

Taipei Tech Post

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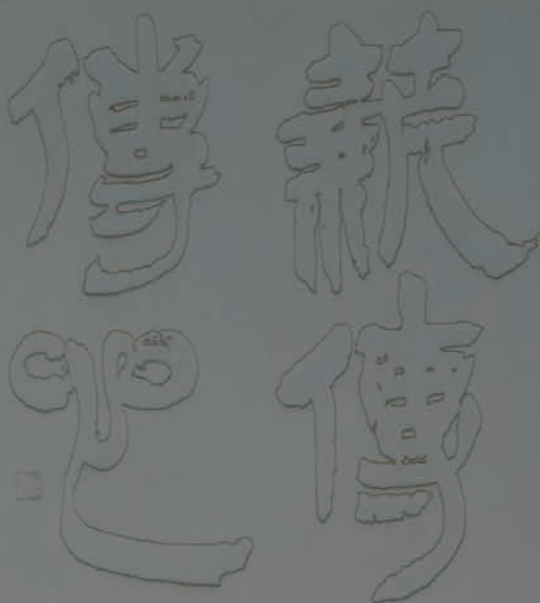
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Taipei Tech Signs Sustainability Agreement, Aiming to Leverage Vocational Education Strengths Towards a Sustainable University

Taipei Tech and the Taiwan Institute for Sustainable Energy (TISE) signed an agreement on the University Sustainable Development Initiative. Through this initiative, Taipei Tech commits to improving university governance, expanding social influence, and building partnerships across various sectors for environmental sustainability, positioning Taipei Tech as a sustainable university.

As a pioneer in environment design, Taipei Tech is the first university in Taiwan to extensively use permeable pavers on campus. This approach not only supports soil and water conservation but also encourages ecological greening. Utilizing civil and environmental engineering techniques, the school has gradually been building a "sponge campus." These efforts led to a National Excellent Construction Award in 2012, and Taipei Tech was ranked first in the high-rise category among world's greenest universities from 2020 to 2023 in the UI GreenMetric.

Taipei Tech President Wang Sea-fue highlighted the importance of instilling the awareness of social responsibility and sustainable development in Taipei Tech students, empowering them to apply professional knowledge using sustainability practices. The agreement between Taipei Tech and TISE demonstrates the university's commitment to sustainable development. Taipei Tech will leverage its vocational education strengths to move towards becoming a sustainable university.

To implement sustainability as a university-wide movement, President Wang mentioned that Taipei Tech has established the Institutional Research and Sustainability Development Center in 2022 to integrate research activities with the practice of social responsibilities. The center plays a critical role in aligning the university's operations with Sustainable Development Goals (SDGs), with an emphasis on water and energy conservation, carbon reduction, and achieving zero waste.

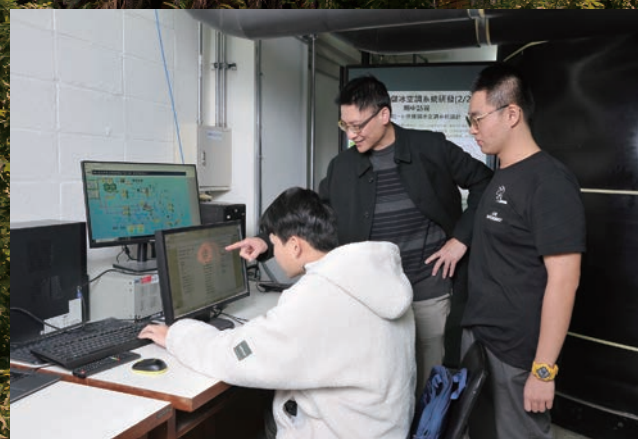
Chairman Chien of TISE noted that Taipei Tech received the Taiwan Sustainable University Award and the University Sustainability Gold Award last year, both from TISE. These accolades recognize the university's strong industry-academia partnerships, professional capabilities, and contributions to DEI (Diversity, Equity, and Inclusion) and heritage preservation. TISE, with a focus on sustainable development goals related to climate change, sustainable energy, and biodiversity, has also established the University Sustainable Development Alliance. This alliance includes Taipei Tech and 64 other universities, enhancing their collective impact on sustainability initiatives.



