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A Century of Cultivation with Kindness, Honesty and the Concept of Sustainable Development

NPUST 2024

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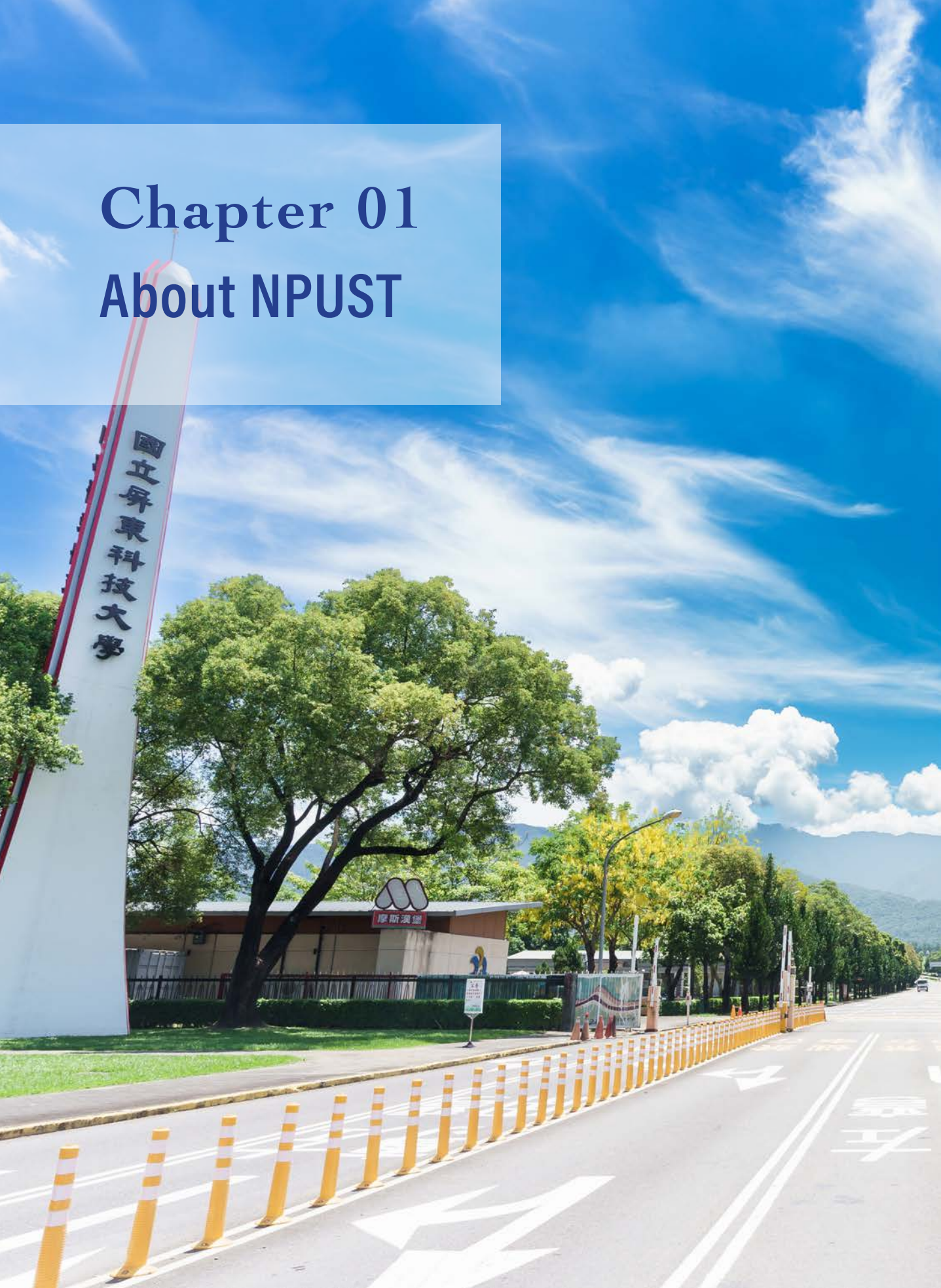
About NPUST



Message from the President

NPUST is now 100 years old. Successive presidents have collaboratively built the university with sustainability as its core value, addressing the critical mission of responding to global warming, environmental changes, and food crises that humanity currently faces. Since 2014, NPUST has been ranked first in Taiwan for ten consecutive years in the UI GreenMetric World University Rankings. The United Nations' 17 Sustainable Development Goals (SDGs) are embedded in the current teaching and research of the university.

NPUST is in the tropical region south of the Tropic of Cancer and north of the Equator. With its pleasant climate and natural conditions, the university has its roots in tropical agriculture since its establishment as an agricultural vocational school in 1924. Evolving with the times and societal needs, it was upgraded to a technical college in 1991 and renamed as a university of science and technology in 1997. Today, NPUST stands as a comprehensive science and technology university comprising seven colleges: College of Agriculture, College of Engineering, College of Management, College of Humanities and Social Sciences, International College, College of Veterinary Medicine, and College of Professional Studies. Its educational and research endeavors span across various industries from primary to tertiary sectors, emphasizing the integration of theory and practice as well as interdisciplinary innovation. Transitioning from traditional agriculture to technological agriculture, NPUST has expanded its focus from food production to sustainable economics. It has emerged as a key higher education institution fostering talents in agricultural technology and promoting ecological sustainability, contributing significantly to the nation's agricultural and ecological development.

NPUST has four main axes. First, 'Technological Agriculture', aiming to develop unmanned vehicles and field robots using scientific and technological advancements to address labor shortages in agriculture. It also focuses on managing pests and fertilization using biological/ecological methods to increase the value of economic crops. Additionally, it works on developing drought-resistant techniques for irrigation to reduce carbon emissions. Second, 'Ecological Industries', emphasizing building an industry research framework centered around ecological balance. It establishes research centers such as professional botanical medicine, animal husbandry and medical care, wildlife conservation, soil and water conservation, and disaster prevention. Third, 'Platinum Society', addressing the needs of an aging society by providing relevant education, services, and research in long-term care. It responds to the demand for professional manpower and caregiving activities in an aging society. Fourth, 'Sustainable Economies', aiming to expand the benefits and sustainable value of renewable energy by integrating circular economy principles. It focuses on developing green energy technologies and industries, as well as research and development in recycling agricultural waste and biogas slurry.

NPUST prioritizes professional skills education as a key teaching objective because the cultivation of vocational talents is undeniably crucial for various industries and R&D within the nation. Thus, NPUST provides students with opportunities for "experimental learning" by fostering a spirit of practical experimentation where they can identify problems, seek solutions, and act. To integrate knowledge and skills, NPUST establishes various research centers, program courses, skill internships, and club activities. It serves as a nurturing institution that fosters mutual trust and benefits with industry demands, adhering to the philosophy of "bringing out individual talents according to their aptitude" to cultivate students' abilities in innovation, entrepreneurship, and creativity. Furthermore, NPUST emphasizes students' connections with the international community, aiming to develop them into research talents with international mobility and influence.

NPUST is blessed with a sprawling 300-hectare campus known as "Heaven and Earth University" nestled beneath the majestic Dawu Mountain. It enjoys an expansive skyline and lush greenery, providing an abundance of living space and diverse experimental fields. With its interdisciplinary expertise, state-of-the-art facilities, and varied practical opportunities, NPUST has established itself as a university guided by the principles of kindness, diligence, and honesty. Under the ethos of practical orientation, NPUST has cultivated a university brand that emphasizes hands-on learning. It serves as a pivotal base for important scientific and technological research and is also a century-old institution dedicated to nurturing societal talent. Visitors are warmly welcomed to explore the beauty of NPUST and experience its excellence firsthand.

C. L. Chang

NPUST grassland scenery

History of NPUST

1924

Founded as "Kaohsiung State Pingtung Extension School of Agriculture" located in Suehirocho, Pingtung (nowadays in the vicinity of Pingtung night market). The first president was Torii Takeo.

1928

Established as the "Kaohsiung State Pingtung Agricultural School", changing from a three-year to a five-year program. The president was Tomisaki Futao.

1931

Relocated to Mizuhocho (current National Pingtung University Minsheng campus).

1945

Renamed to "Taiwan Provincial Pingtung Vocational School of Agriculture" (Agri-School).

1946

Agri-School restructured into a three-year high school and junior college. The first president was Chih-Ching Liao.

1954

"Taiwan Provincial Institute of Agriculture" (Agri-Institute) established, utilizing Agricultural School's classrooms. The first president was Yu-Gang Wang.

1955

Agri-Institute moved to the new Guilai campus(now National Pingtung University Ping-Shang campus).

1959

Agri-School renamed to "Taiwan Provincial Pingtung Senior Vocational High School of Agriculture," retaining the three-year senior high school system.

1963

The two schools merged,and the school was named "Taiwan Provincial Institute of Agriculture," with campuses divided as the Agri-School campus and the Agri-Institute campus.

1965

Renamed to"Taiwan Provincial Pingtung Institute of Agriculture."

1967

Agri-School campus and Agri-Institute campus renamed as North campus and South campus.

1981

Reorganized as "National Pingtung Institute of Agriculture."

1990

Relocation to Neipu campus completed (groundbreaking in 1983).

1991

Upgraded to "National Pingtung Polytechnic Institute." The first president was Gong-Xian Wu.

1997

Renamed as "National Pingtung University of Science and Technology," with Xian-Da Liu as the first president, initially establishing the Colleges of Agriculture, Engineering, and Management Technology.

1998

1. The College of Industrial Technology renamed to the College of Engineering Technology.
2. First to join the "Taiwan International Cooperation Alliance" initiated by the TaiwanICDF, establishing the first nationwide English-taught department (formerly Institute of Tropical Agriculture, now the Department of Tropical Agriculture and International Cooperation).

2000

Colleges of Agriculture, Engineering,and Management Technology renamed to Colleges of Agriculture,Engineering, and Management,with the addition of the College of Humanities and Social Sciences.

2007

Established an Agricultural and Aquatic Products Inspection and Certification Center, the sixth agricultural product traceability certification body in Taiwan and the first certification body in the Kaohsiung-Pingtung area.

2011

The Department of Tropical Agriculture and International Cooperation and the Chinese Language Center jointly formed the International College. The Department of Veterinary Medicine, formerly part of the College of Agriculture, has been expanded and restructured as the College of Veterinary Medicine.

2012

1. Selected as a "Model University of Science and Technology" by the Ministry of Education.
2. Participated in the "Taiwan Green University Alliance" to promote green university initiatives.
3. Established the University Network for Tropical Agriculture (UNTA).

2014

Ranked 1st in the national UI GreenMetric World University evaluations for ten consecutive years.

2017

1. Formulated four major university development concepts: Technological Agriculture, Ecological Industry, Blue Economy, Platinum Society.
2. Promoted the "Higher Education Sprout Project" centered on student learning and focused on "Connecting Locally, Bridging Internationally, and Embracing the Future."
3. Promoted the University Social Responsibility (USR) project.
4. Became the first university in Taiwan to achieve accreditation from the Association for Assessment and Accreditation of Laboratory Animal Care International (AAALAC International).

2018

Collaborated with Denmark's largest and oldest agricultural college, the Dalum Agricultural College, to implement Pig Farming 4.0.

2019

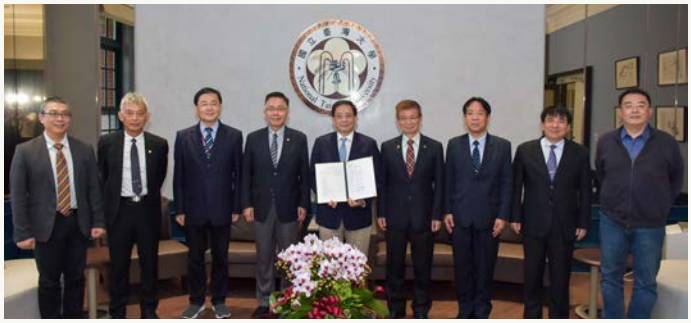
1. Established the College of Professional Studies.
2. Invited to join the Global Green University Consortium as a permanent member.

2020

1. Established the Sustainable Development Office.
2. Received dual honors across categories as a standout example in the "Global Views Monthly" USR Awards.

2022

1. Ranked first nationally in the UI GreenMetric World University Rankings for ten consecutive year, third place in Asia and 27th place globally in 2022.
2. Joined the Taiwan Sustainable Governance University Alliance to promote the United Nations Sustainable Development Goals (SDGs).
3. First-time participation in the QS Stars Rating for universities, achieving 5-star ratings in six categories: teaching, campus facilities, innovation, graduate employability, academic development, and inclusiveness.
4. The College of Management received AACSB international accreditation, ranking among the top 6% of business management colleges worldwide.
5. Focused on sustainable development, established four major teaching and research centers: Smart Agricultural Machinery Center, Artificial Intelligence and Mechatronics Hall, Big Data Center, and Sustainable Development Research Center.



