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PARTNERSHIPS FOR THE GOALS



Taipei Tech's High-Value Biomaterials Research and Commercialization Center (HBRCC, or MT3+) on July 26 held an international forum during the 2024 Bio Asia-Taiwan conference. Many renowned biomaterial experts from across the globe attended. Chaired by MT3+ director Fang Hsu-wei, attending experts discussed international collaboration models in biomaterials. The university shared its experiences in industry-academia cooperation, with the goals of strengthening cross-border exchanges and jointly advancing research in biomaterials.

At the event, Taipei Tech and the Institute of Biomedical Engineering and Nanomedicine (IBEN) at Taiwan's National Health Research Institutes (NHRI) jointly signed an agreement to promote academic and talent exchanges and advance technology transfer. Fang, director of Taipei Tech's MT3+, stated that assisting professors in commercializing their findings into products has been a perennial mission at his institution, with successes including patents on an artificial tear solution in Japan and Taiwan. Although biomedicine commercialization is challenging due to regulatory, safety, and efficacy considerations, he hopes this agreement will spark new opportunities in Taiwan's biomaterials field.

Liao Lun-de, IBEN deputy director, said that the NHRI is Taiwan's leading medical and biomedical research institute. The agreement with MT3+ will bring closer collaboration in technical research, talent cultivation, and technology transfer. Liao further stated that the 3P (Public-Private Partnerships) model could be a game changer for academia-industry collaborations, and this agreement with Taipei Tech could see the 3P model in play to drive new momentum in advancing Taiwan's biomaterials industry.

At the forum, professors from Japan, Israel, New Zealand, and Taiwan discussed international collaboration opportunities. Suggestions included joint research papers and patent development between Israel and Taiwan,

Global Experts Chart Course for International Biomaterial Cooperation at Taipei Tech Forum

establishing cross-border educational programs, and participating in global research networks. Japan-Taiwan collaboration could build on existing semiconductor partnerships and expand into biomedical applications through nanotechnology. Experts recommended Taiwan leverage its semiconductor expertise while strengthening its biomanufacturing capabilities to compete with regional leaders. The focus should shift from small-scale industry-academia projects to larger international collaborations in innovative technologies and drug development.

Fang stated that Taipei Tech, with its strong research capabilities and backing from alumni, is well-positioned to advance research commercialization. He added that further improvements in resource integration and market insights are needed to accelerate development and build new Taiwanese brands. Noting that the MT3+ is experienced in technology transfer, Fang said he is looking forward to collating the attending experts' insights and forming closer international collaborations to jointly open new horizons in the global biomedical industries.

Exploring Taiwan's Golden Era: Mining Heritage Exhibition at Taipei Tech



Taipei Tech partnered with the National Archives Administration of the National Development Council (the National Archives) to promote cultural heritage awareness and sustainable development to launch the “Golden Era of Taiwan’s Gold and Copper Mining Industry Portable Exhibition.” Held at Taipei Tech’s Red House until July 22nd, the exhibition highlights rare images and historical records detailing Taiwan’s mining processes, smelting operations, and miners’ lives.

Highlighting Taipei Tech’s Mining Legacy

President Wang Sea-fue emphasized the university’s significant role in Taiwan’s mining history. Established in 1937 as Taipei Industrial School, the mining department later evolved into the Department of Mining and Metallurgical Engineering in 1949 and is now the Department of Materials and Mineral Resources Engineering. Over decades, Taipei Tech has produced numerous professionals who shaped Taiwan’s mining industry, including alumni who contributed to the state-run Taiwan Metal Mining Corporation (TMMC).

Showcasing Archival Treasures

The National Archives described the exhibition as a “time capsule” preserving Taiwan’s rich mining history. Displayed materials include geological maps, engineering blueprints, and photographs documenting TMMC’s operations and the Jinguashi Mine, once Asia’s leading source of precious metals. Initially shown in full at the New Taipei City Gold Museum last year, the exhibition has been adapted into a portable format for broader outreach. Taipei Tech is the first academic institution to host this condensed version, reinforcing its commitment to fostering public appreciation for Taiwan’s industrial heritage.

