-caught Hong Kong grouper, sturgeon caviar, black moss and other threatened species from its menus.



15 LIFE ON LAND



Research & Innovation

Advancing Urban Forestry through Smart Analytics

PolyU start-up LeafIoT Technology has developed LiFY-T, a deep-tech solution for advanced tree health monitoring and green asset management. This innovative system integrates Internet of Things sensors, artificial intelligence analytics, and tree “heartbeat” monitoring to provide continuous, real-time assessment of tree stability and environmental conditions. By tracking critical parameters such as tilting angles and soil moisture, LiFY-T enables early detection of potential tree failures, supporting proactive maintenance and risk mitigation.

The system’s blockchain integration ensures transparent and verifiable reporting, allowing green asset managers to monitor carbon sequestration and

align their operations with sustainability goals. LiFY-T also offers insurance support to mitigate economic and physical risks associated with extreme weather events, helping governments, property managers, and businesses safeguard urban environments while protecting communities.

By providing accurate and timely insights into tree health, LiFY-T not only enhances urban safety but also contributes to greener, more resilient cities. The technology empowers stakeholders to make informed decisions, reduce liability, and promote the sustainability of urban green spaces, demonstrating a practical intersection of digital innovation and environmental stewardship.

Converting Industrial Waste into Sustainable Building Materials

PolyU researchers from the Department of Civil and Environmental Engineering have developed an innovative method for solid waste management and reutilisation via carbon dioxide mineralisation, addressing the dual challenges of waste accumulation and carbon emissions. This approach involves crushing concrete and other solid waste, then promoting reactions between the crushed aggregates and carbon dioxide, which not only improves the surface characteristics and internal microstructure of the materials but also transforms them into valuable construction products, providing an alternative to

natural aggregates and cement. By integrating carbon dioxide mineralisation, the method simultaneously sequesters carbon dioxide and mitigates greenhouse gas emissions.

The technology supports sustainable resource use, reducing dependency on natural materials and decreasing pressure on landfill sites. It also enables the production of construction materials that maintain structural integrity while contributing to environmental goals. The research also supports Responsible Consumption and Production (SDG12) by promoting circular economy practices in construction and to Climate Action (SDG13) through carbon capture and emission reduction.



01

02

03

04

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08

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Teaching & Learning

Bringing Ecotourism from Classroom to Community

The School of Hotel and Tourism Management (SHTM) partnered with KOPEL Kinabatangan, a community-based organisation in Sabah, Malaysia to strengthen local ecotourism through the service-learning subject “Ecotourism in the Community”. By engaging in the classroom training and guest lectures, PolyU undergraduate students evaluated the impact of deforestation on habitats, promoted tree-planting as part of ecotourism, and created marketing materials to boost visitor numbers in low seasons. They also delivered hands-on training in areas such as coffee-making, spreadsheet skills, and social media strategy, helping local community members improve operational efficiency and reach new markets.

At the same time, another SHTM’s subject “Tourism Policy and Development” enables postgraduate students to acquire a deeper understanding of how tourism policies influence planning and development of sustainable tourism. They also explored topics such as ecotourism, rural tourism, and sustainable land use, of which foundation equips them to critically analyse challenges and propose practical, responsible solutions.

By adopting field-based service learning and case studies, these subjects enable students to apply theories in real-world contexts while supporting communities to enhance livelihoods and protect natural resources. Both initiatives also contribute to promoting Decent Work and Economic Growth (SDG8), ultimately fostering stable income opportunities through sustainable ecotourism development.



External Engagement

Restoring Ecosystems through Collective Climate Action

The Department of Land Surveying and Geo-Informatics hosted the public seminar “The Nexus between Climate, Nature and People”, bringing attention to the urgent challenges posed by climate change and nature loss. With extreme weather events and shifts in Earth systems identified by the World Economic Forum as the world’s greatest concerns, the discussion highlighted how these global risks are already affecting Hong Kong through record-breaking rainstorms, prolonged heatwaves, and rising temperatures.