Joined the Taiwan Sustainable Governance University Alliance.

2023

1. Ranked first among domestic universities of technology for three consecutive years in the Times Higher Education (THE) World University Rankings.
2. Won the "Global Views Monthly" USR Award for four consecutive year.
3. Innovative Smart Agriculture Micro Park (facility for incubating new startups) unveiled.
4. Received the National Sustainable Development Award.

2023 National Sustainable Development Award

Honors of NPUST

UI GreenMetric World University Rankings

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Taiwan	1	1	1	1	1	1	1	1	1	1
Asia	3	4	5	4	6	6	4	3	3	4
World	32	35	37	60	44	37	31	29	27	28
Contestant CNT/UNIV	62/361	66/407	74/516	76/619	81/719	85/780	84/912	80/956	85/1050	84/1183

THE World University Rankings

2021 Ranked **301-400** globally

2022 Ranked **201-300** globally

2024 Ranked **101-200** globally

5th in Taiwan

1st among Universities of Science and Technology

QS STARS Ratings

Overall performance rated **4** stars (Very Good)

Received **5**-star ratings (Excellent) in teaching, campus facilities, innovation, student employability, academic development, and inclusiveness

QS World University Rankings

2022 Ranked **451-500** globally

38th in Taiwan

6th among universities of Science and Technology

TCSA (Taiwan Corporate Sustainability Awards)

Corporate Excellence Case Studies & USR Program Awards - **Silver Award**

University Sustainability Report – 2021 **Platinum Award**, 2023 **Gold Award**

Global Views Monthly USR Award

2020 Life Co-Prosperity Category - **Model Award**
Eco Co-Wellness Category - **Model Award**

2021 Integrated Performance in Technical and Vocational Category - **First Prize**

2022 Eco Co-Wellness Category - **First Prize**
Green Campus Category - **First Prize**

2023 Welfare Coexistence Category - **Model Award**

2024 AwardWelfare Coexistence Category - **Model Award**

CommonWealth Magazine USR University Citizenship Survey

2024 Public Technical and Vocational Universities Category – **First Prize**

Data of NPUST

Student learning outcomes in the past three years

100% of students completed diverse internships
92% satisfaction with intern's work attitude
89% of employers willing to retain interns
93% willingness for long-term internship collaborations

Student employability in the past three years

- **2,025** vocational certifications obtained by students
- **18.95%** of students obtained vocational certifications
- **786** awards won by students in international and national competitions
- **7.4%** of students won awards in international and national competitions
- **100%** of recent graduates completed external and internal internships courses
- **86.33%** of daytime four-year technical program graduates
- **96.7%** of graduates' employment rate

Technology transfer in the past three years

- Total technology transfer funds: NT$ **37.71 million**

- Sustainable R&D: Approximately NT$ **600 million** in sustainable development-related research funds from 2020-2022, nearly 50% of total research funds
- Cumulative community service under University Social Responsibility from 2020-2022: **24,048** participants Note1
- Partnership with **291** universities across **49** countries on all 5 continents, with international students from **42** countries Note2

Note

1.Data taken from the 2022 Sustainability Report.

2.Updated as of January 2024.

Graduation ceremony

Chapter 02
Colleges

College of Agriculture

College of Engineering

College of Management

College of Humanities and Social Sciences

International College

College of Veterinary Medicine

College of Professional Studies

College of AGRICULTURE

Department Overview

Department of Plant Industry (BS,OY,MS,PhD)

Department of Forestry (BS,MS)

Department of Aquaculture (BS,MS,PhD)

Department of Animal Science (BS,MS)

Department of Plant Medicine (BS,MS)

Department of Wood Science and Design (BS,SA,MS)

Department of Food Science (BS,MS,PhD)

Department of Biological Science and Technology (BS,MS)

Bachelor of Program in Scientific Agriculture (CE)

Graduate Institute of Bioresources (PhD)

Institute of Food Safety Management (MS)

Core abilities

- *Having agricultural expertise*
- *Possessing logical thinking, judgment, execution, and innovation abilities*
- *Possessing communication, coordination, and collaboration abilities*
- *Possessing foreign language skills and an international perspective*

NPUST was founded with a focus on agriculture, beginning in 1924 as the "Kaohsiung State Pingtung Extension School of Agriculture." It was renamed the "Kaohsiung State Pingtung Agricultural School" in 1928, with programs centered on agriculture and livestock. In 1997, it was renamed "National Pingtung University of Science and Technology," and the College of Agriculture became a key college within NPUST. The college offers diverse departments and practical training facilities in agriculture, forestry, fisheries, animal husbandry, and food sciences. It benefits from its proximity to the Pingtung Agricultural Biotechnology Park, research institutes under the Ministry of Agriculture, agricultural improvement stations, and other affiliated organizations, forming a significant agricultural R&D hub in Taiwan. It is the only technical and vocational institution in Taiwan with the educational goal of cultivating agricultural science and technology talent.

The core abilities of the college are centered on "agricultural expertise," "logical thinking, judgment, execution, and innovation abilities," "communication, coordination, and collaboration abilities," and "foreign language skills and international perspective" as indicators. Students are immersed in agricultural knowledge, applied to practical fieldwork, and engaged in specialized research abroad. The educational goals are grounded in biology, chemistry, and ecology, with a focus on understanding the characteristics of biological materials, utilize agricultural technology for mass production and commercialization, and advance talent cultivation, R&D, and international exchange, thereby enhancing the quality of human life and environmental sustainability.

The college's developmental features include: First, cultivating specialized and international agricultural science and technology talents, adhering to the spirit of balancing technology and humanities, enhancing students' foundational professional knowledge, and emphasizing industrial practical training; Second, developing safe, healthy, and sustainable agricultural technology industries and production management models; Third, establishing the college as a hub for "tropical agricultural technology" in teaching and research, achieving strategic alliances and close connections with various county and city governments, integrating with industrial clusters to enhance agricultural innovation and development; Fourth, promoting the internationalization and globalization of agricultural science and technology industries, driving the internationalization of agricultural technology. In addition to participating in NPUST's development and international academic exchanges, the college actively collaborates with countries targeted in the government's "New Southbound Policy Promotion Plan," promoting agricultural technology and education, broadening the perspectives of faculty and students, achieving a global outlook from NPUST to the world, and nurturing international agricultural science and technology talent suited for future needs.

Students from the Department of Animal Science intern at a farm.

College of ENGINEERING

Department Overview

Department of Environmental science and Engineering (BS,MS,PhD)

Department of Mechanical Engineering (BS,SA,MS)

Department of Civil Engineering (BS,MS,PhD)

Department of Soil and Water Conservation (BS,MS)

Department of Vehicle Engineering (BS,MS)

Department of Biomechatronics Engineering (BS,MS)

Department of Materials Engineering (BS,MS)

Core abilities

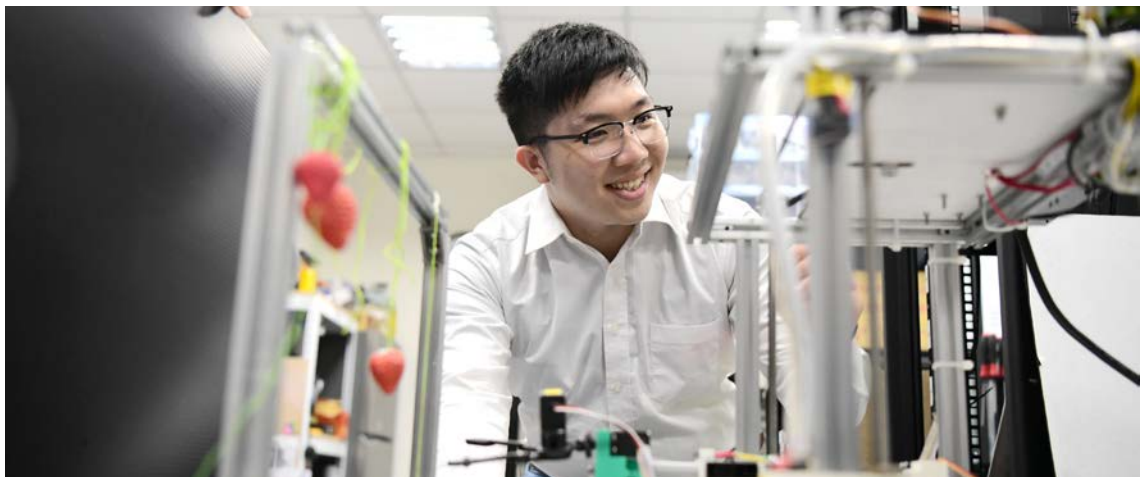
- *Professional competence*
  Possessing fundamental scientific and professional engineering knowledge and abilities
- *Practical skills*
  Possessing the ability to apply practical engineering skills and ethics
- *Humanistic care*
  Possessing the ability to utilize technology to fulfill social concern
- *International perspective*
  Possessing the ability to grasp engineering trends to align with international
- *Lifelong learning*
  Possessing the ability to continuously enhance scientific and engineering literacy

The College originated in 1954 from the Department of Agricultural Machinery at the Taiwan Provincial Institute of Agriculture, nurturing domestic talents for agriculture-related industries. In 1991, it was restructured into the National Pingtung Polytechnic Institute with the establishment of the engineering cluster. In 1997, it was renamed as the National Pingtung University of Science and Technology (NPUST), and the engineering cluster was organized into the College of Engineering Technology, which was officially renamed the College of Engineering in 2000.

The core abilities of the college emphasize a macroscopic perspective and humanistic literacy for constructing knowledge, professional services, and self-directed learning, aiming to cultivate outstanding engineering talents. Professionally, students acquire fundamental science and professional engineering knowledge and skills. Practically, they demonstrate the ability to apply engineering techniques and ethics. Regarding humanistic care, they exhibit the ability to utilize technology to fulfill social responsibilities. In terms of international perspective, they demonstrate the ability to grasp engineering trends and connect globally. For lifelong learning, they possess the ability to continuously enhance scientific and engineering literacy.

Integrating industrial R&D technology, the curriculum is designed in response to industrial talent demands and is strengthened by practical industry-academia collaboration courses to enhance student employment competitiveness. Linking the features of the other 6 colleges, the college develops systems based on NPUST's main developmental axes: 'Technological Agriculture,' 'Ecological Industries,' 'Platinum Society,' and 'Sustainable Economies.' Focus areas include 'Smart Technology and Intelligent Agriculture' with systems for an aging society and intelligent farm facilities, and labor-saving agricultural tools., 'Industrial Innovation and Traditional Industry Transformation' with smart vehicles and energy-saving carbon-reducing electromechanical engineering, 'Sustainable Cities' with disaster prevention engineering, national land and environmental conservation, and 'Circular Economy and Green Energy' with innovating in the regeneration for recycling livestock organic matter and agricultural waste recycling technologies.

In 'Inspiring Wisdom and Deepening Technical and Vocational Education,' the college integrates courses between Civil and Environmental Engineering group and the Electromechanical Engineering group to emphasize interdisciplinary professional learning, establishing customized courses and professional practical learning with industry elites. In 'Research and Development Industry-Academia Collaboration,' diverse elements of engineering science and project management, including creativity, innovation, and entrepreneurship, are integrated into industrial organizations to strengthen competitiveness and brand characteristics. 'Grounded in Taiwan, with a Global Perspective,' NPUST encourages overseas internships, actively develop the export of 'Smart and Green Technology,' promotes engineering and technology education accreditation (IEET) for the College of Engineering and collaborate with international partner schools and dual-degree programs to expand international research, teaching, learning, and employment resources for faculty and students.



Smart Agricultural Machinery developed by Department of Biomechatronics Engineering.

College of
MANAGEMENT

Department Overview

Department of Business Administration (BS,MS)

Department of Management Information Systems (BS,MS)

Department of Industrial Management (BS,MS)

Department of Agribusiness Management (BS,SA,MS)

Department of Fashion Design and Management (BS,SA,MS)

Department of Hotel and Restaurant Management (BS,MS)

International Bachelor Degree Program in Finance (BS)

Institute of Landscape Architecture and Recreation Management (MS)

Executive Master of Business Administration (MS)

Core abilities

Undergraduate program

- Basic knowledge and skills in management
- Problem-solving and communication skills
- Professional and practical application skills
- The ability to uphold social responsibility and professional ethics

Master's program

- Advanced knowledge and skills in management
- The ability to think independently and solve problems
- The ability to integrate professional innovation with theoretical and practical applications
- The ability to fulfill social responsibility and uphold professional ethics

Established in 1997, the primary educational goal of the college is to cultivate students into professional management talents with a balanced focus on both theory and practice. We aspire for students to possess knowledge and skills in management, the ability to think independently and solve problems, the capacity to integrate professional innovation with theoretical and practical applications, and competence in social responsibility and professional ethics.