Taipei Tech President Wang Sea-fue (right) and TISE Chairman Eugene Chien signed the University Sustainable Development Initiative.



Group photo of attendees at the signing ceremony of Taipei Tech's University Sustainable Development Initiative.



The Rapid Response Ice Storage Air Conditioning System, developed by Professor Chien Liang-han (middle) from the Department of Energy and Refrigerating Air-Conditioning Engineering, is installed in Taipei Tech's library to reduce energy consumption.



President Wang Sea-fue of Taipei Tech (center) attended the UTA graduation ceremony and led students on a visit to AT&T

Taipei Tech, the University of Texas at Arlington Team Up to Offer Dual Master's Degrees, Allowing Students to Earn U.S. Degree Without Going Abroad

Taipei Tech is working with the University of Texas at Arlington (UTA) to offer two dual master's degree programs starting in Fall 2024. The two programs—Executive MBA (EMBA) and Executive MBA in AI and Big Data—make Taipei Tech the only Taiwanese university to offer two dual degree EMBA programs concurrently.

According to Taipei Tech Office of Continuing Education, courses in both of these programs will be conducted in-person at Taipei Tech, allowing students the access to high-quality education at a reduced cost and without the need to go abroad. Both Taipei Tech and UTA professors will give lectures, which will be recorded for reviewing online. The program is open to applicants who have had at least five years of working experience.

UTA is ranked 31st among U.S. public universities according to QS World University Rankings, and its MBA program also has high global ranking. The QS rankings have also reported that UTA EMBA students have solid background and extensive experience, placing them 2nd among U.S. universities.

Liou Jiann-haw, director of the Office of Continuing Education, said that Taipei Tech is known as the “birthplace of future entrepreneurs” and emphasizes both theory and practice in teaching. The dual degree EMBA programs at Taipei Tech have dedicated staff to provide support. Taipei Tech also communicates directly with UTA to ensure consistency and quality in admission interviews, course scheduling, and teaching support.

Students who enroll in the dual degree EMBA program must complete a minimum of 42 credits (24 from Taipei Tech and 18 from UTA) to earn EMBA degrees from both universities. Students of the EMBA in AI and Big Data program need to complete a minimum of 48 credits (30 from Taipei Tech and 18 from UTA) to earn a Taipei Tech M.Sc. degree and a UTA EMBA degree. Taipei Tech will issue the diploma on behalf of UTA.

The dual degree programs bring top international EMBA resources to students. Liou is confident that these programs will offer students a broader global perspective and enhance their career competitiveness.



The Taipei Tech-UTA dual-degree program class of 2023 posed for a photo on Taipei Tech campus



All courses in the Taipei Tech-UTA international dual-degree master's program are conducted on the Taipei Tech campus



Daniel Himarios, Vice President of UTA (front row, third from the right), visited Taipei Tech in 2023

Fostering Future Green Leaders: Taipei Tech and Kyutech's 2024 Workshop on Sustainable Urban Development

Taipei Tech and Japan's Kyushu Institute of Technology (Kyutech) held the 2024 Sustainable Urban Development International Exchange Workshop, organized by Taipei Tech's Office of Research and Development and Research Center of Energy Conservation (RCEC) for New Generation of Residential, Commercial, and Industrial Sectors. A total of 26 freshmen and sophomores from Kyutech School of Engineering, majoring in mechanical, chemical, electrical, electronic, civil, and energy engineering, as well as architecture, collaborated and exchanged ideas with 29 Taipei Tech students.

Students from both schools engaged in cross-disciplinary learning, acting as urban observers to find sustainable urban innovations that can be applied in Taipei. They explored innovative concepts such as geothermal power generation and electricity-generating sidewalks. This exercise helped foster green thinking in these students.