The seminar underscored the importance of sustainable living and environmental restoration in building resilience. It showcased how WWF-Hong Kong partners with corporations and communities to reduce carbon emissions, restore ecosystems, and protect public health. For instance, the Low Carbon Manufacturing Programme has already avoided over 280,000 tonnes of carbon emissions, exemplifying the positive impact of targeted initiatives.

A key theme was the promise of nature-based solutions, which harness healthy ecosystems to safeguard biodiversity, mitigate climate risks, and create more liveable communities. By connecting climate, nature, and people, the seminar highlighted how collaborative approaches can also drive meaningful progress towards Climate Action (SDG13) while enhancing urban well-being and environmental sustainability.

Promoting Urban Resilience through Nature-Based Solutions

The “International Conference on Nature-Based Solutions (NbS) for Urban Infrastructure” brought together **more than 200 participants**, including researchers, professionals, and policymakers, to explore how cities can better integrate nature into planning and development. Co-organised by the Research Institute for Land and Space, the conference promoted the conservation and sustainable use of terrestrial ecosystems such as forests, wetlands, and drylands.

By focusing on NbS, the discussions highlighted how urban infrastructure can be designed and managed in ways that protect biodiversity, mitigate climate change, and safeguard ecosystem services. Participants exchanged practical knowledge on applying NbS to enhance urban resilience, offering innovative approaches to challenges ranging from climate adaptation to sustainable growth.

The conference also emphasised that NbS are not only tools for environmental restoration but also strategies for building healthier and more liveable communities. Through interdisciplinary collaboration and knowledge exchange, the event provided a valuable platform for translating research insights into actionable solutions. Ultimately, it reinforced the importance of conservation and biodiversity protection in shaping sustainable cities, underscoring the role of NbS as vital pathways towards harmonising urban development with ecological well-being.

Governance & Operations

Balancing Campus Development with Biodiversity and Conservation Priorities

PolyU’s campus outdoor open space is designed not only to connect buildings but also to foster conservation and sustainable living through careful landscape planning. Guided by the Landscape Master Plan, the University is introducing new plant species that complement the distinctive brick-red campus while enhancing biodiversity. At the same time, irrigation systems are being optimised to support environmental restoration and create healthier green areas that benefit the entire campus community.

Concurrently, PolyU continues to protect biodiversity through the conservation of amphibian species. During the development of the Kowloon Tong Student Hostel site, the University safeguarded the Lesser Spiny Frog, a species of conservation importance, by conducting a translocation exercise. **Around 100 adult frogs and over 400 tadpoles** were safely relocated to suitable watercourses, ensuring land management practices that balance environmental protection with the creation of additional hostel space for students.



Further underscoring its dedication to environmental stewardship, PolyU received the prestigious **Platinum Award in the Tree Management Award 2023**, which reflects the University’s excellence in tree

preservation and land management, while also raising awareness of the importance of tree care in promoting environmental restoration and sustainable living.

16 PEACE, JUSTICE AND STRONG INSTITUTIONS



Research & Innovation

Securing Personal Data Privacy during Central Bank Digital Currency Adoption

The Department of Computing is collaborating with the Hong Kong Monetary Authority on a Central Bank Digital Currency (CBDC) project, focusing on advancing privacy protection in digital financial systems. The research examines key aspects of CBDCs, including interoperability, security, and privacy, with the goal of fostering a robust tokenisation market and attracting financial technology talent to Hong Kong. The project explores innovative financial market infrastructure to enable seamless interbank settlement of tokenised money through wholesale CBDC, by focusing on tokenised deposits, which are digital representations of commercial bank deposits issued by banks. Through integrating cutting-edge privacy designs, this collaboration ensures personal information remains secure while advancing the functionality and adoption of digital currencies.

Harnessing Data to Improve Community Support for Intimate Partner Violence (IPV) Survivors

IPV remains a critical public health issue, creating severe physical and mental health challenges while imposing substantial social and economic burdens. A recent study analysed the Allegheny County Health Survey data from over 8,000 adults to investigate the relationships between IPV experiences, psychological distress, and help-seeking behaviours.