In terms of core competencies, our focus is: firstly, cultivating information management professionals in artificial intelligence, Internet of Things, and system design to apply in business operations, smart living, and smart farming. Secondly, nurturing talents in international finance, financial management, and corporate planning to assist companies in adapting to international market changes and enhancing operational efficiency. Thirdly, developing talents in comprehensive quality management, production control, and achieving carbon neutrality, guiding companies to have quality competitiveness and align with global environmental trends. Fourthly, adopting a service-oriented approach to train talents in the hospitality industry, fashion, and trendsetting, integrating interdisciplinary capabilities in landscape recreation, and fostering a company culture that combines aesthetic culinary experiences with landscape therapy for creating healing environments.

To further enhance the expertise and global perspective of our faculty and students, the college obtained international accreditation from the Association to Advance Collegiate Schools of Business (AACSB, an international alliance for higher business management education) in 2022. This accreditation serves to improve the quality of business management education, provide access to the latest knowledge in business management education, increase opportunities for international exchange and collaboration, enhance the competitiveness of both NPUST and students, and bolster the international credibility of degrees conferred by NPUST.

Students from the Department of Management Information Systems showcase their project results.

College of

HUMANITIES & SOCIAL SCIENCES

Department Overview

Department of Child Care (BS,MS)

Department of Social Work (BS,MS)

Department of Recreational Sport & Health Promotion (BS,MS)

Department of Modern Languages (BS,MS)

Graduate Institute of Hakka Cultural Industry (MS)

Graduate Institute of Technological and Vocational Education (MS)

Center for Teacher Education

Center for General Education

Language Center

Sports Room

Core abilities

- *Professional and hands-on competency*
- *Social adaptation competency*
- *Problem-solving and innovation competencies*
- *Leadership and communication competencies*
- *Comprehensive thinking competency*

Established in August 2000, the College of Humanities and Social Sciences encompasses 4 departments, 2 graduate institutes, 3 centers, and 1 office. Each department and institute respond to the needs of the era's social industry, future trends of demographic changes, knowledge development, and technological advancement, aiming to cultivate professionals with a balance of expertise and humanities, emphasizing professional ethics and practical applications to meet the demands of social services.

The core abilities of the college particularly emphasize: First, professional practice and technological application skills, strengthening both hardware and software equipment, developing teaching aids, and establishing a high-quality teaching environment. Second, social adaptability and humanistic care skills, shaping the cultivation of workplace entrepreneurship and adaptability, language literacy, and media literacy learning. Third, problem-solving and innovative thinking abilities, developing critical thinking skills necessary to navigate a diverse era and information explosion, and fostering the ability to design and conduct research in industrial or academic environments. Fourth, leadership, communication, and teamwork skills, cultivating leadership qualities alongside professional competencies, emphasizing effective communication for personal and professional success. Fifth, cross-disciplinary thinking and international mobility: encouraging participation in international affairs, actively engaging in international exchanges, and broadening perspectives in line with global development trends. The specialized courses and main initiatives of each department align with NPUST's educational goals of 'Internationalization, holistic education, and Professionalization'.

The college has formulated corresponding implementation strategies based on the distinctive characteristics and contents of NPUST and college educational objectives:

1. Faculty
   Establishing a conducive working environment, enhancing teaching effectiveness, hiring passionate and professional teachers, and fostering cross-disciplinary collaboration and mutual learning among the faculty community.
2. Student
   Deepening professional abilities, enhancing overall learning outcomes, strengthening students' foundation and practical skills, and orienting towards cultivating professional talents.
3. Curriculum
   Appropriately adjusting courses to adapt to industrial changes, aligning with societal transformations, and strengthening industry linkages.
4. Research and development
   Crossing academic boundaries, enriching research and development momentum.
5. Internationalization
   Strengthening linkages and aligning with international standards.

In fulfilling social responsibility, the college adheres to a pragmatic, steady, and innovative spirit, prioritizing teaching with research as a complement to cultivate high-quality talents in the humanities and social sciences with both professional competence and intelligence.

The College of Humanities and Social Sciences places a strong emphasis on the holistic development of its students.

College of

INTERNATIONAL

Department Overview

Department of Tropical Agriculture and International Cooperation (BS,MS,PhD)

International Program in Ornamental Fish Technologyand Aquatic Animal Health (PhD)

International Program in Animal Vaccine Technology (PhD)

Core abilities

- *Diverse knowledge, skills, and excellent workplace abilities*
- *The ability to adapt to practical applications and sustainable development*
- *Communication, coordination, and teamwork*
- *International perspective and respect for cultural differences*

The college was established in February 2011. Since then, its departments have included the first nationwide English-taught program, the "Department of Tropical Agriculture and International Cooperation," established in 1998, and as well as two more English-taught programs introduced in 2016: the "International Program in Ornamental Fish Technology and Aquatic Animal Health" and the "International Program in Animal Vaccine Technology." Besides offering high-quality English-language education, the college aims to cultivate professionals who excel across eras/generations, national/cultural boundaries, and disciplines/professions.

Since its establishment, the "Department of Tropical Agriculture and International Cooperation" has collaborated with organizations such as the Taiwan Council of Agriculture and the Ministry of Education to actively promote agricultural technology research and talent cultivation in the tropical regions. It has been a pioneer in Taiwan's tertiary education for cultivating foreign graduate students and has been receiving long-term recognition from both international and domestic communities. The development focus of the "International Program in Ornamental Fish Technology and Aquatic Animal Health" revolves around four main pillars: diagnosis and vaccine development for ornamental fish and aquatic animal diseases, breeding and aquaculture, equipment and system development, and marketing. Its goal is to cultivate outstanding professionals in the ornamental fish and aquatic animal industry who are proficient in both theory and practice. The "International Program in Animal Vaccine Technology" aims to cultivate talents that meet the needs of the international animal vaccine technology industry. Graduates from this program will possess innovative research and development capabilities in vaccines and adjuvants, practical skills in the vaccine industry, and international communication and collaboration abilities.

The core abilities of the college emphasize on cultivating professionals for sustainable development in the tropical environments; fostering professionals who balance the needs of production, living, and ecology; nurturing technologists with a focus on marginalized and humanitarian concerns; and promoting the application and development of emerging technologies in the tropical regions. We aim for students to possess expertise and lifelong learning capabilities, transformative innovation skills, excellent interpersonal communication and teamwork attitudes, diverse talents and self-development potential, and an international perspective with respect for cultural differences.

Besides establishing a high-quality English-language teaching environment, the college adopts a subtle approach by setting up multicultural elements within the building to enhance students' understanding and appreciation of foreign cultures. We encourage faculty and students' passion for interdisciplinary research, commit to developing sustainable agricultural technologies, and nurture expertise for sustainable development in tropical environments. We actively expand international industry-academia collaboration to promote the application and development of emerging technologies in the tropical regions, strengthen the cultivation of globally mobile talents, and nurture global citizens with acute sensitivity to international trends and global employability.

International students participating in university activities.

College of

VETERINARY MEDICINE

Department Overview

Department of Veterinary Medicine (BS,MS,PhD)

Graduate Institute of Animal Vaccine Technology (MS)

Institute of Wildlife Conservation (MS)

Veterinary Medical Teaching Hospital

Working Dog Training Center

Animal Disease Diagnostic Center

Core abilities

- *Possessing fundamental veterinary medicine and related knowledge*
- *Possessing good moral character, analytical, communicative, coordinative, and leadership abilities*
- *Possessing research and innovation abilities*
- *Possessing good language abilities and an international perspective*

The Department of Veterinary Medicine, one of the founding departments of NPUST since its establishment in 1924. In 2011, to meet the demands of veterinary education and contemporary needs, the Department of Veterinary Medicine, Institute of Veterinary Medicine Research, Graduate Institute of Animal Vaccine Technology, Institute of Wildlife Conservation, Veterinary Medical Teaching Hospital, and Animal Disease Diagnostic Center were integrated to form the College of Veterinary Medicine, the "Working Dog Training Program" was also included under the jurisdiction. The college has approximately 35 faculty members, around 100 master's and doctoral students, and about 400 undergraduate students.

The college has four core abilities: First, to have the scientific knowledge and professional skills to contribute to society, addressing societal needs and problems with fundamental veterinary medicine and related knowledge, along with good language abilities and an international perspective. Second, to have a commitment to protecting animal resources, caring for animal health and welfare, with good moral character, analytical, communication, coordination, and leadership abilities, and the ability to develop research and innovation capabilities. Third, to adhere to veterinary medical ethics, demonstrate respect for teachers, and love for peers, and a sense of morality. Fourth, to have a lifelong learning and the relentless pursuit of self-improvement in professional abilities.

The college's unified development philosophy is to link research and application, continually developing advanced veterinary science and technology at various levels, including molecular, cellular, individual, and population research, all aimed at contributing to society. The undergraduate veterinary medicine program primarily aims to cultivate students into high-quality veterinarians, emphasizing the cultivation of basic veterinary scientific knowledge, clinical skills, and professional ethics. The graduate program focuses on deepening veterinary medical knowledge and professional capabilities, covering topics such as basic medicine, applied medicine, conservation medicine, preventive medicine, and animal welfare. Additionally, it provides clinical track master's and doctoral students with opportunities to undergo specialized training under specialist veterinarians or resident veterinarians of various animal specialties. Upon completion of the training and passing the examination, students can obtain both a degree and a specialist veterinarian certificate.

Since its establishment, the college has been advancing towards the goals of "professionalization, internationalization, and holistic development", continually striving to educate outstanding veterinarians who embody the concept of "one world, one health" in the future.

The College of Veterinary Medicine cultivates veterinarians who are both professional and compassionate.

College of

PROFESSIONAL STUDIES

Department Overview

Bachelor Program in Artificial Intelligence and Mechatronics (MS)

Cross-disciplinary Teaching Lab. for Industrial Wiring

Cross-disciplinary Teaching Lab. for Industrial Robots

Cross-disciplinary Teaching Lab. for Artificial Intelligence

Cross-disciplinary Teaching Lab. for Mechatronics

Cross-disciplinary Teaching Lab. for Unmanned Aircraft Vehicles

Cross-disciplinary Teaching Lab. for Motor Control

Core abilities

- *Equipped with future technology integration and international perspective*
- *Having the ability to integrate across diverse fields*
- *Having independent thinking and problem-solving abilities*
- *Having innovation and entrepreneurship abilities*

Established in 2019, the college aims to "foster students' individuality, nurture their potential, and allow them to freely take cross-disciplinary microcredit courses to construct their personal learning plans." This initiative enables students to actively acquire knowledge in cutting-edge technologies, innovation, entrepreneurship, and industrial marketing, thereby promptly meeting career development and industry demands, and cultivating high-quality talents for future technology. The core objective is to cultivate talents with diverse cross-disciplinary integration, innovation and entrepreneurship, independent thinking and problem-solving skills, and alignment with future technology and international perspectives. Students will acquire various survival skills, critical thinking in other professional areas, and foundational cognitive structures. Alongside professional credits, they will obtain certification through credit accumulation.

Currently, the college has five academies in place, inviting industry professionals and experts to offer microcredit courses during the semester. This provides students with flexible and diverse learning channels, aiming to cultivate their cross-disciplinary competitiveness and innovation abilities, thereby implementing teaching innovation and enhancing teaching quality. The "Marketing Design Category" integrates courses in audio-visual design and marketing, allowing individuals from different professional backgrounds to utilize marketing skills for product and idea promotion. Through diverse practical courses, it enhances workplace soft skills and offers diverse learning channels. The "Vocational Ability Training Category" invites industry practitioners as guest lecturers to help students develop abilities such as communication, continuous learning, interpersonal interaction, teamwork, problem-solving, innovation, work responsibility, discipline, and information technology application. This fosters the early development of learning planning abilities for career development.

