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Taipei Tech Post

National Taipei University of Technology





Introducing Woodcraft Education to Elementary Schools: Taipei Tech's Efforts to Enhance Cultural Awareness and Sustainable Development

In an effort to promote University Social Responsibility (USR), Taipei Tech has initiated the Woodcraft Cultural Legacy Renewal Project, which seeks to revitalize the woodworking industry, preserve woodworking craftsmanship, and facilitate woodcraft education. To present the work done by various education institutes under this project, Taipei Tech held the Woodcraft Design and Education Exhibition in July 2022.

Taipei Tech worked with many schools for this exhibition, including the Affiliated Experimental Elementary School of National Chengchi University, Xinsheng Elementary School, Lishan Elementary School, Wugong Elementary School, Jingxing Elementary School, and Kelin Elementary School. In addition to the many projects and creations made by designers, teachers, and students from these schools, the exhibition also showcased the works of many woodcraft masters. It also featured traditional woodcraft techniques, such as wood identification, inlay, lathe, taotai, scroll saw, and wood carving.

To let elementary students experience traditional woodcraft techniques, Taipei Tech Vice President Yang Shih-hsuan explained, a team from Taipei Tech has built customized tools. Led by Professor Chang Ro-han from the Department of Industrial Design, the team from Taipei Tech Center of Woodwork Technology and Innovation created customized teaching materials and tools for woodcraft skills that are safe and enjoyable for elementary students.

In addition to the traditional woodcraft techniques, the exhibition also showcased various educational materials. For instance, videos on woodcraft knowledge created by Taipei Tech's faculty and students in the Innovation and Design Master program were displayed. Moreover, the exhibition



Woodcraft works by the students of Kelin Elementary School

featured a series of educational animations developed by the faculty and students of National Taichung University of Science and Technology in collaboration with the Taiwan Forestry Bureau.

According to Thomas C.K. Yang, Taipei Tech Vice President and Deputy Director of the Institutional Research and Sustainability Development Center, the Woodcraft Cultural Legacy Renewal Project seeks to establish cross-generational and cross-disciplinary collaborations to promote traditional woodcraft culture. By introducing woodcraft education and skills to elementary school students, the project aims to strengthen their cultural awareness and aesthetic literacy, fostering a deeper appreciation for traditional crafts.

Eco-friendly Oyster Shell Brick Earns Certification

Article courtesy Taipei Times (Staff writer, with CNA)

An eco-friendly brick made from oyster shells and furnace slag that was the brainchild of academics at National Taipei University of Technology has earned Cradle to Cradle (C2C) certification for being safe, circular and responsibly made.

The brick was an innovation of Shao Wen-cheng, a lecturer in the university's Innovative Green Building Materials Research and Promotion Center, and Cheng Ta-wui and Lee Wei-hao, who teach in the Institute of Mineral Resources Engineering, the university said in a news release on Friday.

They mix powdered oyster shells, slag from a steel plant's blast furnace and lye, and put the mixture in a mold to produce the bricks, the research team said.

It is one of the first times anywhere in the world that a patented university product has gained C2C certification, the university said.

During a visit to Makung Junior High School in Penghu County in 2019 to raise awareness of circular economy concepts, Shao discovered piles of oyster shells abandoned by local oyster farmers outside the campus, he told reporters in a telephone interview.

Chuang hao-chih (莊浩志), the junior-high school's director of general affairs who was guiding Shao during his visit, said that the shells were trash, but the professor saw value in them, Shao said.

"To me, those shells were not garbage. They were actually building materials," he said.

To demonstrate how the circular economy works, Shao asked Chuang to send him the shells, from which the team made bricks and sent them back to Chuang to use at the school.

Shao had other bricks from the project evaluated by organizations that specialize in sustainability, including the Green Building Materials Mark and the Taiwan branch of the Environmental Protection Encouragement Agency.

It was their positive feedback and the support of Kuo Yang



Construction that encouraged the team to apply for top-tier C2C certification, he said.

C2C assesses the safety, circularity and responsible use of materials across five categories: Material health, product circularity, clean air and climate protection, water and soil stewardship, and social fairness, the Cradle to Cradle Products Innovation Institute's Web site says.

The brick was awarded a bronze label, the fourth-highest on a five-tier scale of overall circularity.

Compared with conventional bricks, which require a lot of electricity in a process that is carbon emissions heavy, the shell brick stood out because it takes much less water, power and carbon to produce, the team said.