The result showed that more than 200 respondents reported IPV experience, with significant differences in age, marital status, education, income, and race compared to those without IPV experience. It also revealed that IPV survivors were more likely to experience hopelessness, restlessness, exhaustion, and feelings of worthlessness. Psychological distress was also strongly associated with help-seeking behaviours, for example, individuals reporting hopelessness were significantly more likely to seek assistance.

The findings underscore the importance of early identification and targeted interventions for IPV survivors. By enhancing professional training and promoting collaboration between healthcare and social support services, communities can better address psychological distress and reduce the occurrence and long-term impact of IPV.



Teaching & Learning

Building Competence in Safeguarding Children

Hosted by the Department of Applied Social Sciences, the subject “Child Maltreatment and Protection” provides students with an in-depth understanding of child abuse and neglect as a public health concern. The subject covers social, legal, and health perspectives, helping students examine the prevalence, risk factors, and consequences of maltreatment. Clinical assessments also allow them to apply theoretical knowledge to real-world situations, focusing on the unique needs of victims and their families. By centring children’s rights as part of human rights, the course encourages the development of effective prevention and intervention strategies, empowering students to contribute meaningfully to protective, child-friendly society and families for child protection.

Enhancing Critical Thinking and Legal Literacy in Business

The School of Accounting and Finance offers the subject “Business Law” to equip students with foundational knowledge of the legal system in Hong Kong and its application in the business context. Through studying sources of law, the court system, and relevant regulatory frameworks, students develop the ability to identify legal issues and apply critical reasoning to resolve practical business problems. The subject covers key areas such as employment law, anti-corruption measures, anti-money laundering, and dispute resolution, while emphasising ethical considerations in business policy initiatives.

With these foundational knowledge and skills in place, students learn to systematically organise written responses to complex legal problems, critically assess alternative arguments, and evaluate the broader implications of legal decisions in business settings. By engaging with real-world case studies and problem-solving exercises, their critical and creative thinking skills could be strengthened. Through these learning experiences, this subject fosters an understanding of the intersections between law, ethics, and business operations, preparing students to navigate the legal dimensions of professional practice with confidence and integrity.

External Engagement

Integrating Practice Research and Community Planning for Social Progress

The Department of Applied Social Sciences co-organised the symposium, entitled “The Transformation of Social Work: From Traditional Practice to Practice Research – Three Years of Implementation Experience”, showcased achievements from the China Social Work Project Fund III (2021–2024). **Over 60 Chinese Mainland social work educators and practitioners** presented how they integrated theory with practice to address diverse challenges across areas such as community development, hospice care, and mental health. By highlighting case studies and research processes, the symposium promoted experiential knowledge, reflective practice, and collaboration, enabling social workers to better advocate for marginalised populations and enhance professional standards. **Over 13,000 beneficiaries** across more than seven project sites in Chinese Mainland have been supported through these initiatives.

Meanwhile, the “International Symposium on New Directions of Urban–Rural Development in China” addressed challenges stemming from rapid urbanisation. With **around 200 participants**, the discussions explored sustainable governance, rural property reforms, and inclusive planning, comparing Chinese Mainland’s experience with global examples. Insights from the event contributed to formulating more equitable policies and fostering collaborations

aimed at poverty alleviation and integrated development. Both symposia can be seen to enrich professional knowledge, foster cross-sector dialogue, and advance innovative solutions for social progress and community well-being in Chinese Mainland.

Strengthening Care and Protection through Social Work Workshops

The Department of Applied Social Sciences, in collaboration with the Hong Kong Academy of Social Work, organised a series of “From Research to Practice” workshops that showcased how academic findings can be translated into actionable tools for frontline practice. Centred on addressing the needs of disadvantaged groups, the workshops covered pressing issues such as preventing online sexual exploitation among children, post-discharge care for young adults at risk of suicide or self-harm, workplace inclusion for employees with disabilities, and the application of mindfulness-based programmes in schools.



By bridging research and professional practice, the workshops equipped social workers with practical knowledge to respond more effectively to real-world challenges, while raising awareness of systemic inequalities faced by vulnerable populations. **Around 300 practitioners** participated, gaining insights and skills to strengthen both preventive and responsive interventions.