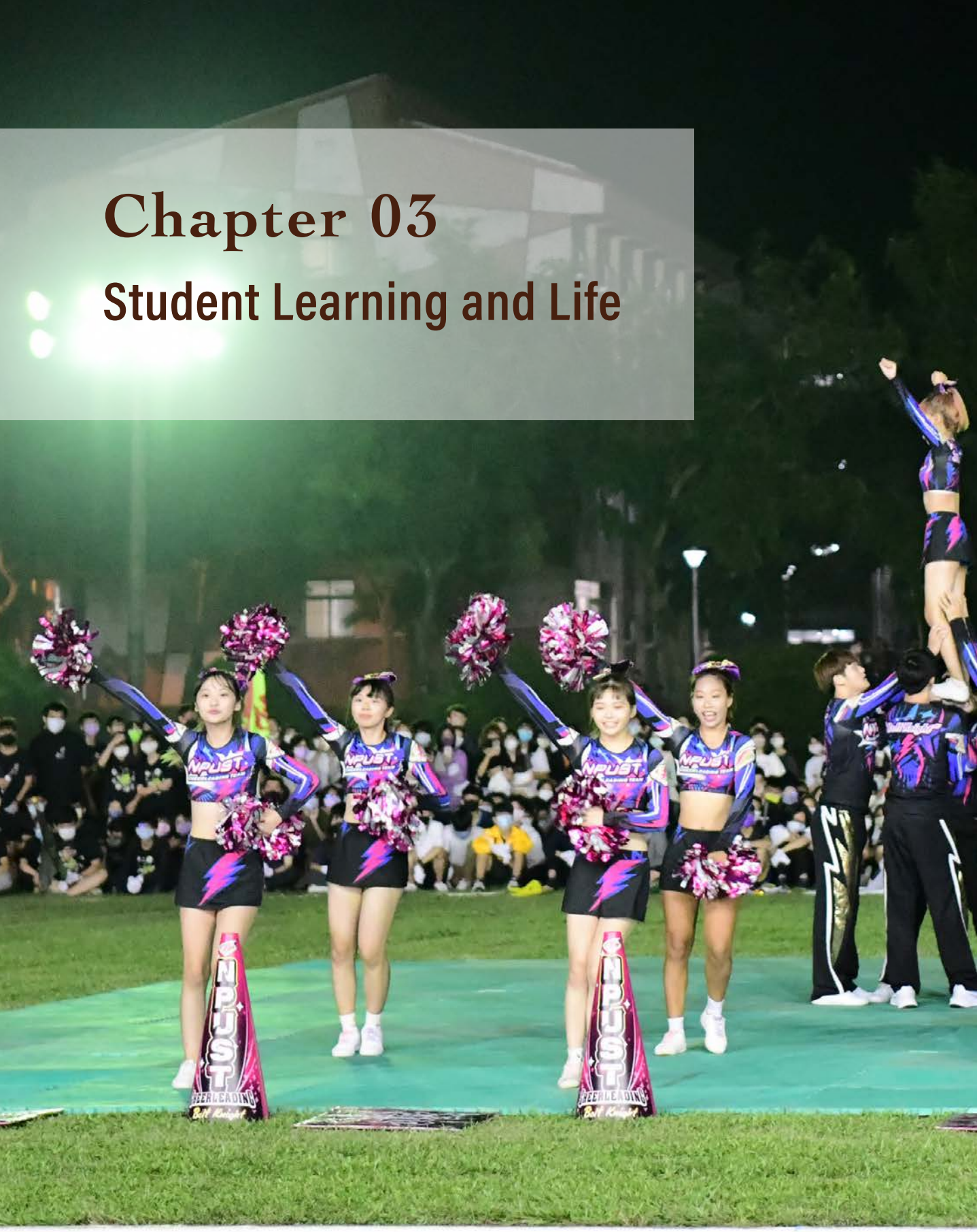
The "Innovation and Entrepreneurship Category" invites entrepreneurs to share their entrepreneurial learning experiences and insights. Students learn about the correct attitude towards entrepreneurship, required skills, and the courage necessary for preparation and implementation. They also engage in hands-on courses to increase interactive practice and practical experience, enhancing their entrepreneurial capabilities. The "Practical Curriculum Development Category" offers courses essential for various industries, with different courses tailored to different sectors. Students also visit industries to broaden their horizons and understand the overall structure and culture of the industry from top to bottom, inside and out. The "Sustainable Development Category" aligns with the theme of sustainable development, addressing diverse industry needs.

In response to the development of new-generation industries, the college admitted the first cohort of students into the "Bachelor Program in Artificial Intelligence and Mechatronics" in 2022. This program aims to cultivate talent in the fields of technology agriculture and mechatronics integration, focusing on integrated technical skills such as Industry 4.0, automation, robotics, artificial intelligence, cloud computing, and big data analytics. By collaborating with local industries, we have developed distinctive courses with a practical employment orientation, aimed at nurturing students with professional automation practical skills and interdisciplinary employability in AI-driven industries. This initiative is geared towards meeting the manpower needs of local industries and supporting their development.

High school students participate in the university's science camp.

Chapter 03

Student Learning and Life



Student Learning

New Trends in Teaching

Student Life

Student Learning

Teaching Excellence and Producing Talents

Faced with rapid global changes and challenges, technical and vocational education students must possess not only practical industrial key abilities but also innovative thinking and interdisciplinary integration abilities. With diverse entry routes and international trends, NPUST is promoting various teaching environments that meet current higher education needs. We are committed to creating a superior teaching environment, comprehensively enhancing teaching quality and student literacy **to achieve 'professionalization,' ' holistic education,' and 'internationalization' in education.**

Significant Teaching Plans

For several consecutive years, NPUST has been supported by the Ministry of Education through various programs like the Instructional Excellence Projects, Phase II of the Technological-Vocational Education Reshaping Project, Model University of Science and Technology Project, and the Optimization of Technical and Vocational College Practice Environments Project. This support continues through the Higher Education Sprout Project, Teaching Practice Research Project, Industry-Academia Collaboration Program, and the Establishment of Regional Industry Talent and Technology Cultivation Base Project, deepening the quality of technical and vocational education.

Group Photo of Students Attending Class at Dalum Academy in Denmark

Professionalization:

Cultivating Industry Professionals with Technical Expertise

Promoting Off-campus Internships

Promoting comprehensive off-campus internships for four-year daytime college programs: including summer, semester, academic year, overseas, and other types of internships to enhance students' professional perspectives. The off-campus internship mechanism is well-established, with each department drafting internship plans, evaluating and matching internship institutions, organizing pre-departure safety briefings, signing off-campus internship contracts, insuring off-campus internships, conducting regular on-site visits, analyzing off-campus internship effectiveness, and making rolling adjustments.

Optimizing On-campus Internship Fields

There are 29 internship sites established, utilizing school funds and competitive funding from the Ministry of Education to create industry-standard internship field, and to cultivate students' professional knowledge and skills focused on industry needs, integrating with local industries to develop unique school characteristics.

Mechanical Workshop

Overseas Learning – Dalum, Denmark

Enhancing Professional Practical Skills

Encouraging teachers to engage industry research studies, **integrating teaching with industry professionals**, setting up advanced certification exam venues and certifications, offering specialized practical courses, and guiding students to unify learning and application.

Advanced Skills Leadership Program

For students admitted through skills assessment and reserved admission for special talents and skills, NPUST provides learning assistance, technical advancement, and employment transition support, enabling talented students to grow both academically and technically.

Holistic education:

Cultivating Interdisciplinary Talents with Sustainable Literacy

Beyond its 7 colleges and 40 departments (including institutes, programs, and specialized classes) Note¹, NPUST has established 48 research centers and numerous labs based on faculty expertise. These are aligned with NPUST's sustainable development plan, engaging in various sustainable teaching, research, and outreach activities. Multiple interdisciplinary teaching teams have been formed to create distinctive educational modules like interdisciplinary micro-programs (including master's programs), and interdisciplinary credit programs, aiming to cultivate students into well-rounded interdisciplinary talents.

Since the academic year 2020, teachers have been encouraged to document the relevance of their courses to the Sustainable Development Goals (SDGs) on digital platforms. Courses are closely related to Quality Education (SDG4), and significantly align with Zero Hunger (SDG2), Good Health and Well-being (SDG3), Industry, Innovation, and Infrastructure (SDG9), and Decent Work and Economic Growth (SDG8). **Approximately 1.6 billion NT dollars were allocated for sustainable development-related research from 2020 to 2022, accounting for nearly 50% Note² of the total research funds.**

In terms of sustainable 'education,' NPUST faculty members, not only utilize formal education but also offer courses related to sustainable economics, sustainable environment, society, cultural diversity, and sustainable literacy in professional curricula. This strengthens students' understanding of sustainability and allows sustainable education to take root and develop throughout their four-year university education. Around the College of Professional Studies, an interdisciplinary learning environment has established, through flexible credits and cross-college electives, innovative courses in entrepreneurship, sustainable development, and skill empowerment are offered. Programs like 'Sustainability Science Lectures,' 'Local Revitalization and Sustainable Design Interdisciplinary Credit Program,' ' Concepts of Sustainable Development - Innovation and Creative Thinking Course,' and 'Sustainable Development School' are organized, providing more students with opportunities for interdisciplinary learning in sustainability-related courses.

Notes:

1.Updated to the 113th academic year.

2.Data cited from the 2022 Sustainability Report, p. 56.

Internationalization:

Cultivating Pioneering Talents with a Global Perspective

- Implementing tiered instructions in English and setting up on-campus TOEIC test centers. English-Medium Instruction (EMI) courses are open to both domestic and international students, providing an all-English learning environment to enhance language skills and international perspectives. ESP (English for Specific Purposes) and EGSP (English for General Specific Purposes) courses are also offered, focusing on English courses for different professional fields, helping students gradually adapt to EMI courses.

- Encourage teachers to lead students in participating in international conferences, workshops, competitions, and overseas corporate visits to broaden their horizons and lay a foundation for overseas employment.

- In line with the New Southbound Policy, cultivating international students as agricultural technology talents, helping them improve the quality of life for people in their home countries after completing their studies.

- **Application for Ministry of Education overseas exchange Student Financial Assistance Grant programs:**

1. Overseas Exchange Soar Program

Select and send outstanding students to study at overseas colleges or universities for one semester or one academic year.

2. Overseas Exchange Cherish Program

Select and send outstanding students from economically disadvantaged and special circumstance families to study at overseas colleges or universities for one semester or one academic year.

3. Overseas Internship Program

Select and send students for internships at overseas enterprises or institutions for one month to one academic year.

4. New Southbound Overseas Internship Program

Select and send students for internships in New Southbound countries at enterprises or institutions for one month to one academic year.

New Trends in Education

Cross - disciplinary Collaboration in Education and Cultivation

Ministry of Education funds industry-academia collaboration classes, linking high schools, vocational high schools, universities of science and technology, and industries to co-plan courses, providing vocational high school students with higher education and employment opportunities, jointly cultivating future industry talents.

NPUST faculty teams assist local rural schools in optimizing new curriculum standards and help nearby high schools and vocational schools in offering diverse elective interdisciplinary and career exploration courses.

Career exploration education: Hosting vocational education experience activities during NPUST annual anniversary celebration, organizing multiple high school and vocational school student camps during the summer, and collaborating with the National Science and Technology Museum to organize permanent career exploration experience exhibitions.

The Department of Tropical Agriculture and International Cooperation offers a beekeeping course to promote joint learning among Taiwanese and international students.

Student Life

Thoughtful Care and Support for Daily Life

Physical and Mental Care

Health screenings, psychological tests and follow-up monitoring are conducted for freshmen. Professional social workers, counseling psychologists, and clinical psychologists are employed to provide on-campus student counseling, including group workshops or individual consultation services.

The campus cafeteria provides diverse dining options to meet students' various dietary cultures. Food is regularly inspected to ensure dining safety for students.

Secure Living

Accommodation priority is given to freshmen, with comprehensive safety checks in dormitories. Landlord meetings and off-campus rental safety checks are conducted to screen quality landlords for students.

Multiple convenient public transportation options are available. Students can take campus buses 510 and 510A for free in the campus, to their rental accommodations, and around Neipu city. Also taking bus 509 to and from Pingtung city costs only NT$10 with their student ID cards. Additionally, in collaboration with vendors, students are offered discounted rental plans of electric scooters and electric bicycles. To facilitate short-distance movement in the campus, eco-friendly bicycles are also available for students to register and borrow for free.

Campus Marathon Activity

Campus Anniversary Tug-of-War Competition

Campus Job Fair

Rich Experiences

The societies are diversified into five categories: academic/artistic, recreational, service-oriented, social, and comprehensive. With more than 100 clubs, students are encouraged to step out of their comfort zones and interact with others. Through social service, competitions, and club activities, students' innovative and creative potentials are stimulated, and their ability to solve problems and promote physical and mental health is enhanced. Additionally, the International Affairs Office collaborates with international student clubs to organize the "International Cultural Festival" periodically. Through gourmet festivals, cultural displays, and performances showcasing various customs and cultural characteristics, these events promote emotional bonds and cultural exchanges between international and local students, fostering respect and appreciation for different cultures and enriching international knowledge and becoming citizens with international literacy.

Providing a diverse range of sports facilities, outdoors include basketball, volleyball, tennis, baseball, swimming pool, and golf instructional areas. Indoors feature basketball, volleyball, badminton, indoor climbing, table tennis classrooms, fitness classrooms, rhythmic gymnastics classrooms, martial arts classrooms and audio-visual classrooms. Primarily catering to physical education instruction, school-sponsored sports competitions, representative team training, and extracurricular sports activities for faculty and students.