Taipei Tech stated that the group visiting Beitou observed the relatively underdeveloped geothermal power generation in Taiwan compared to Japan. They proposed a plan to introduce geothermal power generation to Beitou while revitalizing the local economy and tourism. This concept earned them the "Best Practice Award." The group visiting Jiufen drew inspiration from the abundant tourist traffic. Their proposal started out as electricity-generating sidewalks and progressed to the more feasible piezoelectric roads, earning them the "Best Sustainability Award." Another group proposed an improved wide-body elevated bus, with the goal of promoting electric bus while alleviating traffic congestion for commuters. This earned them the "Best Creativity Award."

Taipei Tech Dean of Office of Research and Development, Chuang Ho-chiao, encouraged all participating students to seize this opportunity to improve their English communication skills and expand their international networks. He also inspired everyone to use their professional knowledge and diverse perspectives to foster creativity, engage in comprehensive communication with teammates, and propose effective solutions for urban sustainability.

Taipei Tech Director for RCEC and Dean of the College of Mechanical and Electrical Engineering, Chien Liang-han, pointed out that the workshop aimed to strengthen cross-disciplinary cooperation between Taiwanese and Japanese students. The workshop allowed students the opportunity to think about ways of implementing concepts such as renewable energy, waste management, recyclable containers, Internet of Things (IoT), and sustainable transportation in various urban spaces like old streets, historical sites, transportation facilities, and pedestrian paths.

The event organizer Assistant Professor Juan Yu-hsuan, of Taipei Tech Department of Mechanical Engineering, indicated that more than half of the participants are engineering majors. During the workshop, participants practiced design thinking and brainstorming with peers from different disciplines to tackle real-world problems. Take waste management for example, students discussed the issue from the perspectives of available technologies, existing policies, educational approaches, and regional and national differences. The workshop planted potential opportunities for future international collaboration on sustainability and connected budding, cross-domain engineers in green technologies.



Students of the Taipei Tech-Kyutech workshop toured Taipei Tech's green campus architecture



Students of the Taipei Tech-Kyutech workshop toured Taipei Tech's urban wind energy generation facilities

Taipei Tech to Foster Next-gen Semiconductor Talent with New Master's Program, a First Among Technological Universities

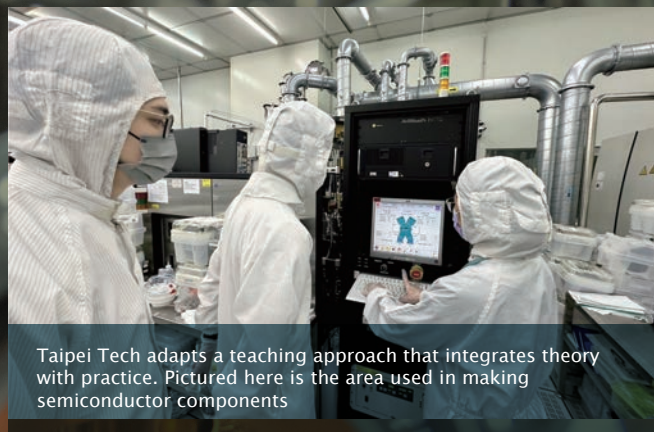
Students enrolled in the Taipei Tech-TSMC co-taught Advanced Technologies and Equipment for Integrated Circuit Processes course visiting TSMC's wafer fabrication facilities

To meet talent demand of the semiconductor industry, Taipei Tech's Innovation Frontier Institute of Research for Science and Technology (iFirst) will be starting the Semiconductor Technology Master's Degree Program in Fall 2024. iFIRST is one of the six semiconductor-oriented colleges approved by Taiwan's Ministry of Education and the only one affiliated with a technological university. The program will be enrolling 30 domestic students and 10 international students. The research areas will include material processing, equipment operations, and integrated circuit design, among others. The program aims to greatly increase the number of talented engineers working in semiconductor, one of Taiwan's key industries.