A downside is that the shell brick costs more than a standard brick to produce, but the team said the cost gap would narrow if it is mass produced.

Taiwan produces more than 100,000 tonnes of waste oyster shells a year that could be used to make the eco-friendly bricks, the university said.



Students Work with Local Historians to Make Documentary of Coal Mining Town

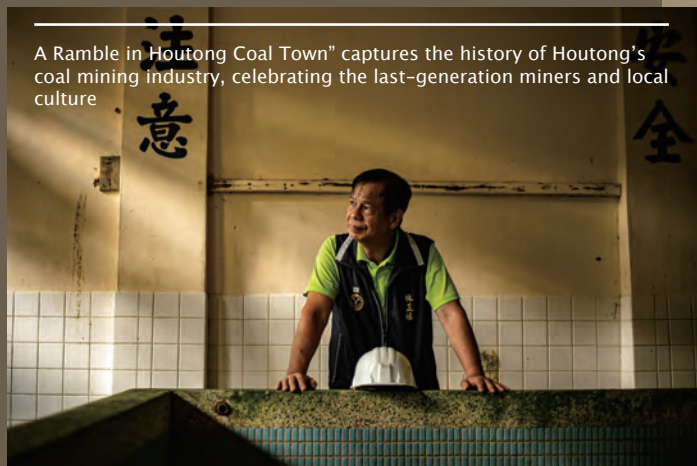
Houtong is now known as the “cat village” by tourists, but it was originally a small coal mining town. Taipei Tech General Education Center worked with Houtong Kuanggong Historical Museum and New Taipei City Gold Museum to hold the screening of the documentary, “A Ramble in Houtong Coal Town” on August 14. The documentary captures the history of Houtong’s coal mining industry, celebrating the last-generation miners and local culture.

The founder of Houtong Kuanggong Historical Museum and a former miner, Chao Zhou-nan, pointed out that it is a meaningful thing for old miners to disseminate the forgotten history of coal mining industry through video. “We are truly grateful for the students and teachers of Taipei Tech who help to film and preserve our story,” said Chao.

Yang Shih-hsuan, Vice President of Taipei Tech, noted that National Taipei Institute of Technology, the predecessor of Taipei Tech, was the most prestigious school with the subject of mining engineering. In 2021, Taipei Tech started to work with the Kuanggong Historical Museum through the University Social Responsibility (USR) project to implement film documentation on Houtong’s coal mining industry and workers’ life stories.

Cheng Yi-wen, professor of Taipei Tech General Education Center, mentioned that the project lasted for three semesters, aiming to document the history through three different perspectives: “tools”, “workers’ life,” and “coal mine landscape.”

“A Ramble in Houtong Coal Town” captures the history of Houtong’s coal mining industry, celebrating the last-generation miners and local culture



Twenty students from six different colleges worked closely with the Historical Museum to create the film that documents the lives of coal mine workers.

Chiu Chin-wei, student of the Department of Architecture who participated in the project, indicated that the process of making the documentary was inspiring and meaningful. “I am truly happy to do something that gives back to the society,” said Chiu, “and it is a heart-warming experience to receive gratitude and feedback from the elderly coal mine workers.”

After the initial screening, Shengping Theater of New Taipei City Gold Museum will continue to play the documentary regularly until the end of September.

“A Ramble in Houtong Coal Town” (猴硐煤鄉漫遊) trailer:
<https://youtu.be/hgQrtqWj5C8>



Taipei Tech General Education Center worked with Houtong Kuanggong Historical Museum and New Taipei City Gold Museum to hold the screening of the documentary, “A Ramble in Houtong Coal Town” on August 14

Revitalizing Tradition, Addressing Social Issues: Taipei Tech Graduates Present Innovative Artworks



Huang Pei-rong redesigned traditional Hanfu clothing by incorporating local elements



Li Ruei-syuan and Yang Huei-shin breathed new life into the traditional "Wind Lion God" with their contemporary approach using pixel art and metallic painting



Shen Ting-ni and Su Yin-wen designed an installation art that reflects the state of "burnout"

From December 23-31, 2022, the Taipei Tech Arts and Cultural Center hosted an exhibition of graduation projects by the Department of Cultural Vocation Development graduates. Titled "Hello, This is the Island Speaking," the exhibition featured thirty unique artworks that reflected the graduates' perspectives on local history and cultural issues. The exhibition then moved to Nishi Honganji Square from January 5-15, 2023, offering a broader audience the opportunity to appreciate the graduates' talents and creative expressions.