Career Exploration and Development

NPUST offers career counseling for students, assisting them in career exploration, workplace skill development, and career development planning. Innovative entrepreneurship lectures are organized to facilitate an easy understanding of creativity formation, innovation methods, and entrepreneurship. Students are also guided in product development, and helped to establish correct career concepts and a professional work ethic from enrollment to graduation. This approach cultivates optimism, proactive attitudes, and helps students seamlessly transition into the workforce upon graduation.

Library Front Desk

Innovation and Practice in the Library

A rich and vibrant literary atmosphere

To guide students in utilizing library resources and promoting literature, and to cultivate a literary atmosphere at NPUST, semester-based promotion activities are organized, attracting up to 10,000 participants each semester. To date, twelve such events have been held. The "Southern Wind Reading Season" is conducted in the first semester to create a reading culture and cultivate students' reading habits. In the second semester, the "Jingsi Lake Literary Season" is held, expanding the "Jingsi Lake Literary Award" established by the General Education Center, creating a dedicated platform for literary creation at NPUST. Since 2022, podcasts titled "Librarians' Book Talks" have been launched on major online platforms, and in 2023, a special series "Students' Book Talks" was introduced to enrich students' lives and learning experiences.

The promotional activities are extended through four aspects: "Creation and Appreciation," "Reading and Sharing," "Imagery and Arts," and "Rewards and Participation." These encompass various sub-activities, ranging from small reading salons to large author lectures, physical and electronic book exhibitions and promotions, art exhibitions and hands-on experiences, the Jingsi Lake Literature Award submission activities, including physical/online displays of winning works, film screenings, and post-screening discussions, as well as various book and e-book borrowing and lucky draw events for participation.

HyRead eBook Achievement Presentation and Christmas Tree Lighting Event

Jingsi Lake Literature Award

Hongpu Enjoy Reading Room

Chairman Jin-hua Duan of Hongpu Construction, a graduate of Pingtung Agricultural College's Forestry Department in 1959, generously donated the "Hongpu Enjoy Reading Room" to commemorate his alma mater. This initiative aims to inspire younger students to cultivate their reading and critical thinking abilities. The room's design centers around the enjoyment of reading, breaking free from traditional library constraints. Whether sitting upright, reclining, or even lying down, as long as one can immerse themselves and focus on the books, every posture allows for a golden experience, fostering a love for reading.

During his academic years, Chairman Bao-You Liu of Merry Yard Group had a fateful encounter with NPUST, which sparked his deep concern for its development. In support, he generously funded the renovation of the first floor reading area, now named "Lagoon Book House". Designed in an immersive style, the space features large glass windows offering panoramic views of the campus. Adorned with bird motifs and hundreds of purple butterflies in flight, the atmosphere resembles a knowledge-filled sanctuary nestled in lush greenery. Chairman Liu's passion for learning and dedication to the school led him to pursue further studies in the Graduate Institute of Landscape Architecture and Recreation Management here at NPUST.

Lagoon Book House

Chapter 04
International Networks


培育專班四校聯合開學典禮

Making NPUST Shine on the World Stage

The 2023 Annual Conference of the University Network for Tropical Agriculture (UNTA)

Embarking on Internation alization with a Focus on Agricultural Technology

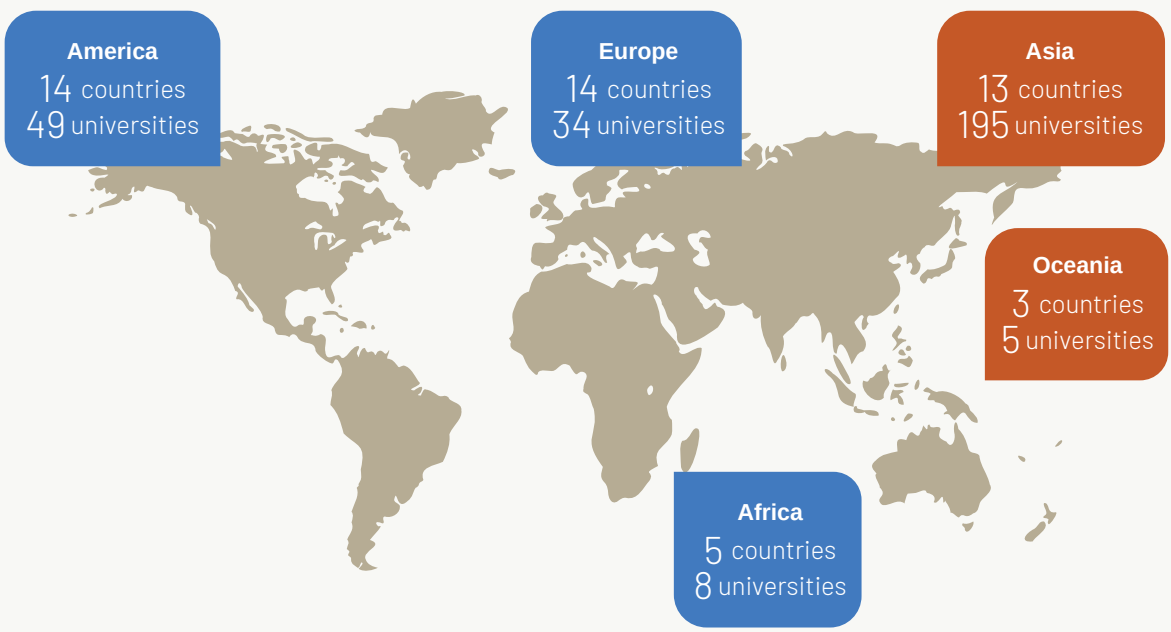
NPUST, with its focus on tropical agricultural technology, has engaged in technical exchanges with advanced countries like Germany since its days as an agricultural college. Today, walking through the campus, international students from all over the world can be found pursuing their studies, and even more international alumni making significant impacts globally after graduating from NPUST.

Since 1963, NPUST has been involved in overseas youth technical training courses in cooperation with the Ministry of Education and the Overseas Community Affairs Council. In 1998, in collaboration with the Ministry of Foreign Affairs and the International Cooperation and Development Fund, NPUST began recruiting agricultural elites from diplomatic countries, initiating an innovative model of agricultural foreign aid. This endeavor has continued for over 50 years, expanding the scope of assistance from agriculture to various professional fields including fields such as industry, management, humanities, and climate disaster prevention.

Active Expansion of International Exchanges through the Office of International Affairs

Today's international affairs are primarily driven by the Office of International Affairs, established in 2004. The Development Division promotes international academic exchanges and cooperation, the Education Division assists with general affairs for international students and exchange matters, and the Cooperation Division arranges and hosts visits for officials and foreign guests. This office serves as a crucial administrative hub for NPUST's integration efforts and acts as a teaching development base, leading faculty and students to face the world.

Connections range from the United States, Czech Republic, Poland, Ukraine, India, Thailand, Japan, Vietnam, Philippines, Singapore, Malaysia, Indonesia, and other countries where students come to NPUST for research, exchange, and learning. NPUST students participate in overseas research, internships and as international volunteers, with their footprints extending across Asia, Europe, Oceania, and Africa, including countries like China, Japan, Indonesia, Brunei, Thailand, Malaysia, Philippines, Vietnam, Singapore, South Africa, Mauritius, Switzerland, Austria, the United States, Australia, and New Zealand.



NPUST has sister schools all over the world. Note: Data updated as of January 2024.

Becoming a Partner in National New Southbound Policy International Exchanges

Since 2013, NPUST has been responsible for the Ministry of Education's **"Thailand-Taiwan Education Center,"** establishing three offices in Bangkok, Northern, and Northeastern Thailand, and in 2023, opening a fourth office in Southern Thailand (Phuket). Activities include organizing Taiwan Education Fairs, Taiwan-Thailand Higher Education Forums, promoting Chinese language learning, and facilitating cooperation between Taiwanese and Thai industries, governments, and academia. This aligns with the government's New Southbound Policy, deeply cultivating ties with Thailand.

The 2023 Taiwan Higher Education Fair in Thailand

NPUST has achieved remarkable success in agricultural research and development applications and international exchange collaborations. In 2023, the Ministry of Foreign Affairs proactively invited NPUST to organize an agricultural field specialized class and participate in the second "2023 New Southbound Policy Elite Cultivation Program," continuing to expand and deepen interactions and exchange opportunities with elites from New Southbound countries. The program participants come from nine universities across three countries: Maejo University, Chiang Mai University, Silpakorn University, and RMUTI University in Thailand; Brawijaya University, IPB University, Diponegoro University, and Binus University in Indonesia; and Tra Vinh University in Vietnam.

Joining International Alliances to Deepen International Networks

The University Network for Tropical Agriculture (UNTA), centering on tropical agriculture, was initiated in 2012 by NPUST and renowned agricultural universities from Thailand, Malaysia, Indonesia, Vietnam, and Germany. Subsequently, Colombia, Nigeria, Australia, Japan, Mongolia, Pakistan, and India joined the alliance, expanding it to 28 top agricultural universities from 13 countries. This demonstrates the extensive scope of NPUST's international agricultural cooperation.

Group Photo of University Presidents from various countries at the 2023 Annual Conference of the University Network for Tropical Agriculture (UNTA)

Through international exchanges and cooperation, greater achievements in both academia and practice can be realized. In 2020, UNTA invited professors from NPUST and its sister schools in Southeast Asia to conduct online courses, where scholars and experts from various fields introduced applications and prospects for sustainable development, aligning with the seventeen Sustainable Development Goals (SDGs) announced by the United Nations.

Subsequently, the "2021 UNTA Sustainability Lecture Series – Master Lectures" invited participation from nine universities across six countries, including Indonesia, Thailand, Malaysia, Poland, and Vietnam, integrating the 17 UN SDGs with themes such as smart agriculture, soil and water conservation, wetland conservation, medicine, and wildlife.

By 2022, three editions had been held with lecturers from IPB University and University of Brawijaya in Indonesia, RMUTI and Maejo University in Thailand, Thai Nguyen University of Agriculture and Forestry in Vietnam, UPM University in Malaysia, and NPUST, consistently embodied and advancing the spirit of the UN SDGs goals. NPUST's academic achievements in tropical agriculture continue to be showcased internationally.

International student at NPUST

International Alumni: Building Bridges for Global Cooperation

NPUST's international exchange alumni shine globally, with many serving as national dignitaries, active in politics and educational institutions, and others excelling in entrepreneurial success in their home countries. For example, Malaysian alumni Marvin Kho and Teh Chai Seng were honored as Outstanding Overseas Compatriots by the Overseas Community Affairs Council in 2021 and 2023, respectively. Marvin Kho actively imports Taiwanese agricultural products into Southeast Asian markets such as Singapore and Malaysia, supporting Taiwanese agricultural products. He also actively assists NPUST in obtaining recognition for its veterinary medicine program from the Malaysian Veterinary Services Department and contributes to the establishment of the "Overseas Master's Program in Agricultural Business Management" in Malaysia.

Alumnus Teh Chai Seng, upon returning to his home country, has been assisting students in pursuing higher education in Taiwan and vigorously promoting educational efforts. Since 2022, he has assumed the role of President of the Sarawak Alumni Association in Malaysia, bringing quality education from Taiwan to remote inland areas of Sarawak. He actively promotes Malaysian students to study in Taiwan, providing more opportunities for children to change their lives.

Odette Marie Varela Milla, a Salvadoran alumna of the Tropical Agriculture Department, was awarded the Ministry of Education's 3rd Global Outstanding Alumni Award. After earning her doctoral degree in 2013, she returned to her home country and served as an operations manager and researcher. In 2021, she assumed the role of principal at an agricultural school in El Salvador, dedicating herself to training specialized agricultural talent and realizing the knowledge gained from NPUST in El Salvador.

