NCYU-MEE Off-Campus Visits to the 2024 Taiwan International Machine Tool Show (TMTS 2024)

Department of Mechanical and Energy Engineering under the the educational philosophy of "Chiayi University Power," which aims to cultivate students' five strengths: "Key Strength," "Aptitude Strength," "Interdisciplinary Strength," "International Strength," and "Lifelong Strength," are striving to provide more opportunities for the cultivation of key abilities, exploration of aptitude abilities, motivation for interdisciplinary learning, international mobility capabilities, and lifelong skill enhancement for all teachers and students.

They are actively seeking internal and external resources and participating in academic-industry activities inside and outside the university. Currently, they are involved in the Higher Education Sprout Project supported Intelligent Vehicle R&D Platform Project; participating as a partner school in the YunTech Smart Electric Vehicle Base Project; participating in the Chenbro-Syntec Generation Cup Smart Robot Academic-Industry-Research Camp, and this expansion of off-campus internships is a pilot warm-up activity conducted in accordance with the future school's (16+2) weeks teaching measures to appropriately extend and expand the teaching practice field. Thanks to the efforts of the entire department's faculty and staff, they have obtained the support of the industry, with gratitude to the full sponsorship of travel expenses by the Taiwan Machine Tool & Accessory Builders' Association (TMBA) and the professional technical tour provided by the Precision Machinery Research and Development Center (PMC)/Tool Machine Industry Development Division.

During their participation in the professional internship at the 2024 Taiwan International Machine Tool Show, more than 180 teachers and students formed the largest academic visiting group in this edition, experiencing a groundbreaking learning journey that broke traditional norms. Demonstrating steel-like discipline, all participants gathered at 7:20 in the morning and departed on time to the Taipei Nangang Exhibition Center. Thanks to meticulous planning and communication in advance, the visit was compact and rich, including a one-hour group tour by PMC, two hours of free exhibition viewing for students, and about two hours of departmental group tour viewing. Companies that collectively guided the department included GOODWAY Machine, AWEA Mechantronic, FAIR FRIEND Group, LEADWELL CNC Machines MFG., FAR EAST Machinery, FATEK, FANUC Taiwan, TPI Bearings, CHEN SOUND Industry, HOLD WELL Industry, XONYON Industry, and the Industrial Technology Research Institute(ITRI) among other large enterprise R&D units. Due to the faculty's prior coordination with the exhibitors, the explaining companies demonstrated professionalism in their presentations and concretely answered the questions posed by teachers and students. The entire visit lasted about 5 hours, with all faculty and students returning to school safely and on schedule at 4 pm.

This full departmental participation in the exhibition, themed "Dual-axis Smart Manufacturing, Sustainable Future," highlighted the importance of Digital Transformation (DX) and Green Transformation (GX), showcasing the latest applications of these technologies in the machine tool industry. The primary focus on digital transformation introduced key elements like factory intelligence, data analysis and cloud computing, smart connectivity, digital twins/human-machine collaboration, and blockchain technology, providing a comprehensive learning and R&D platform for teachers and students from National Chiayi University. These technologies not only revolutionize traditional manufacturing models but also offer new methods for product quality control and production efficiency. For students of the Department of Mechanical and Energy Engineering, this was a rare opportunity to deeply understand how to apply digital technologies to real-world design and manufacturing engineering issues. The exhibition emphasized innovation in smart energy saving, environmental certification, resource recycling, green supply chains, and sustainable product design, showcasing the machine tool industry's commitment to environmental protection and inspiring students to integrate green transformation concepts into future manufacturing and engineering practices. Particularly in the current global climate of severe climate change and energy shortages, this part of the learning is especially enlightening for students and faculty in the field of mechanical and energy engineering.

The head of the mechanical engineering department, Director Dr. Chao-Ming Lin, stated that this expanded academic visit to the International Machine Tool Show offered a precious opportunity for students to closely integrate classroom learning with industrial practice. Through observation and interaction, students not only validated their theoretical knowledge but also gained clearer career directions. Furthermore, exposure to technological innovations stimulated their curiosity and desire to explore future technological developments. The entire department highly praised this off-campus internship, recognizing it as not just a chance for technical learning and academic-industry exchange but also as a profound insight into future trends in smart manufacturing engineering technologies. By collectively learning and experiencing these advanced technologies and applications, the students' innovative thinking and problem-solving abilities were significantly enhanced. Looking ahead, the mechanical engineering department will continue to create new learning spaces and encourage student participation in such large international events to promote the deep integration of academic theory and industrial practice. The department will also further strengthen cooperation with the industrial, governmental, and academic sectors, offering students more opportunities to engage with and apply advanced technologies, cultivating them to become outstanding talents capable of leading future engineering technological developments. This exhibition experience not only left unforgettable memories for teachers and students but also laid a solid foundation for their academic exploration and career development.