Promoting Sustainable Cultural Preservation

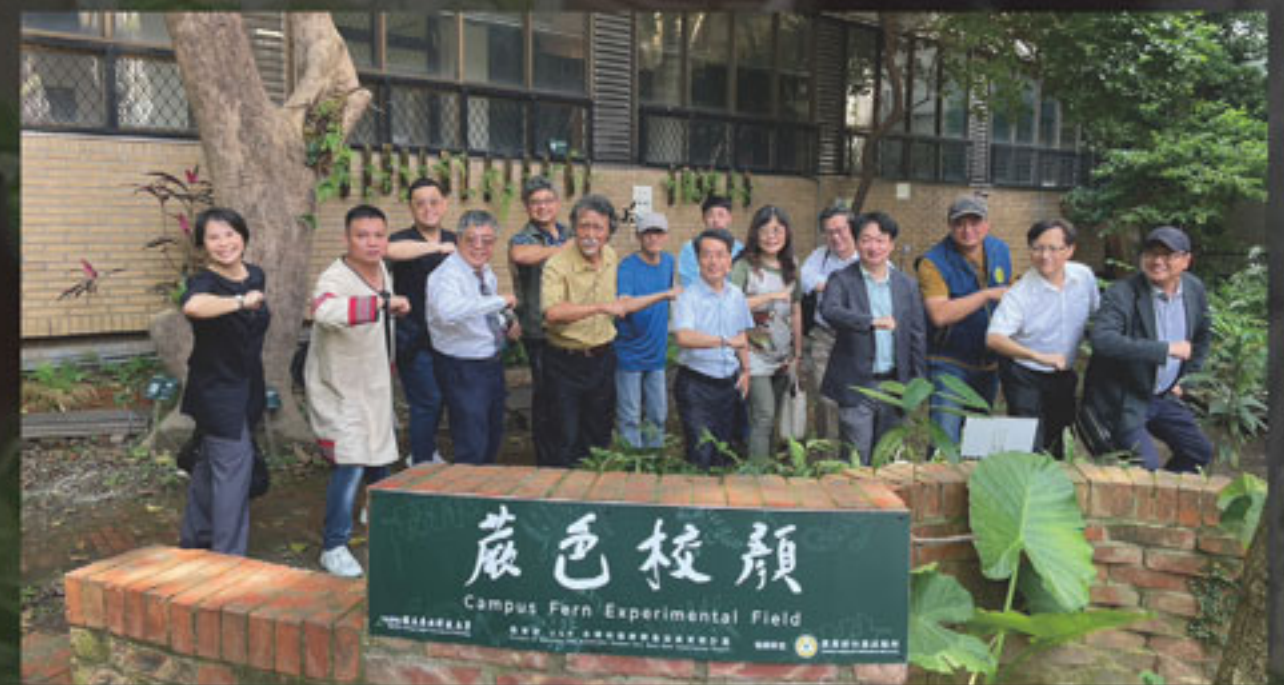
Hu Hsien-lun, Taipei Tech’s Library Director, underscored the significance of the mining archives, which Taiwan’s Bureau of Cultural Heritage recognized in the World Memory National Register. The portable exhibition not only celebrates Taiwan’s mining history but also highlights efforts to preserve cultural memory sustainably. A central theme is Jinguashi Mine, illustrating the balance between mining culture and environmental conservation.

Educational initiatives accompanying the exhibition aim to deepen public understanding of Taiwan’s mining legacy. These efforts encourage students and visitors to connect historical insights with contemporary environmental and cultural challenges, aligning the exhibition with global sustainability objectives like promoting responsible resource management and preserving intangible cultural heritage.

A Collaborative Vision

This partnership between Taipei Tech and the National Archives exemplifies the potential of academia-government collaboration in advancing cultural preservation. By integrating archival preservation with educational outreach, the exhibition supports efforts to protect Taiwan’s industrial heritage and contribute meaningfully to global sustainability goals.

Taipei Tech and Forestry Research Institute Launch Taiwan's First Sustainable Fern Field



To celebrate Earth Day, the Department of Architecture at Taipei Tech collaborated with the Forestry Research Institute of the Ministry of Agriculture to establish Taiwan's first on-campus fern experimental field, "Ferns of Taipei Tech." Under the initiative of Architecture Professor Huang Chih-hung, the project aims to create a sustainable campus gene bank of native Taiwanese ferns using systematic ecological planning, aligning with the United Nations Sustainable Development Goals (SDGs). The initiative enhances biodiversity on Taipei Tech's campus and serves as a progressive model for urban landscape planning. Unlike ornamental plant landscaping, this initiative focuses on propagating native ferns, fostering sustainability by cultivating rare and endangered species donated by various entities.