Taipei Tech President Wang Sea-fue pointed out that the International Data Cooperation (IDC) estimated double digit growth in the number of semiconductor wafer foundry (commonly known as a fab) in 2024, and there will be an increased demand of advanced processes, the primary driving force of the semiconductor industry chain. Taipei Tech will be working with companies such as TSMC, Infineon, MediaTek, Hua Jing, and Yisheng for its Semiconductor Technology Master's Degree Program via industry-academia cooperation. The institution also boasts a network of alumni companies, including Richtek, Yangji, and Senho. Taipei Tech looks to foster more outstanding semiconductor talent through a teaching approach that integrates theory with practice.

Wang further noted that Taipei Tech has been a significant player in semiconductor industry for many years. The school established the Semiconductor Technology Program in 1998 and, in cooperation with TSMC, started the Semiconductor Equipment Industry Program in 2020. The latter program, co-designed and taught by TSMC managers, provides students not only guaranteed interview opportunities but also the potential for higher starting salaries upon completion. This program is also the first of its kind to offer a curriculum that is complemented by visits and internships at TSMC, providing students with the most solid semiconductor knowledge and practical training.

The new Semiconductor Technology Master's Degree Program is divided into three groups. The Material Processing Group focuses on semiconductor device technology, integrated circuit process development, key materials, and processes. The Equipment Operations Group focuses on semiconductor equipment and key components, cleanroom contamination control of nanoparticles and chemical pollutants, and pollution control of automatic wafer handling equipment. Lastly, the Integrated Circuit Design Group



Taipei Tech adapts a teaching approach that integrates theory with practice. Pictured here is the area used in making semiconductor components

focuses on analog, digital, and radio frequency integrated circuit design, as well as semiconductor device design.

Chen Chin-sheng, Dean of iFirst, noted that students are encouraged to take cross-group courses. "We hope to help students establish a macro understanding on industry practices and cultivate team cooperation abilities in both horizontal communication and vertical integration," said Chen. In addition, the new master's program is taught only in English to increase international job prospects of its graduates.

Tan Tan-hsu, Director of the Talent Development Center of iFirst, stated that being pragmatic, meticulous, and resilient, as well as bearing engineer ethics and integrity, are the qualities suitable for the Semiconductor Technology Master's Degree Program. Taipei Tech sincerely welcomes students who have a strong interest in the semiconductor, enthusiasm for research, a good foundation in physics and chemistry, engineering backgrounds, and programming skills to apply for this program.

Tseng Shih-feng, the director of the Semiconductor Technology Master's Degree Program, shared that Taipei Tech has been collaborating on research projects with TSMC for over four years. To strengthen the effect of industry-academia cooperation, a two-month internship is specially arranged during the summer vacation, allowing students to participate in solving practical issues on the production line.



Distinguished Professor Sung Yu-chi of Civil Engineering Received the National Industry-University Collaboration Master Award

On March 18th, Dr. Sung Yu-chi, Distinguished Professor of civil engineering at Taipei Tech, was honored with the 6th National Industry-University Collaboration Master Award by the Ministry of Education. His seminal work on the Seismic Capacity Assessment System for Buildings has been used by almost all structural engineers, civil engineers, and architects in Taiwan. His expertise in architectural engineering, bridge engineering, earthquake engineering, and the application of AI in structural engineering has significantly contributed to government initiatives to rebuild hazardous and old buildings and accelerate urban renewal.

In recent years, Dr. Sung has also led the Offshore Wind Engineering Research Center at Taipei Tech to develop technical standards for offshore wind engineering designs for the government. Additionally, he has developed wind turbine support structure analysis software that reduces the calculating time from 13.5 hours to just ten seconds, significantly reducing the time cost and greatly improving overall analysis efficiency. Foreign developers have already expressed interest in this software for technical collaboration.

Since obtaining certification for his Seismic Capacity Assessment System for Buildings from the National Land Management Agency in 2008, Dr. Sung further improved on it and, in 2014, rolled out the PSERCB system that was designed to give preliminary assessment of seismic resistance in reinforced concrete buildings based on statistics. Based on the numbers collected from over twenty thousand buildings, the PSERCB system utilizes AI to provide preliminary assessment on the seismic resistance of hundreds of thousands of buildings that have not undergone official assessment.