According to Taipei Tech's Vice President, Thomas C.K. Yang, the graduates have faced great challenges due to COVID-19 for the past two years. However, this exhibition shows their determination to emerge from cocoon and reach out to the world. "We can see how the graduates are trying to preserve local culture, address social issues, and promote sustainability through their unique perspectives and creations," said Yang.

Wu Hsin-yi, a professor in the Department of Cultural Vocation Development and advisor to the exhibition, stated that the exhibition has three key creative directions. The first direction explores Taiwan's history and the revitalization of its traditional arts. The second direction examines local stories, exploring new possibilities for innovation. The third direction delves into contemporary social problems and proposes solutions. Wu also noted that six projects from the exhibition have been awarded funding from the National Science and Technology Council.

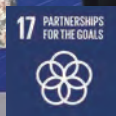
Li Ruei-syuan and Yang Huei-shin, both natives of Kinmen, share a common bond with the island's cultural heritage, particularly the Wind Lion God. Recognizing the scarcity of historical materials on this local symbol, Li and Yang decided to present the Wind Lion God in a contemporary way. They used pixel art and metallic painting to create their unique representations of the Wind Lion God, with the hope of passing on the history and stories associated with this guardian figure to future generations.

Shen Ting-ni and Su Yin-wen designed an installation art piece that reflects the state of "burnout." Burnout is an occupational phenomenon that modern people frequently experience, leading to emotional exhaustion and disconnection from work and life. To interpret the concept of burnout, Shen and Su utilized the Möbius strip to symbolize being stuck in an endless loop, reflecting the vicious cycle of exhaustion and lack of motivation that individuals with burnout often experience. Additionally, they created a stress-relieving product designed to reduce anxiety and generate positive emotions. Their work highlights the importance of addressing burnout and promoting mental well-being in today's fast-paced world.

The exhibition featured various other innovative projects, such as the revitalization of traditional Hanfu clothing, the creation of furniture from repurposed marine debris, and an augmented reality (AR) experience that showcased the traditional U-shaped courtyard homes of Taiwan, known as "Sanheyuan."



主 辦 位：

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Bureau of Standards, Metrology and Inspection, M.O.E.A.TAIPEI 國立科技大學
TECH National University of Technology

New Offshore Wind Power Research Center to Accelerate Green Technology

To accelerate the technological development and certificate program implementation of offshore wind power in Taiwan, Taipei Tech launched a new Offshore Wind Power Research Center on August 23. Shen Jong-chin, Vice Premier of the Executive Yuan, recorded a remark for the opening ceremony. Hsieh Han-Chang, Deputy Director of the Bureau of Standards, Metrology and Inspection (BSMI) of the Ministry of Economic Affairs, together with representatives from international offshore wind power developer, manufacturer, third-party inspection companies, and engineering consulting companies also joined the ceremony.

Vice Premier Shen noted that Taiwan's goal is to raise its offshore wind power capacity to 5.7 gigawatts (GW) by 2025, which will yield 21.5 billion kilowatt-hours of clean, home-grown energy each year and cut carbon emissions by 11.92 million metric tons annually. Shen further commended Taipei Tech's role in assisting BSMI to stipulate site survey and designing technical regulations for offshore wind power since 2020.

Deputy Director Hsieh also expressed his appreciation for Taipei Tech's effort in coordinating and conducting various projects including site survey, engineering, construction, and policy-

making. "To battle against climate change that can seriously affect our lives," said Hsieh, "offshore wind power is an effective approach to achieve energy conservation and carbon reduction."

Yang Shih-hsuan, Vice President of Taipei Tech, mentioned that the newly-established center combines the expertise of Taipei Tech's Colleges of Engineering, Mechanical and Electrical Engineering, and Electrical Engineering and Computer Science, aiming to expedite the process of offshore wind power industry taking root in Taiwan.

Sung Yu-chi, Director of the Offshore Wind Power Research Center, indicated that the center is currently conducting multiple major projects in relation to weather assessment and support structures for wind turbines. "We have also published the latest research results on hot spot stress analysis for welded tubular joint in offshore jacket structure in the Ocean Engineering journal this May. The research suggests a new method in supporting an offshore wind turbine that is cost effective and helps reduce overall design time," said Sung.