Highlighting Taipei Tech's Commitment to Sustainability

Chen Chen-cheng, Chair of the Department of Architecture, emphasized Taipei Tech's long-standing dedication to ecological campus development, which began in the 1980s. Over the years, initiatives such as removing campus walls, restoring waterway systems, and constructing the Green Gate have showcased the university's innovative approach to reintroducing biodiversity in an urbanized environment. These efforts, led by figures like former Dean Tsai Ren-huei of the College of Design, have made Taipei Tech a leader in sustainable campus planning, inspiring other universities across Taiwan.

A Practical Model for Urban Sustainability

The fern experimental field enriches campus aesthetics and serves as a research and educational resource. Guided by fern experts, the project explores practical

applications of native Taiwanese ferns in architectural and urban planning designs. The Department of Architecture plans to extend this concept through its USR (University Social Responsibility) project to the indigenous natural landscapes of the Meixi area in Nantou, further promoting ecological restoration and sustainability.

Preserving Taiwan's Rich Biodiversity

Distinguished researcher Huang Yao-mou from the Forestry Research Institute highlighted Taiwan's wealth of fern species, even in urban areas like Taipei. Currently, the campus hosts 62 fern species from 24 families, including contributions from Ren-ai Township in Nantou and the Tengyun community in Taipei's Wanhua District. Excluding two horticultural species, the remaining 60 are native to Taiwan. Ferns are crucial in enhancing urban biodiversity, improving living conditions, and restoring ecological balance. Huang commended Taipei Tech's persistent efforts to integrate ecological concepts into urban design, noting how the vibrant ferns on campus demonstrate the potential for merging natural aesthetics with functional architectural planning.

A Collaborative Vision

Establishing the fern experimental field underscores the potential of academia-government partnerships in promoting biodiversity and sustainable urban planning. By integrating research, education, and community engagement, Taipei Tech and the Forestry Research Institute are advancing innovative approaches to environmental preservation. This initiative strengthens ecological awareness and sets a benchmark for future collaborations in creating greener urban landscapes.

LITEON and Taipei Tech Establish Joint R&D Center Focused on Smart Energy and AI Technologies



On April 17, LITEON Technology Corporation (LITEON) and National Taipei University of Technology (Taipei Tech) announced the opening of the “LITEON-Taipei Tech Joint R&D Center,” marking a milestone in their collaborative research. The center focuses on advanced materials, innovative technologies, and management models in emerging fields such as “smart energy” and “AI technologies.” Collaborations span electrical engineering, electronic engineering, optoelectronics, computer science, and materials science.

Taipei Tech’s Strength in Advanced Research

Taipei Tech is a leader in smart energy, AI research, automation, and talent development. The joint R&D center leverages the strengths and longstanding collaboration between the two parties. The center fosters innovative applications using cutting-edge technologies while implementing advanced talent recruitment strategies.

Taipei Tech President Wang Sea-fue emphasized that the center serves as a platform for technology sharing and management, solidifying a long-term partnership with LITEON. The collaboration promotes interdisciplinary applied research and prepares R&D professionals to integrate academic knowledge with practical applications. This effort aims to drive breakthroughs in emerging industries and address global challenges.

Driving Innovation in Smart Energy and AI Technologies

The center’s “smart energy” initiatives focus on advanced power electronics technologies, including high-performance power design and clean energy management. A smart grid demonstration site on Taipei Tech’s campus supports technical verification and development.

On the “AI technologies” front, the center employs advanced cognitive analysis for driver safety. By utilizing AI-driven image monitoring, the system enhances recognition and decision-making capabilities, improving safety for both drivers and vehicles.