Dr. Sung stated that a good preliminary seismic assessment serves as the basis for structure reinforcement and reconstruction discussions. By proactively identifying and addressing potential vulnerabilities, these discussions can guide the implementation of safety improvements. Ultimately, such enhancements can lead to reduced casualties in the event of an earthquake. With a large dataset, the government can also properly formulate disaster-prevention strategies.

Furthermore, Dr. Sung has held various positions such as a member of the Executive Yuan's Public Construction Commission and a team leader of the National Center for Research on Earthquake



Professor Sung (center) posed for a photo with the Offshore Wind Engineering Research Center team



Professor Sung (right) is the nation's leading expert in seismic assessment and bridge design, and has played a pivotal role in Taiwan's wind power industry, earning him this year's National Industry-University Collaboration Master Award

Engineering, assisting in the reviews of major projects and solving engineering disaster problems. His team's research on precast bridge pier construction methods won the Lin Tung-yen Award from the American Society of Civil Engineers (ASCE) in 2019, the only award-winning Taiwanese team since the award's establishment over half a century ago. He personally received the Outstanding Contribution Award for Civil Engineering Education from the Chinese Union of Professional Civil Engineers Association in 2022; and was elected as a Board Director of the Chinese Institute of Engineers in 2023. Both institutions are based in Taiwan.

Dr. Sung previously worked at China Engineering Consultants, Inc. for eleven years, where he participated in the design of various projects such as the Gaoping River cable-stayed bridge in Kaohsiung, the Taipei Civic Boulevard viaduct, Zhengqi Bridge, First MacArthur Bridge, and Zhumei Expressway. The latter four are all located in Taipei. While working fully-time as an engineer, he also taught part-time at Taipei Tech. With full support from his wife, he pursued a full-time doctoral degree and, under the guidance of Professor Tsai I-chau at National Taiwan University, completed his doctorate in three years at the age of 39. He then returned to the Department of Civil Engineering at Taipei Tech as a faculty member. His family was with him in the award ceremony.

Taipei Tech Leads with Most Awards in MOE's Teaching Excellence Program: Seven Projects Honored

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Taipei Tech leads with most awards in MOE's teaching excellence program. Vice President Yang Shih-hsuan (fourth from the left) posed with the seven award-winning faculty members at the ceremony

To implement teaching innovation and strengthen learning effectiveness in universities, the Ministry of Education (MOE) has been awarding teaching research projects through the Teaching Practice Research Program. On March 7, 2024, the ministry honored 154 outstanding projects at its annual award ceremony. Notably, seven projects from Taipei Tech faculty received awards, the highest number among participating institutions, highlighting the university's strong commitment to teaching excellence.

Vice President Yang Shih-hsuan of Taipei Tech stated that the MOE approved a total of 1,616 teaching practice research projects for 2022. After a strict review, only 9.5% were selected as outstanding projects, characterized by their complete research results and high reference value. Among Taipei Tech's 32 projects, seven were selected as outstanding. Over the past seven years, Taipei Tech has seen a steady increase in project applications, approvals, and approval rates. Yang thanked the faculty for their ongoing dedication and for sharing their successful teaching strategies.

Associate Professor Hsu Hsiao-hsuan of the Department of Materials and Mineral Resources Engineering, two-time outstanding project award recipient and last year's IET Outstanding Teaching Award winner, teaches the Physics of Silicon Nanodevices course, an integral part of Taipei Tech's Semiconductor Program and Semiconductor Process Micro Program. Observing that students often lack practical experience, she combines the BOPPPS pedagogy with problem-based learning (PBL) approach, allowing students the opportunity to solve real-world problems while practicing machine operation. This method encourages students to think critically and apply knowledge in a cross-domain manner-skills highly valued in the semiconductor industry.



Professor Lin Shu-ling from the Department of Information and Finance Management, also a two-time award recipient, has enhanced the learning effectiveness of the Financial Management and Information Application course by adapting her teaching methods to fit various student learning styles, such as "sprinters" and "strollers." She applies scaffolding theory for tailored instruction and uses her patented Intelligent Financial Investment Decision Analysis app to turn learning about financial statements into an interactive game. Additionally, Lin has developed 360°

panoramic VR teaching materials that simulate the environment of a corporate shareholder meeting, providing students with an immersive experience to explore issues in corporate governance.