Shen Jong-chin, Vice Premier of the Executive Yuan, recorded a remark for the opening ceremony

宋恭源獎學金—國立臺北科技大學

2022啟動記者會

SDGs Special Report

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• 宋恭源教育基金會

宋恭源獎學金計畫合作備忘錄

王錫福

國立臺北科技大學校長 王錫福

宋恭源

光寶集團董事長暨光寶科技創辦人 宋恭源



Taipei Tech and the Soong Kung-yuan Education Foundation announced the creation of the “Soong Kung-yuan Scholarship” at a ceremony on October 31. The scholarship will provide 18.66 million NTD annually to economically disadvantaged students at Taipei Tech.

Soong Kung-yuan, who holds an honorary doctorate from Taipei Tech and who founded Lite-On Technology, remembered his childhood as the oldest son and grandson in his family. “I had to work and contribute to the family finances when I was only ten years old,” he said. After he enrolled at the National Taipei Institute of Technology (the predecessor of Taipei Tech) and moved to Taipei City, it was a transformative experience for him. He graduated at the top of his class, and his parents realized that education was the key to changing the fate of their family.

Soong emphasized that talented individuals are Taiwan’s future. “For decades, we have had many wonderful teachers who have provided an excellent education to students, many of whom have made significant contributions to the society,” he said. “They have helped make Taiwan the well-known tech island it is today.” Recognizing that it can be difficult for some people to afford higher education, Soong decided to set up a scholarship to help more students.

Wang Sea-fue, Taipei Tech President, indicated that starting from 2022, \$18.66 million NTD will be provided each year to support forty economically disadvantaged and high-potential students at Taipei Tech. “This is the highest amount of scholarship fund given to undergraduate programs in Taipei Tech,” said Wang, “and I believe it will greatly help many students.”

Wang further noted that to manage the Soong Kung-yuan Scholarship, there is also a counseling system established to award the teachers who provide extra guidance and encouragement to the students. “It is our hope that the students who have received the scholarship can support each other like family members and pay it forward in the future,” said Wang.

Soong Kung-yuan Education Foundation Announces \$18.66 Million in Scholarships for Economically Disadvantaged Students at Taipei Tech



EVAN 2, Medical App Project of Taipei Tech and NTU Hospital, Wins 2022 iF Design Award

EEVAN 2, a professional anesthesia assessment app developed by Taipei Tech in collaboration with National Taiwan University Hospital (NTUH), was awarded the 2022 iF Design Award. It is Taiwan's first iF Design Award that sees the collaboration between a university and a hospital, and the first iF Design Award for NTUH.

Anesthesiologists must accurately assess a patient's condition in order to develop a customized program that provides the best anesthesia care to surgical patients. NTUH's current information system provide anesthesiologists various examinations and medical records, but the system's interface has significant room for improvements in order to increase the safety of the 40,000 patients undergoing anesthesia each year at NTUH. In addition, anesthesiologists require a mobile app in order to meet the demands of a clinical setting.

To answer this demand, Zheng Meng-cong (Director of Taipei Tech Design Psychology Lab) and Shih Po-yuan and Zheng Hsiao-liang (NTUH anesthesiologists) worked with NTUH Information Technology and Philips Taiwan Ltd. to devise an iPad-based anesthesia assessment app named EVAN (Evaluation of ANesthesiologists). EVAN integrates three major areas of anesthesia—pre-anesthesia evaluation, post-anesthesia check, and PCA (patient-controlled analgesia) evaluation.

The team put the first iteration of EVAN to a user study and, based on the feedback, made the improved EVAN 2, which is the version that won the 2022 iF Design Award. In addition to improving the original functionality, EVAN 2 can also help anesthesiologists monitor patients' vital signs during surgery, thus enhancing anesthesia safety and efficiency. During the post-development period, Shih even enrolled in Taipei Tech's design master's program and joined Zheng's Design Psychology Lab in designing EVAN 2.

According to Shih, the number of anesthesia abnormalities such as seizure, emergency treatment, and difficulty of intubation has been reduced by nearly one-half since the launch of EVAN 2 at NTUH. The completion rate of pre-anesthesia evaluation has also increased from 96.25% to 99.85%. Shih believes the effectiveness of communication between healthcare professionals, designers and programmers is the key to the success of EVAN 2. Many anesthesiologists have commented that their work efficiency has improved.

The team has been working on EVAN 2 since 2018. Through working closely with NTUH anesthesiologists and repeated experimental adjustments, the app was finally completed last year. "I believe that this successful result will open more doors for cross-disciplinary cooperation between the fields of design and medical care in the future" said Zheng.