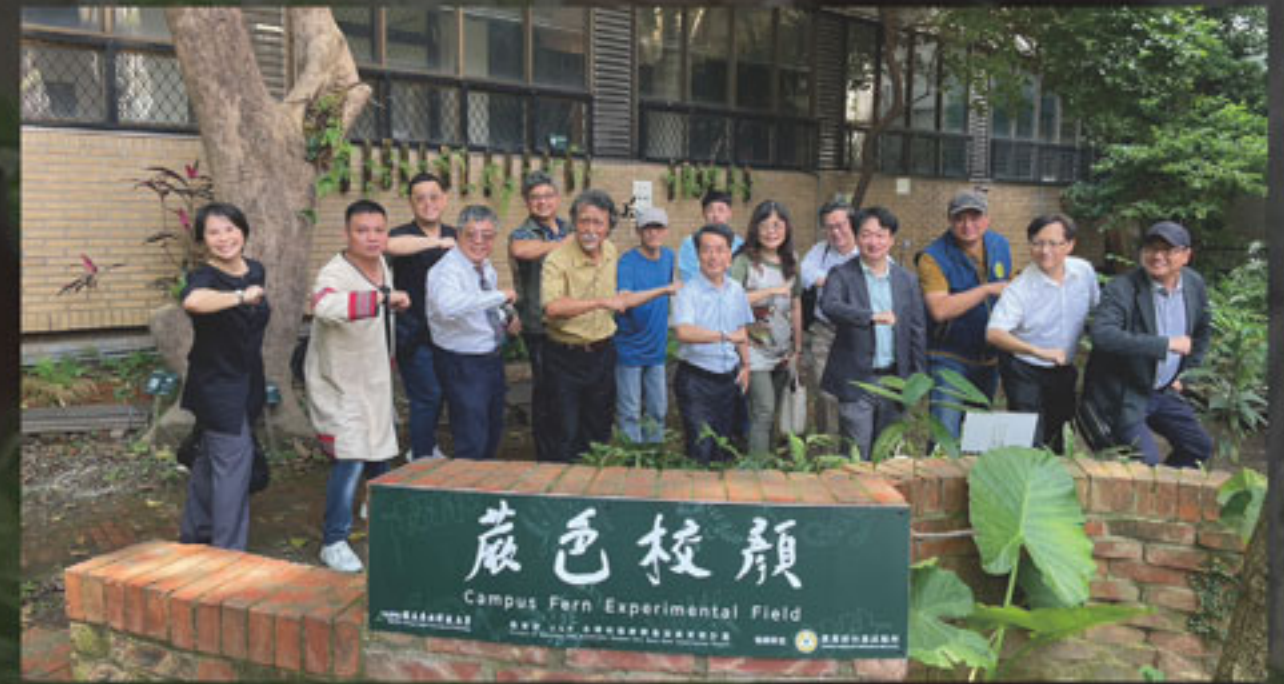
Expanding Collaboration and Knowledge Exchange

Lai Yen-shin, Director of the LITEON-Taipei Tech Joint R&D Center and Chair Professor of Taipei Tech’s Department of Electrical Engineering, highlighted the center’s key roles, including academic publications, patent management, technology transfer, student internships, and international collaborations. Recently, the center invited renowned American scholars for lectures to strengthen global partnerships. These initiatives ensure a robust exchange of knowledge and expertise.

A Collaborative Vision for the Future

The LITEON-Taipei Tech Joint R&D Center exemplifies the potential of industry-academia partnerships to drive technological advancements and tackle global issues. By merging academic innovation with practical applications, the center is well-positioned to lead in smart energy and AI technologies while contributing to sustainable solutions on a global scale.

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Empowering Refugee Children: Taipei Tech and Centre for World Citizens Unite for Innovation



Crossing borders to bring hope to more children! At the invitation of Chen Hsiu-yi, a teacher at Taipei's Xinsheng Elementary School in Taipei, the team of Taipei Tech's USR team for the Wood Culture Rooting Innovation USR Project II has partnered with the Centre for World Citizens for the very first time. Together, they designed woodcraft courses for Syrian refugee children at the summer camp in Turkey. Through these courses, the team hopes to share the art of woodcraft globally and inspire children 7,000 kilometers away.

Project leader Associate Professor Chang Ro-han of Taipei Tech's Department of Industrial Design stated that a spinning top construction kit named "Ever-changing" was devised by Song Jen-ping, a design manager at the Center of Woodwork Technology and Innovation, for this project. design manager Song Jen-ping from the Center of Woodwork Technology and Innovation developed the "Ever-changing" spinning top lesson plan. This construction kit simplifies and redefines reimagines the ways a woodturner is used. s and was taught to teachers at Taipei Tech. The first teacherfirst training session of this kit took place was completed from July 20th to August 10th. Trained volunteers—including university staff, non-Taipei Tech teachersinstructors outside of school, students, and NGO/NPO team members—later brought the teaching planconstruction kit to the Centre for World Citizens, teaching about 100 refugee children during the summer camp.

Since it is nearly impossible to ship everything internationally and local resources are pretty limited, Song developed a "single piece" design. All components are laser-cut onto a thin wooden board, allowing children to break apart and reassemble the pieces during lessons. This approach eliminates the need for woodworking machinery and teaches assembly principles in a hands-on way.

The woodcraft courses simulate real-world woodturning and wood painting. Besides teaching how to assemble a woodturning tablespinning top course, they teach children

how to paint while spinning the tops, introducing drawing methods, color mixing principles, and visual persistence concepts. This offers local children new cultural and craft perspectives, experiencing the meaning and skills of using wood.