First-time award recipient, Professor Shiao Yaojung from the Department of Vehicle Engineering, has creatively integrated European rally racing scenarios into a freshman programming course. Through building miniature racing cars and programming the motor mechanism, he helps students understand programming concepts and their applications in real-life situations. Shiao also uses the Socratic tool to continually refining the course content based on student feedback. The course has been well-received, with students appreciating its practical approach to teaching programming.



This year's awards also recognized other outstanding Taipei Tech faculty members. Professor Wang Hung-hsiang from the Department of Industrial Design, who has won the award three times, incorporates the Weka machine learning tool to enhance students' motivation and computational thinking in product design. Associate Professor Li Shih-yu from the Graduate Institute of Manufacturing Technology integrates themed teaching into the computer programming course in the mechanical engineering program. Associate Professor Lin Chien-chou from the General Education Center introduces computational thinking into calculus teaching, helping students develop algorithmic skills. Additionally, Associate Professor Chang Ro-han from the Department of Industrial Design took students to Taichung Fengyuan for interdisciplinary USR woodcraft project, shaping students' local awareness and collaborative skills.

Global Views Monthly 2024 Enterprises' Favorite University Students Survey: Taipei Tech Takes the Second Place, Leading Vocational Schools

According to the latest 2024 Enterprises' Favorite University Students Survey released by *Global Views Monthly*, National Cheng Kung University (NCKU) continues to top the list, while Taipei Tech has replaced National Taiwan University of Science and Technology (Taiwan Tech) to become the runner-up and also clinched the top spot among vocational universities. The fourth and fifth places are held by National Taiwan University and National Tsing Hua University respectively, while National Kaohsiung University of Science and Technology has progressed by two places to secure the sixth spot.

Students' acquisition of practical knowledge and applicable skills has become the benchmark in evaluating university teaching quality across various sectors. Students, parents, and even schools increasingly attach more importance to feedback from the business world. Therefore, an indicator that reflects student learning outcomes from the perspective of employers is crucial for prospective students. Consequently, *Global Views Monthly's* continuous Enterprises' Favorite University Students Survey has gained significant importance over the years.

In the 2024 survey, the Research and Survey Center at *Global Views Monthly* invited 2,579 organizations to participate. They included listed companies, firms with a capital exceeding NT\$100 million, and regional hospitals and medical centers with more than 300 beds. A total of 659 completed questionnaires were collected.

There has also been a change to the seventh place in this year's survey. Feng Chia University not only took the seventh place but also secured the top spot among private universities, advancing three places from last year, and pushed National Chengchi University to the eighth place. Additionally, Fu Jen Catholic University and National Central University entered the top ten, ranking ninth and tenth respectively. The top private technical university was Longhua University of Science and Technology, ranking 26th.

In terms of regional rankings, universities with the most preferred graduates in northern Taiwan are Taipei Tech, Taiwan Tech, and National Taiwan University. In central Taiwan, Feng Chia University, National Yunlin University of Science and Technology, and Tunghai University take the top three spots, while National Cheng Kung University, National Kaohsiung University of Science and Technology, and National Sun Yat-sen University are the top in southern Taiwan. In eastern Taiwan and outlying islands, graduates from National Ilan University, National Dong Hwa University, and Tzu Chi University of Science and Technology are more preferred.

Different types of companies also have different preferences for fresh graduates. Unlike publicly listed companies that prefer NCKU graduates, non-publicly listed companies prefer Taipei Tech graduates. Healthcare institutions favor graduates from National Taipei University of Nursing and Health Sciences, Chang Gung University of Science and Technology, and Chia Nan University of Pharmacy and Science. The information technology industry also favors graduates from Taipei Tech and Taiwan Tech over graduates from NCKU, National Tsing Hua University, National Taiwan University, and National Yang Ming Chiao Tung University. However, traditional manufacturing industries prefer graduates from NCKU.