2021 Outstanding Overseas Compatriot, Marvin Kho

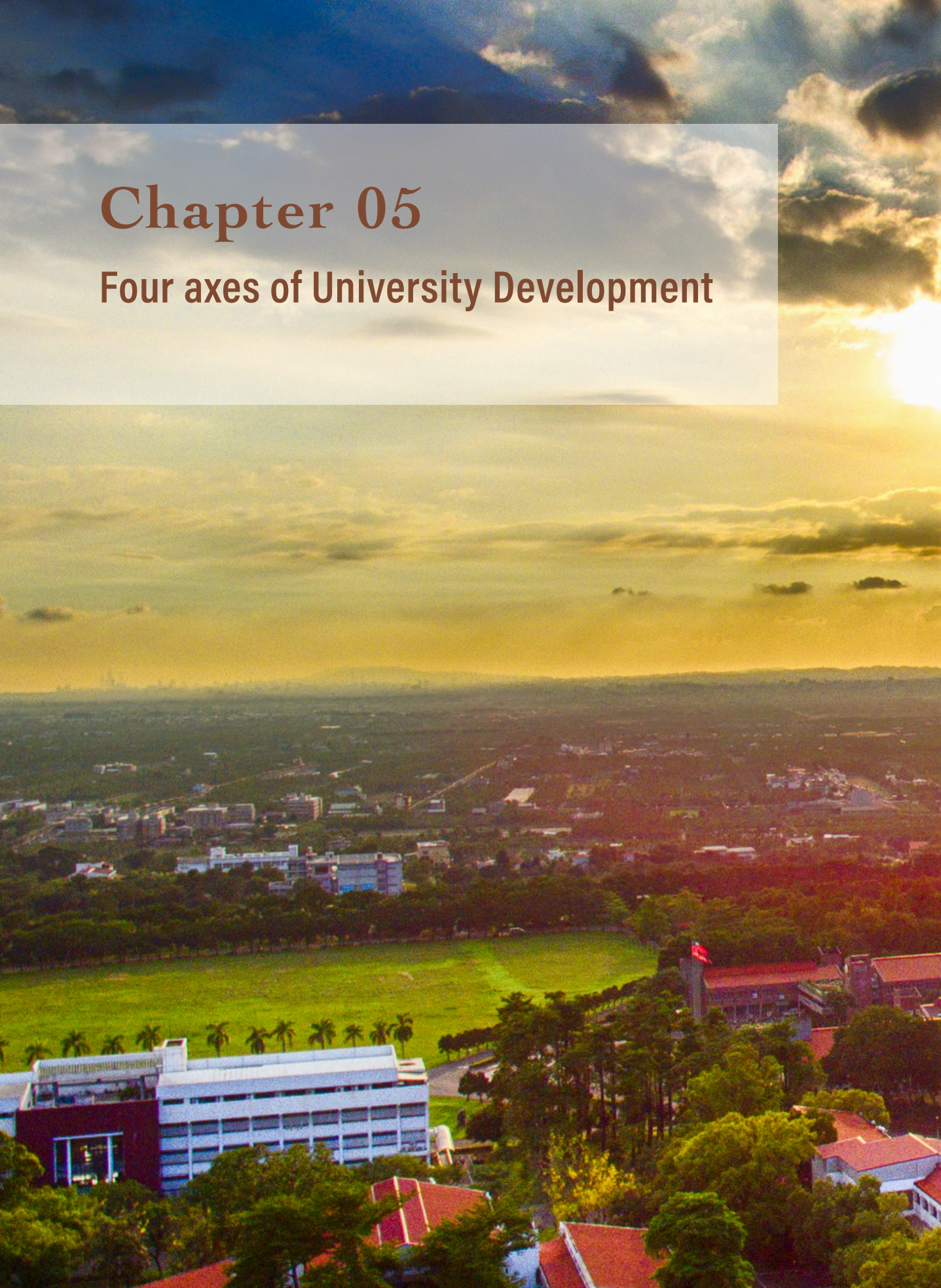
2023 Outstanding Overseas Compatriot, Teh Chai Seng

2022 the Ministry of Education's 3rd Global Outstanding Alumni Award, Odette Marie Varela Milla

Vietnamese students celebrating the Mid-Autumn Festival in 2023

Continuing Toward Internationalization

Through international exchanges centered on tropical agriculture, NPUST takes on the responsibility of "educational diplomacy." International students studying at NPUST bring different worldviews, fostering the possibility of "learning together" and expanding the international perspectives among students. The internationalization of frontline staff in the College of International, with all courses and administrative services conducted in English, provides a friendlier and more comfortable environment for international students, enhancing their learning and living experiences. By leading the entire faculty and students towards academic development that integrates theory and practice, students are equipped with broader macroscopic thinking as "global citizens," fulfilling the vision of international exchange at NPUST.



Chapter 05

Four axes of University Development


Technological Agriculture
Ecological Industries
Platinum Society
Sustainable Economies

Technological Agriculture

Field of Agriculture

Wood Pilot Plant

- The Department of Wood Science and Design houses a Wood Pilot Plant with land area of approximately 3,300 m², making it the largest educational wood pilot plant among colleges and universities in Taiwan. The three major tasks of the Wood Pilot Plant under the Department of Wood Science and Design are education, research, and service. Over the years, the Wood Pilot Plant has cultivated many outstanding talents who are devoted to wood industry, including wooden product design and manufacturing. Additionally, the Wood Pilot Plant also cultivates young talents to participate in skills competition, winning numerous outstanding awards in the competition fields nationally and internationally. It holds a significant position in the domestic woodworking profession. NPUST has been devoted to integrate with related industries, such as wood design and manufacturing, to develop professional technical skills, assisting in industry development and improving spatial plan and equipment. It is recognized by the Ministry of Labor as a qualified site for woodworking skills certification test and is also a site for skills certification test in bamboo weaving, serving as an important training center for bamboo and wood skills talent in the southern region of Taiwan. The Wood Pilot Plant under the Department of Wood Science and Design aims to establish an international base for cultivating talents in woodworking, to enhance competitiveness of participants for international skills competitions, and to closely cooperate with relevant industries.

Center for Agricultural and Aquacultural Product Inspection and Certification

- Originally established as the Service Center of Aquacultural Product Inspection, this center was accredited by the Council of Agriculture (now the Ministry of Agriculture) and the Taiwan Accreditation Foundation (TAF) in 2007, becoming the first product traceability certification organization in the Kaohsiung-Pingtung area. In early 2008, it obtained TAF International Standard ISO/IEC 17025 accreditation for testing laboratories and began conducting government and private commissioned inspection and analysis services. The center offers inspection services complied with government policies to ensure food safety, cultivate talent in research, development, and inspection techniques, and vigorously promotes the "Traceable Agricultural Product" certification system. Inspection services include food nutritional analysis, pesticide and drug residue testing, heavy metal and mineral analysis, food microbiological testing, etc., with an annual volume of 8,000 to 10,000 inspections. The TAP certification service covers general crops, aquaculture products, crop processing, and aquaculture processing certification items, with a current customer base of 650 to 700.

2022 WorldSkills Competition Gold Medalist, Student Shih-Kai Chen

Center for Agricultural and Aquacultural Product Inspection and Certification

Simulated Food GMP Production Line

- The Simulated Food GMP Production line, an affiliate of the Innovative Food Technology Service Center is established as one of the seven focal projects sponsored by the Ministry of Education at NPUST. Focused on distinctive economic crops of Pingtung County, coffee and cocoa, it sets up a small-scale production line compliant with Good Manufacturing Practice (GMP) standards. It provides students with immersive experience in regulated food processing facility which can enrich their professional development. Students can produce coffee, chocolate, and other agricultural products at this production line. Moreover, it assists businesses in product development and offers coffee and chocolate processing training courses. Overall, the Simulated Food GMP Production line possesses educational, production, and extensional functions.

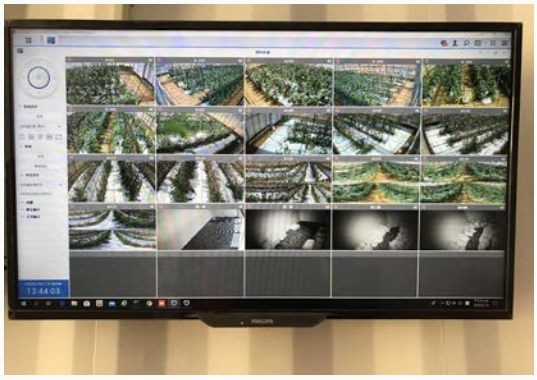
Technical Center for Aquaculture

- Occupying 1,367.8 m², this center annually invests resources and research manpower in the selection and preservation of high quality strains of important aquaculture species to promote the sustainable development of seed production and aquaculture industry in our country. Its main purpose is to preserve the excellent strains of important culture species in southern Taiwan. To achieve this conservation principle, it is necessary to first establish the genetic characteristics of the conserved strains as a basis for selecting and preserving germplasm. Additionally, it establishes databases of relevant traits and their genetic genes. Currently preserved varieties include various species of groupers, marine ornamental fish, giant freshwater prawns, Pacific white shrimp, etc. Through the center's resources and research achievements, it links with the industry to cultivate outstanding talents in aquaculture seedling breeding domestically, promoting the formation of regional high-quality seedling research and development industry-academia alliances, thereby strengthening NPUST's industry-academia performance.

GMP production line products

Chocolate processing

Smart farm environmental control greenhouse



Various Sensor Monitoring Systems

Smart Agriculture Center

- As the only university in Taiwan focusing on tropical agriculture as its development characteristic, NPUST established a 10-hectare smart agriculture production demonstration base, with smart agriculture as the main focus, through the Ministry of Education's "Optimization of Vocational Schools' Practical Environment Project - Cultivating Industry Environmental Talents" project, Integrating smart agricultural machinery, the Internet of Things(IoT), and big data applications into agricultural production teaching. Additionally, we engage in the research and application of labor-saving machinery, equipment, aids, and sensing components. This includes the introduction of hardware and software equipment such as wireless environmental sensors, GPS tractors, spraying drones, agricultural facilities, and production management systems, such an approach offers farmers more efficient farm management models. After integrating the overall technology and concepts required for smart agriculture, we connect with industries such as production, utilization, and leisure tourism. This cultivates students' management, interdisciplinary, and integration capabilities in agricultural production, processing, and marketing, fostering talents who are closely aligned with industry and well-versed in industry technology.

Aerial View of the Smart Agriculture Center

Plant Medicine Teaching Hospital

- This hospital aims to provide practical and comprehensive teaching in phytomedicine and consultation services, with a commitment to reducing the carbon footprint of the food system, protecting public health, and ensuring sustainable agricultural development. It holds on-site clinic services at fixed locations in the Kaohsiung-Pingtung area through local agricultural associations and also supports operational and analytical tasks for reserve plant doctors stationed at agricultural associations in Kaohsiung, Pingtung, and Taitung. Additionally, it regularly holds in-service training sessions for reserve plant doctors in the southern region. Beyond serving the agricultural industry, the hospital also provides consultation services for landscape tree health management, offering services such as tree anomaly inspections, tree health checks, and tree risk assessments for the public and various organizations. To address plant health management issues, the hospital organizes related courses periodically, collaborates with high schools and vocational schools for co-teaching, promotes education through booths at various events, holds farmer seminars, and welcomes community groups and individuals for visits.

Field Pest and Disease Monitoring Work

High Voltage Electrostatic Field Preservation System for Fruit and Vegetable

- This technology is the first to integrate high-voltage electrostatic field (HVEF) with modified atmosphere packaging (MAP) for vegetable preservation, achieving significant preservation effects. For cut vegetables, this integrated technology can effectively extend the shelf life of cut cabbage and broccoli from the usual 3-7 days to 60 days and 40 days, respectively, increasing the shelf life by 6-10 times. When using the electrostatic field system alone, it can extend the shelf life of fresh, uncut fruits and vegetables by more than 1.4 times under low-temperature conditions and double the shelf life at room temperature. The system is energy-efficient, environmentally friendly, and easy to operate, making it suitable for upstream suppliers of general supermarkets or retail outlets. Its competitive advantage lies in the uniform and stable electrostatic field, which can be customized according to customer needs for preservation purposes. The technology has a wide range of applicable industries and can target high-value, perishable fruits and vegetables, focusing on the Asian and European markets. It not only increases the long-term storage and export competitiveness of fresh fruits and vegetables but also addresses domestic issues related to vegetable supply and pricing. This technology was honored with the 19th National Innovation Award.

DVT Machine Named "Da Yan Xian"

Bitter melon entering DVT treatment on conveyor belt

Honored with the 19th National Innovation Award

Left: Field using the SPRI water-saving irrigation method developed by NPUST team. Right: Traditional farming rice paddy. Post-typhoon, a clear contrast in the lodging of rice plants between the two methods is evident.

System of Probiotic and Rice Intensification (SPRI) Cultivation System

- The main achievement is the development of a probiotic rice enhancement system that improves soil environment and strengthens rice roots by saving irrigation water and adding required environmental probiotics to the soil. It increases microbial diversity in rice fields, achieving water savings of 30-50%, a yield increases of 25-30%, and healthier plants, reducing the need for pesticides and may lowering 70% of greenhouse gas emissions from paddy rice. Currently, in collaboration with farmers over more than 100 hectares of rice fields, this eco-friendly farming method has attracted the interest of the TECO Group. Mos Burger, a subsidiary, uses low carbon rice produced with this technology as an ingredient. Additionally, the SPRI grown low carbon rice is also chosen by Uni-President 7-11 for producing their rice ball and rice box. Besides, collaboration is underway with the Veterans Affairs Council Taitung Farm, Farmers Associations, Sanhao Rice, and Yin-Chuan Rice for brand partnerships, expanding to more contract farming partners in Taiwan and even to major rice-producing countries in Southeast Asia.