"Spinning tops are a universal toy found in many cultures. We hope that through this beloved game, we can help Syrian children explore woodcraft techniques and beauty that can, accompanying them throughout their childhood," said Song. Centre for World Citizens reported that Syrian children especially loved the woodturning and coloring parts of the spinning top education, enjoying watching their colored tops spin and feeling a sense of calm. After the course, Taipei Tech's USR team interacted online with the children, sharing learning experiences and feelings about spinning tops and enriching their lives through woodcraft. Two phases terms of this woodcraft courses have been conducted, with continued efforts planned at the Centre for World Citizens.

Centre for World Citizens reported that Syrian children especially loved the woodturning and coloring parts of the spinning top education, enjoying watching their colored tops spin and feeling a sense of calm. They thanked Taipei Tech and Xinsheng Elementary School for this collaboration, which extended goodwill and provided a special woodcraft experience.

Teacher Chen Hsiu-yi, the teacher from Xinsheng Elementary School, said that last year, Manager Song guided students in painting spinning tops, inspiring her to encourage students to donate their hand-painted tops to Syrian refugees in Turkey. She thanked Manager Song and the Center of Woodwork Technology and Innovation for their support, allowing the children's goodwill and quality courses to extend abroad. After graduating, the two students who donated toys continued enthusiastically engaging in online exchanges with Syrian children, saying, "We didn't expect the toys we donated to have such a big impact; we feel very touched!"

淨零碳排與企業永續中心

Net Zero Carbon Emissions and Corporate Sustainability Center

開幕儀式

SDGs Special Issue



Taipei Tech Launches Net-Zero Carbon Emissions and Corporate Sustainability Center

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AFFORDABLE AND CLEAN ENERGY



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CLIMATE ACTION



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PARTNERSHIPS FOR THE GOALS



Taipei Tech inaugurated its Net-Zero Carbon Emissions and Corporate Sustainability Center on June 28th as part of its commitment to support Taiwan's net-zero transformation and corporate sustainability goals. The event welcomed key industry and government leaders, including Tsai Lin-yi, Director General of the Climate Change Administration, Yang Chih-ching, Director General of the Industrial Development Administration, as well as Corporate Sustainability Officers from Nanya Technology, Acer, and Taiwan Mobile. The event emphasized collaboration among industry, government, and academia to tackle climate challenges and develop talent in corporate net-zero management.

Advancing Sustainability and Net-Zero Goals

Taipei Tech President Wang Sea-fue highlighted the university's commitment to the government's 2050 net-zero emissions goals. Taipei Tech has led initiatives like creating Taiwan's first sponge campus using permeable pavement, ranking first among the best universities in the UI GreenMetric World University rankings for four consecutive years. Over the past decade, the university has completed 300 industry-academia collaboration projects, generating NT\$250 million in energy-saving technologies and sustainable water environment projects.

The new center will act as a platform for corporate ESG (Environmental, Social and Governance) education and net-zero transformation strategies. President Wang said it will also function as a think tank, helping companies implement sustainability initiatives and advance impactful innovation and community engagement.

Addressing Climate Change

Director General Tsai Lin-yi stressed the urgency of addressing global warming, noting that 2023 has been recorded as the hottest year in history. She outlined Taiwan's net-zero strategy, emphasizing technology innovation and a fair transition. Tsai praised the center for training "green-collar" talent and advancing net-zero technologies in line with global climate goals.

Director General Yang Chih-ching added that the Ministry of Economic Affairs is working to unite efforts in carbon reduction and sustainable development. The center will promote innovation, encourage corporate participation, and support government policymaking.

Driving Technological Progress

Professor Allen H. Hu, the center's director, explained his three focus areas: energy-saving technologies, resource circulation and reuse technologies, and corporate net-zero management. The center features Taiwan's only integrated development and testing platform for intelligent cooling and heat pump systems and advanced tools like life cycle assessment (LCA) software.

Over the next five years, the center aims to accelerate the adoption of low-carbon AI and advance research in ICT supply chain/industrial cluster and biodiversity issues, offering pathways to help companies achieve net-zero goals and long-term sustainability.

A Vision for the Future

The center reflects Taipei Tech's leadership in sustainability, bridging education, industry collaboration, and environmental innovation. The university continues to contribute to Taiwan's net-zero transformation and global sustainability efforts by integrating research with real-world solutions.

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