It is noteworthy that the initiative not only exemplifies how academia, practice, and community stakeholders can collaborate to foster meaningful social change, but also directly contributes to the advancement of Good Health and Well-being (SDG3) by supporting mental health, suicide prevention, and child protection, while also promoting Reduced Inequalities (SDG10) through advocacy for workplace inclusion and support for disadvantaged groups.

Governance & Operations

Upholding Equity, Accountability, and Participation in University Operations

PolyU encourages open communication channels across the University community to promote inclusive and participatory decision-making. Senior management actively gathers feedback from staff and students through regular President’s Forums, meetings with Staff Association representatives and students, and face-to-face small-group discussions. These engagements enable a better understanding of

issues and concerns, fostering transparency and responsiveness in University governance.

Besides, student representation is well established in the University’s decision-making bodies, including the Council, Senate, and various committees. By serving in these bodies, **over 40 student representatives** contribute to shaping policies, ensuring that diverse perspectives are considered, and strengthening participatory governance within the University.

Furthermore, PolyU maintains rigorous standards of integrity and fairness for all staff members. The Human Resources Office enforces the Code of Ethics to promote ethical behaviour, accountability, and equal opportunities, while Probity Guidelines ensure compliance with the Hong Kong Prevention of Bribery Ordinance. Formal channels, including the Grievance Committee and the Review Committee on Human Resources Decisions, provide staff with access to dispute resolution and appeals, safeguarding fairness and justice in university operations.

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Research & Innovation

Supporting High-Impact Translational Research and Development in Chinese Mainland

PolyU is expanding its research impact by establishing translational research institutes in more than ten cities in Chinese Mainland. These institutes serve as platforms to strengthen collaboration with leading universities, research institutions, and industry partners, leveraging their respective expertise to drive high-impact research and development. By focusing on addressing the industrial and societal needs unique to each city, the institutes aim to translate cutting-edge research into practical solutions that benefit communities and industries alike.

The University's existing regional bases in Beijing, Chengdu, Hangzhou, Shanghai, Shenzhen, and Xi'an continue to play a pivotal role in facilitating partnerships and knowledge exchange, providing platforms for innovation, technology transfer, and applied research. Through these collaborative efforts, the institutes not only enhance the quality and relevance of PolyU's research but also integrate the University into the national innovation ecosystem, contributing directly to Chinese Mainland's scientific and technological advancement.



Pursuing Aerospace Innovation through Satellite Partnerships

PolyU has strengthened its collaboration with the Hong Kong Aerospace Technology Group (HKATG) to advance satellite technologies for navigation, communication, and smart city applications. Through a Memorandum of Understanding, HKATG will provide PolyU with access to conventional optical remote sensing and synthetic aperture radar observation data covering Hong Kong and the Greater Bay Area. The collaboration also includes support for low-Earth orbit satellite payload space, payload testing, and satellite measurement and control services for research and educational purposes. In a notable contribution, HKATG has donated the naming rights of a multispectral optical remote sensing satellite, valued at approximately HK\$20 million.

This initiative not only strengthens PolyU's aerospace research capabilities but also creates new opportunities for smart city development. By leveraging HKATG's satellite capabilities, the partnership advances remote sensing research projects related to multispectral features, including carbon neutrality research, tree health monitoring, land cover classification, marine water quality monitoring, and the study of urban surface characteristics.



Teaching & Learning

Learning through Collaboration on Sustainable Development Initiatives

The SDG Youth Programme, co-organised with Peking University, provided PolyU students from the disciplines of social work, social policy, entrepreneurship, and social development as well as students from Yonsei University Institute of Global Engagement and Empowerment, and Ewha Woman's University with an immersive experience in sustainable development. Participants engaged with agencies and corporations dedicated to advancing the UN Sustainable Development Goals (UNSDGs) in the company visits and conducted group research projects, presenting comparative analyses of how UNSDGs are implemented in Hong Kong, Chinese

Mainland, and South Korea. This collaborative learning environment encouraged students to reflect on the practical applications of sustainable development within social work.