  In addition to promoting low carbon rice production technology, we have collaborated with Plant Industry, Food Science, and Biological Science and Technology departments to jointly develop the "Brown Rice Extract Series of Skincare Products and Germinated Brown Rice Foods." Using "Kaohsiung 147" brown rice grown with the eco-friendly SPRI low carbon farming method as the base, we have developed a series of skincare products that regulate anti-inflammatory and anti-aging processes and enhance collagen production. Additionally, we have developed instant roasting technology to create natural germinated brown rice products such as preservative-free, additive-free, non-fried germinated brown rice crackers, germinated brown rice porridge, and germinated brown rice baby snacks. These products are designed to ensure healthy and safe consumption for both elderly and young consumers.

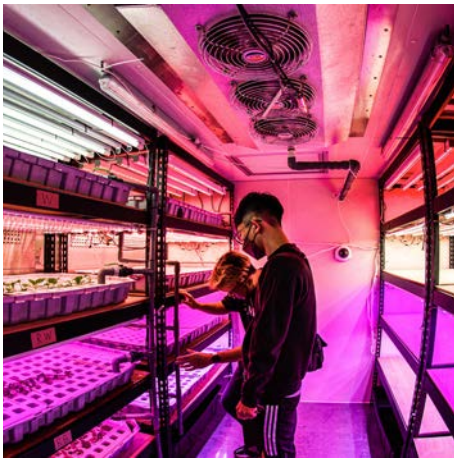
Green Energy Biorefinery – Green Energy Greenhouse

- To protect crops from extreme climate changes and pest damage and to reduce CO_2 emissions by using sunlight to generate electricity, the College of Agriculture and the College of Engineering have collaborated to establish this facility, providing a platform for teaching and research. The "Green Energy Greenhouse" is a multifunctional greenhouse with a BIPV-type roof integrated with solar panels and glass curtain walls, capable of remotely monitoring the environment. It combines new recirculating hydroponic technology and LED supplementary lighting equipment. On a "trial production" scale it evaluates the crop types and techniques suitable for this environment with the goals of enhance the utilization of land, energy, water, and fertilizers, and to develop an eco-friendly, stable, and efficient facility cultivation model.

  By 2025, Taiwan will enter a super-aged society. This facility focuses on precision agriculture, moving towards precision health. In the future, the research and services of this greenhouse will emphasize aging technology, including: 1. Development of functional fruits and vegetables, such as low-potassium lettuce and melons for special dietary needs, and lettuce high in anthocyanins; 2. Development of highly efficient and labor-saving greenhouse cultivation systems. These goals will be the primary focus of this facility in the future.

Green Energy Biorefinery

Low-potassium melon cultivation



Fully artificial light plant factory

Field of Veterinary Medicine

Animal Biologics Pilot Production Center

- NPUST has established Taiwan's only "cGMP-compliant pilot production testing factory for animal biologics" and a "GLP-compliant quality control testing laboratory for animal biologics." These facilities are integrated with our "Graduate Institute of Animal Vaccine Technology" and the "International Degree Program in Animal Vaccine Technology" research team, forming a comprehensive "Animal Biologics Pilot Production Center." This center aims to achieve "innovative vaccine technology," "industrial-scale production simulation," "practical training in a cGMP-grade factory," and "industry collaboration." It supports NPUST and domestic animal biologics R&D outcomes by conducting pilot production and animal testing that meet international standards, facilitating the commercialization, industrialization,and internationalization of research achievements.

Animal Biologics Pilot Production Center

Primary Cell Culture Technology

- The team at NPUST's Graduate Institute of Animal Vaccine Technology has established various fish cell lines through "Primary Cell Culture Technology", including those from carp, tilapia, grouper, trout, sturgeon, and other cold-water fish, covering tissues such as fins, heart, brain, kidney, spleen, liver, and gills. These cells are utilized in the development of fish vaccines, such as those for Koi herpes virus (KHV), Nervous necrosis virus (NNV) in grouper, Infectious salmon anaemia virus (ISAV), and Infectious pancreatic necrosis virus (IPNV) in salmon. Additionally, the developed "suspension culture system" shortens antigen culture time, effectively reducing process duration, and increases production efficiency while significantly cutting down on space, time, and labor costs. The laboratory also gradually reduces the cells' dependency on serum through cell adaptation, thereby lowering production costs and enhancing product quality.

Student conducting experiments in the laboratory

Veterinary Transfusion Medicine Center

- With the belief of "Saving lives and achieving happiness," NPUST, in collaboration with the University of California, Davis, and Kasetsart University in Thailand, has established the first public "Veterinary Transfusion Medicine Center" in Taiwan, incorporating advanced technology and experiences in blood banking. Holding public welfare as its initial intention, the center encourages healthy pets at home to donate blood voluntarily, aiming to meet Taiwan's veterinary blood transfusion medical needs while also considering the welfare of blood donor animals. In 2023, the center's "Guard the animal blood donors and achieve a healthy and happy world" program was honored with the Model Award of "Welfare and Symbiosis Group" of USR by《Global Views Monthly》Magazine. The center recruits' dog and cat blood donors, establishing comprehensive procedures, including evaluation criteria, pre-donation health checks, blood product pathogen testing, and bacterial culture to ensure the safety and quality of animal blood donation. Furthermore, the center collaborates with various sectors including social education, businesses, and media to build a friendly animal community network, promote the correct concept of animal blood donation, and create a healthy and happy world for both humans and pets.

Recruiting brave pets to donate blood by the Veterinary Transfusion Medicine Center

Establishment Stifle Joint Magnetic Resonance Imaging Protocol for Small and Medium Breed Dogs and Evaluation of Magnetic Resonance Imaging Features in Canine Spontaneous Degenerative Stifle Joint Osteoarthritis

- Canine stifle joint osteoarthritis (OA) is a common condition characterized by progressive damage and degeneration of the joint cartilage and underlying bone, accompanied by osteophyte formation at the joint margins and changes in the synovial membrane. This study aims to compare the application value of various non-invasive medical imaging techniques in spontaneous OA cases. The research results indicate that magnetic resonance imaging (MRI) has the highest sensitivity in detecting and describing lesions related to ligaments, menisci, cartilage, and synovial effusion, providing the most comprehensive assessment of these structures. Digital radiography (DR) provides sufficient information on bony structures, while computed tomography (CT) imaging provides the most precise and detailed information on bony structural lesions. By combining the findings of these imaging techniques, clinical veterinarians can gain a deeper understanding of the disease process and devise more accurate treatment plans.

Canine knee joint magnetic resonance imaging

Ecological Industries

Water Conservation and Disaster Prevention

Outdoor Water Conservation Classroom

International Demonstration Site for Farmland Soil and Water Conservation

- To promote exchanges and cooperation with countries worldwide in the professional field of farmland soil and water conservation, the Agency of Rural Development and Soil and Water Conservation, MOA, in collaboration with the Department of Soil and Water Conservation at NPUST, jointly promote the establishment of the "International Demonstration Site for Farmland Soil and Water Conservation." Located at NPUST's outdoor classroom, the site's facilities are designed based on the principles of carbon reduction engineering and ecological friendliness, implementing slope conservation and smart technology management. This initiative assists in the rural development of Southeast Asian countries, providing substantial exchanges and cooperation in soil and water conservation technologies for living, ecological, and production purposes. Moreover, it serves as an important site for research, teaching, and environmental ecology.

  The outdoor practical classroom for soil and water conservation possesses steep, moderate, and gentle slope test fields and teaching facilities for soil and water conservation techniques. It is the only teaching-oriented outdoor classroom supported by the Agency of Rural Development & Soil and Water Conservation, MOA. In line with the New Southbound Policy, NPUST establishes the only "International Demonstration Site for Farmland Soil and Water Conservation" among national universities, equipped with teaching facilities and materials in Chinese, English, and Thai languages. This serves as a training and teaching area for slope agriculture technology in New Southbound countries. Currently, technicians from Thailand visit NPUST annually for training and technical exchanges.

"I-Learn SWC" App

- With the support of the College of Engineering and the Agency of Rural Development & Soil and Water Conservation, MOA, Department of Soil and Water Conservation has developed an intelligent soil and water conservation mobile education system called the "I Learn SWC" APP, Taiwan's first mobile outdoor classroom for soil and water conservation. This app integrates teaching content with digital devices, bringing indoor soil and water conservation courses to outdoor sites. Users can automatically detect nearby educational points through mobile phone positioning and directly access knowledge about vegetation and slope conservation methods relevant to the location. The app provides automated multimedia explanations for various teaching facilities and demonstration methods in the International Demonstration Site for Farmland Soil and Water Conservation, supporting multiple languages and offering real-time access to multimedia teaching materials in Chinese, English, and Thai.

"I-Learn SWC" App

Soil and Water Conservation Technology Service Center

- This center was established to strengthen soil and water resource conservation efforts and import new soil and water conservation technologies. It offers services such as the review of soil and water conservation plans, appraisal of related cases, and the design and planning of agricultural soil and water conservation projects. Additionally, it provides technical services in greening projects, soil and water conservation engineering, meteorological and hydrological analysis, soil property testing and plant nutrition analysis, slope stability and stress analysis. The center also offers technical consultations related to soil and water conservation and environmental risk assessments.

Soil and Water Conservation Plan Review

Compound Disaster Prevention Research Center

- In response to the impacts of extreme weather and natural disasters, this center integrates various experts and resources to conduct academic and technical research on the investigation, assessment, prevention, and planning of complex sediment disasters. It provides professional consultation and services to various organizations and establishes an exchange platform for disaster prevention technology information. The center actively participates in domestic and international exchanges on soil and water conservation, disaster prevention, and technical cooperation. Through the collaboration of industry, government, and academia, the center stimulates innovative and diverse research and development.

Disaster Prevention and Mitigation Technology Research Center

- This center integrates faculty from NPUST specializing in climate change, disaster prevention and relief, and social work to form a research team. The research topics include the impacts of climate change and adaptation strategies, investigation and analysis of flooding and hillside disasters caused by typhoons and heavy rains, earthquake disaster simulation and response, public protection in nuclear accidents, the operation of disaster response systems, promotion of resilient communities and urban resilience, training for disaster prevention specialists and water resources volunteers, and radioactive analysis and testing of the environment and food.

The research outcomes include establishing a self-reliant disaster-prepared community for nuclear accidents in the emergency planning zone (EPZ) of the Maanshan Nuclear Power Plant. This involves verifying the evacuation methods, route planning, and public resettlement through nuclear safety drills. Additionally, the establishment of self-reliant flood disaster communities and their autonomous responses includes training community water resource volunteers, promoting interaction and mutual learning between young and elderly volunteers, and enhancing the community's ability to assist each other during disasters. In response to future large-scale typhoon and earthquake disasters, and even wartime scenarios, efforts are made to promote government response and volunteer collaboration to strengthen major disaster response capabilities. The center also conducts environmental sampling and radiation testing around the Maanshan Nuclear Power Plant, as well as radioactive examination and analysis of food.

Nuclear Accident Vehicle Decontamination

Caregivers personally built enclosure for the primates

Pingtung Rescue Center for Protected Wildlife

- Over the past 30 years, this center has rescued or sheltered more than 6,500 wild animals, with over 80% being threatened or protected species. With the rise in conservation awareness and changes in the composition of rescued species, the focus has gradually shifted towards rescuing, rehabilitating, and assisting in the population reinforcement and restoration of indigenous endangered species. Recently, this center has rescued and released over 200 native endangered wild animals annually, including iconic species or animal groups such as black bears, leopard cats, raptors, and yellow-margined box turtles. By integrating wildlife conservation research, disease management, medical care, and private resources, this center ensures that rescued and released animals contribute to wild populations. It has become a significant base for endangered wildlife conservation in Taiwan and a flagship project for terrestrial ecosystem protection and restoration under sustainable development goals.

Wildlife Conservation Efforts:

NPUST currently shelters **105** species listed on the IUCN Red List and the national protection list (Critically Endangered, Endangered, Vulnerable, Near Threatened), totaling over 1,400 individual animals.

In the past three years, this center has rescued **992** individuals, including domestically endangered, precious and rare species, other species in need of conservation, and general wild animals. Of these, **371** have been rehabilitated and released back into the wild.