The faculty team includes
Team Leader: Director / Professor Chao-Ming Lin;
Administrative Affairs: Ms. Fu-Qi Zhuang;
Graduate Leader: Professor Ching-Hua Ding;
Senior Leader: Professor Yung-Jin Weng;
Junior Leader: Professor Chong-Ping Chang;
Sophomore Leader: Professor Yung-Qing Chao;
Freshman Leaders: Professors Jing-Feng Weng, Yu-Si Shi, and Ms. Mei-Chuan Liu.

A group photo of all teachers and students at Nangang Exhibition Hall

A group photo of all teachers and students organized by grade at the Nangang Exhibition Hall

VisitingFAIR FRIEND Group

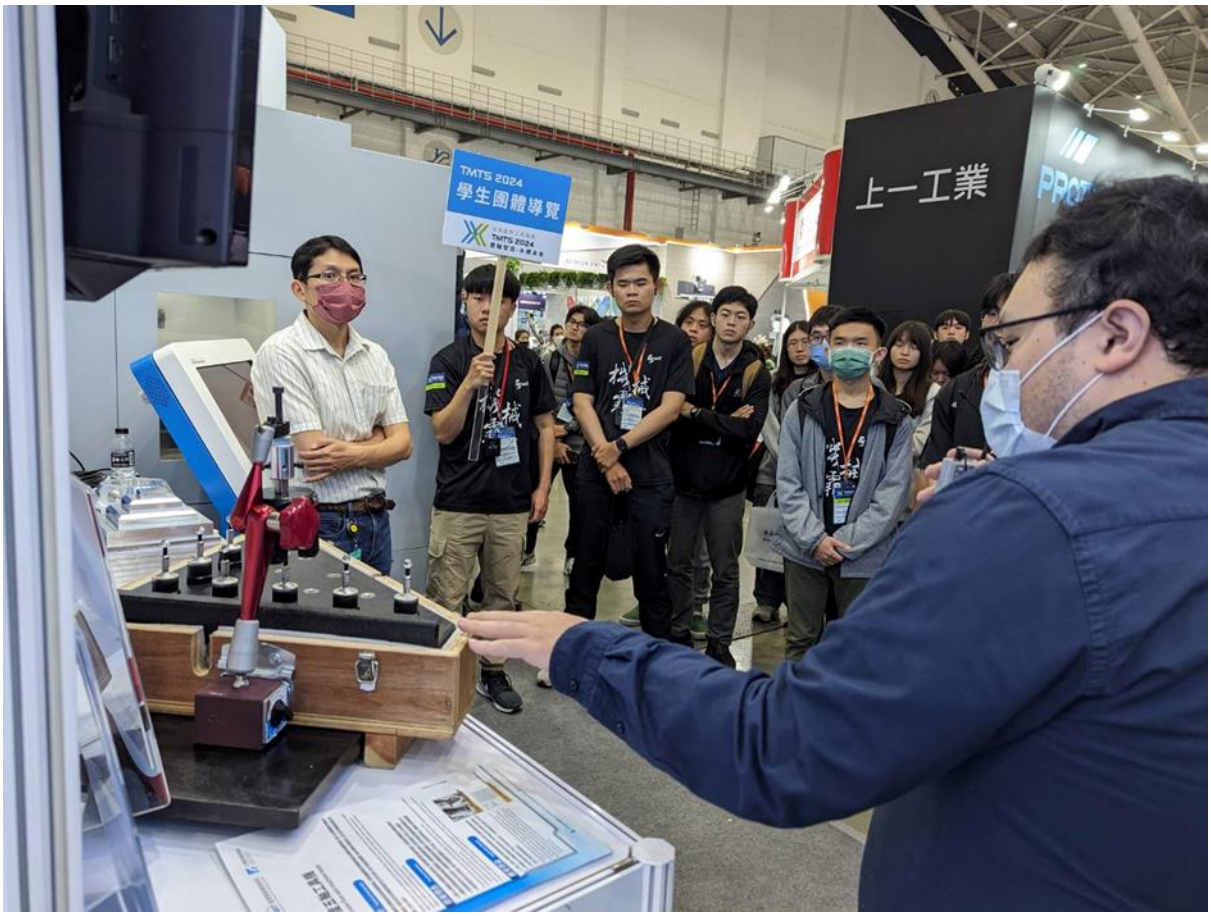
Visiting AWEA Mechantronic

Visiting GOODWAY Machine

Visiting FAIR FRIEND Group

Visiting CHEN SOUND Industry

Visiting Industrial Technology Research Institute(ITRI)



Visiting FAR EAST Machinery