Through the programme, students developed the skills to integrate principles of UNSDGs into professional practices, enhancing their competence in addressing social and environmental challenges. They gained awareness of cross-cultural approaches to sustainability, while the interaction with peers and professionals fostered collaboration and networks for future initiatives. Moreover, real-world discussions and research empowered students to advocate for sustainable practices in their future careers.

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External Engagement

Shaping the Future of Healthy Ageing through Global Partnerships

Co-organised by PolyU and the Department of Health of the Government of the HKSAR, the Healthy Ageing Conference brought together **over 250 participants** from around 20 fastest-ageing Western Pacific countries. The event provided a platform for stakeholders to exchange ideas on clinical, social, cultural, and technological innovations that can promote healthy ageing. Case studies and policy discussions highlighted strategies for improving health and social care delivery, addressing psychosocial and environmental factors, and leveraging technological advances to enhance the lives of older adults. Importantly, the conference laid a foundation for implementing action plans aligned with the United Nations Decade of Healthy Ageing (2021-2030), aiming to create more inclusive and supportive communities for older individuals.

Besides, the University and the International Society of Radiographers and Radiological Technologists (ISRRT) hosted the "ISRRT World Congress cum Hong Kong Radiographers and Radiation Therapists Conference", which drew **over 600 participants** from around 30 countries. Bearing the theme "Personalised Care in Medical Imaging and Radiotherapy", the congress showcased global expertise in integrating technology and AI into healthcare practices. Having explored how innovations can improve diagnostic accuracy, treatment precision, and patient-centred outcomes, the event offered professional development opportunities for the radiography and radiotherapy community, highlighting how cross-border knowledge exchange and collaboration can elevate healthcare standards worldwide.



ISRRT World Congress 2024 cum Hong Kong Radiographers and Radiation Therapists Conference

Fostering Cross-Sector Partnerships in the AI Era

PolyU co-hosted the THE Global AI Forum with Times Higher Education, bringing together **around 300 participants** from around 110 organisations across more than 20 countries. The event featured **about 40 leading scholars and thought leaders** from more than 10 countries and regions, fostering rich dialogue on the transformative role of artificial intelligence in academia and society. The event centred on exploring how AI is reshaping higher education, research, and social impact. Presidential discussions highlighted how universities can harness AI to foster innovation and inclusion, overcome barriers to learning, and support students from underprivileged backgrounds. Participants also explored the importance of balancing opportunities and ethical considerations, integrating AI into academic strategies, and strengthening partnerships across education sectors, industry, and government.

Panel sessions explored AI's transformative role in redefining education, empowering research collaboration, and advancing global sustainable development, while case studies showcased AI's applications in renewable energy, sustainable agriculture, and urban planning to combat climate change, addressing the specific needs of marginalised communities. The event also featured an education and innovation showcase led by PolyU scholars, presenting pioneering AI projects in fields such as food safety, robotics, drone delivery, sustainable fashion design, and intelligent tutoring systems. Delegates visited PolyU's advanced research facilities, including the Hybrid Immersive Virtual Environment and the Research Centre for Deep Space Explorations, which underline the University's leadership in AI-driven innovation and global collaboration.



Governance & Operations

Advancing Sustainability through Strategic Global Partnerships

PolyU actively participates in local and international sustainability networks to advance climate action and sustainable development. Locally, the University collaborates with other higher education institutions through the Hong Kong Sustainable Campus Consortium, sharing insights and best practices on sustainability-related issues. PolyU co-chaired the Sustainability Performance Working Group to submit a proposal for a Joint Commitment to Carbon Neutrality by 2050 to the Heads of Universities Committee.

Globally, PolyU co-founded the University Social Responsibility Network and currently chairs its Executive Committee, collaborating with **nearly 20 member institutions worldwide** to address economic, social, cultural, and environmental challenges. The network facilitates open dialogues among thought leaders and organises summits, webinars, and student engagement events, promoting justice, inclusivity, peace, and sustainability.

Moreover, PolyU is a member of the UN Sustainable Development Solutions Network (SDSN), a global knowledge network mobilising universities and research institutes to implement the Sustainable Development Goals and the Paris Agreement on Climate Change. Through SDSN, the University engages in knowledge sharing, international collaboration, and the promotion of practical solutions for sustainable development.



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