Total species housed at NPUST listed in the IUCN Red List and national protection lists:

Near Extinct	Critically Endangered	Endangered	Vulnerable	Near Threatened	Least Concern	Total
Total Species Count	9	15	21	10	50	105

Endangered Wildlife Conservation - Pangolins

- The Chinese pangolin (Manis pentadactyla) is an extremely endangered species, receiving high attention from the International Union for Conservation of Nature (IUCN). However, there is very limited understanding regarding the ecological research and conservation knowledge of pangolins. Due to their taper-shaped head and neck, traditional collaring methods often face the problem of detachment during monitoring, leading to difficulties in collecting ecological data. Assistant Prof. Ching-Min Sun has improved the shape and attachment methods of pangolin radio transmitters, significantly reducing the possibility of early detachment, thus providing important methodological support for pangolin research and conservation.

Pangolin expert Assistant Prof. Jing-Min Sun research wild individuals

Prof. Mei-Hsiu Hwang, the bear mother, and bear cub "Nanan"

Endangered Wildlife Conservation - Taiwan Black Bears

- Prof. Mei-Hsiu Hwang has been dedicated to the conservation of the endangered Formosan black bear for over 25 years, being the first scholar in Taiwan to capture, tag, and track black bears using satellite tracking. Through telemetry projects, she sets up traps , conducts health checks on captured bears, tags them with ear tags, microchips, and radio satellite transmitters, and then releases them back into the wild. This facilitates the investigation of wild animal seasonal migration routes, activity patterns, habitat use and other behavioral information, gradually piecing together the map of black bears. She utilizes the university as a platform for talent cultivation and interdisciplinary collaboration, starting from the initial laboratory team to establishing the Taiwan Black Bear Conservation Association, connecting internationally. Through various environmental education advocacy and outreach programs such as popular science articles, lectures and filmmaking, she raises awareness of conservation among the public, hoping to arouse attention of Taiwanese people to conserve the threatened black bears and protect them.

Unmanned Vehicle Applications

Smart Agricultural Machinery Center

- Currently, the electromechanical systems and the corresponding technologies of electric smart vehicles are mostly imported from abroad. This center has developed key technologies for the whole-vehicle design of electric smart vehicles, including vehicle structure, autonomous driving control systems, electromechanical systems, suspension systems, and component design. Through the design, development, and implementation of smart electric vehicles, combined with the professional expertise and industrial resources of NPUST, this center is establishing the research and development capabilities of key technologies. It aims to cultivate professionals in electric vehicle technology, decrease the dependence on foreign sources, and further root related technologies domestically.

Students working on unmanned vehicles at the Smart Agricultural Machinery Center

Unmanned Vehicle Testing Ground

- This testing ground is established in 2019, covering an area of 16,128 square meters. It imitates real roads and traffic signs to serves as an important venue for testing and operating various smart unmanned agricultural vehicles and electric vehicles developed by research teams in NPUST.

Unmanned Vehicle Testing Ground

Research Center of Railway Vehicle

- This center has developed various prototypes of power bogies with different axle load designs. Among them, the power bogie with a 2-ton axle load can be employed for long-term dynamic testing and verification on campus, with a commonly used standard gauge of 1,435mm. The power bogie's design includes

On-Campus real vehicle testing

structural, powertrain, suspension, control, and braking systems, as well as the design of various components. A finite element analysis model of the power bogie has been established using ABAQUS, Isight, and Fe-safe software packages to conduct weight deduction and to simulate the strength and fatigue life of the bogie structure. It is confirmed that the structure and driving safety meet the requirements of European standards EN-13749 and EN-14363. Subsequently, undergoing the design, fabrication and installation of power, suspension, braking, and control systems, welding the structure components and assembling the whole units together, the power bogie was built. The track testing and the corresponding measurements were carried out afterwards. This center also has the capability to do whole-vehicle dynamic simulation analysis. Utilizing multi-body system dynamics simulation software, a comprehensive whole-vehicle dynamic model of domestic rail vehicles has been established, along with the key technologies and know-how for dynamic analysis. It is confirmed that the overall vehicle driving safety meets the requirements of European standard EN-14363. Through the development of rail vehicles, this center has become the only On-campus unit in Taiwan with expertise in the design of bogie frames and whole-vehicle dynamic simulation analysis, fostering professional talents in domestic rail vehicle technology. This team has been certified in the analysis and design of tram vehicle bogie systems from TÜV Rheinland in Germany.

Assisting students with the professional drone certification exam

Center for Unmanned Vehicle Applications R&D

- NPUST promotes "Agriculture 4.0" by leveraging unmanned vehicles, sensing technology, smart devices, the Internet of Things (IoT), and big data analysis to achieve smart production, increase yields, save labor, and attract youth participation. With the advancement of technology and decreasing costs, the integration trend in the industry has made the application of unmanned vehicle technology more widespread. Currently, the Department of Vehicle Engineering is developing smart agricultural vehicles specifically designed for rugged and difficult farmland. These vehicles can autonomously navigate fields, identify weeds, collect soil environment data, and automatically mow and fertilize. Additionally, in collaboration with the College of Agriculture, they are developing an intelligent electric unmanned vehicle for fish feed distribution. Other applications include unmanned boats for mapping underwater topography of reservoirs and investigating sedimentation conditions, and drones for monitoring the growth and health of crops, fruit trees, and forests, as well as for yield estimation, carbon storage estimation, and remote-controlled drone education and promotion services. These technologies collect and analyze data, enabling more effective management of smart farming environments.

Animal Health

Apiary as an Open Ecological Laboratory

- The NPUST apiary is used for teaching, research and technology transfer. This apiary is located in the Tropical Orchard of the school's Smart Farm and is managed by the Department of Tropical Agriculture and International Cooperation. The apiary is equipped with complete bee products harvesting equipment and safety gears, making it an ideal place for students to conduct scientific research and study. The bee colonies on campus are capable of pollinating fruit trees and flowering crops on campus and adjacent farmlands, as well as providing natural bee products such as honey, pollen, royal jelly, propolis, and beeswax. The apiary and bees are valuable natural resources that contribute to NPUST's efforts in sustainable ecological development and environmental education.

Worker bees passing through pollen collecting tool

Aquatic Animal Health Laboratory

- As aquaculture continues to be the fastest-growing sector in global fisheries, it faces significant challenges from viral and bacterial diseases. Our laboratory is dedicated to advancing the fight against these infectious diseases in fish and shrimp while enhancing their immune functions. We utilize large-scale cDNA sequencing (RNA-seq) technology for comprehensive transcriptome analysis, paving the way for novel strategies to understand pathogen mechanisms, particularly in organisms without reference genomes. Furthermore, we have established microbial genomics for fish pathogens using MinION Nanopore technology. This third-generation sequencing method is fast, reliable, portable, and ideal for the epidemiological study of bacterial pathogens in aquaculture. Additionally, we employ this technology to screen for antibiotic-resistance genes in fish and shrimp pathogens, developing innovative approaches to combat bacterial infections in aquaculture.

Environmental Health

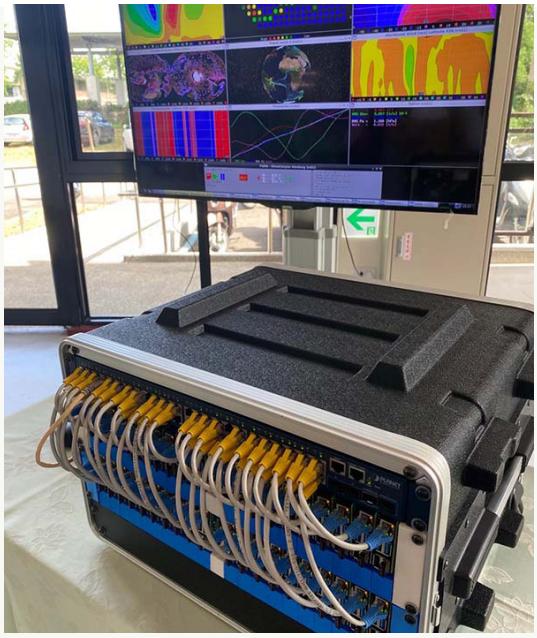
Center for Agricultural, Forestry, Fishery, Livestock and Aquaculture Carbon Emission Inventory and Emerging Compounds (CAFEC)

- In response to the global trend of carbon reduction and to fulfill Taiwan's "2050 Net Zero Emissions" commitment, this center has actively engaged in various carbon inventory projects. These include a carbon inventory training program in collaboration with Chung Hwa University of Medical Technology and a comprehensive carbon inventory project for small and medium-sized enterprises in the metal industry, in partnership with the Industrial Technology Research Institute (ITRI) under the Ministry of Economic Affairs. These projects help to understand the greenhouse gas emissions of enterprises. Additionally, the center assists the Chiayi County Environmental Protection Bureau in establishing Taiwan's first Net Zero Academy, offering professional courses to educate local residents and businesses about greenhouse gas-related knowledge and concepts. The courses quickly familiarize participants with the contents of ISO 14064-1 regarding the identification, quantification, and reporting of greenhouse gas sources, develop their ability to construct organizational greenhouse gas emissions inventories, and help them master the techniques and methods for certifying/verifying and reducing greenhouse gas emissions.

Center lecturer teaches at Chung Hwa University of Medical Technology

AI Real-Time Weather Forecasting Portable Box

- This is a portable and relatively affordable real-time weather forecasting field system, incorporating high spatio-temporal resolution data from a Doppler Wind Lidar into numerical models through data assimilation methods. By integrating data from the National Centers for Environmental Prediction (NCEP), the National Center for Atmospheric Research (NCAR), and the Weather Research and Forecasting (WRF) model, a high-resolution data assimilation forecasting model has been developed. Its application in airport forecasting systems can significantly enhance the prediction of convective rainfall and wind fields.



Weather Forecasting Portable Box

Platinum Society

Aging Society

The Sustainable Healthcare Center

- This center implements the educational mission of "cultivating healthcare professionals, counseling and empowering health-related industries, researching health care-related issues, and promoting health and well-being." Therefore, in cultivating healthcare professionals, it offers a series of long-term care courses, conducts training at various levels, strengthens practical skills and resource connections, enhances manpower in long-term care services, and collaborates with the Pingtung County Government to conduct research and in-service training on long-term care policies and service delivery, thereby enhancing the capacity of local long-term care services.

Community health education and promotion for dementia

Imagining and Exploring "Holistic Care" for the Next Generation of Seniors

- Faced with the aging trend, the Pingtung County Government has long collaborated with NPUST's "Pingtung County Elderly Community Care Research and Development Center." In addition to conducting related research and forums, in 2023, we jointly organized the seminar "Imagining and Exploring 'Holistic Care' for the Next Generation of Seniors," inviting domestic scholars and practitioners to exchange ideas. With "Holistic Care for the Next Generation of Seniors" as the core theme, we delved into topics such as "caregivers and care recipients," "active aging," "community-wide care," "employment," "transportation and mobility," aiming to provide comprehensive understanding and care. The goal is to make Pingtung County a "Senior-Friendly City," characterized by accessibility, smoothness, security, familial support, respect for elders, vitality, connectivity, and healthiness.

Imagining and Exploring "Holistic Care" for the Next Generation of Seniors

Indigenous Long-term Care Services

- Prof. Kui Kasirisir (Chun-Tsai Hsu) from the Department of Social Work has formed an extensive collaboration with the Pingtung County Government. Commissioned by the Department of Long-term Care, Prof. Kui Kasirisir established the "Pingtung County Indigenous Center for Long-term Care Service Research and Development". The mission objectives of this center include: First, conducting action research to promote friendly care models within indigenous communities. Second, organizing long-term care education and training programs focused on cultural safety concepts, and developing a framework for compiling cultural care guideline examples. Third, hosting an annual conference featuring academic and practical seminars on indigenous long-term care services. Fourth, creating a website for the research and development center and developing an information platform for indigenous long-term care in Pingtung County. This center aims to become a national exemplary site. Additionally, the center plans to compile a collection of cultural care guidelines this year, seeking to understand practical insights and needs, thereby aligning with the policy development direction of precise long-term care for indigenous peoples.

Indigenous cultural safety course

Tea seed dregs flavonoid kaempferol against organ inflammation and improves brain cognitive and memory function

- The invention team led by Prof. Wen-Ling Shih from the Department of Biotechnology won the gold medal at the "2023 Malaysia ITEX International Invention Exhibition". This invention uses the residue after oil extraction from Taiwan's native bitter tea seeds, further prepare the "kaempferol triglycoside" compound with a purity of more than 98%. The current purified compound could regulate antioxidant and anti-inflammatory-related genes, inhibit local and systemic inflammation, protect organs and repair brain damage. At present, animal experiments had been confirmed the multiple health benefits, the industrialized production process and quality control platform had been established. Taken together, this functional ingredient can be used in the development of health food products.

Multifunctional positive and negative pressure animal room

Mengxiang Gymnasium

- "The Future Vision, Technological Venue - Mengxiang Gymnasium 2.0" incorporates sports science and intelligent facilities, introducing sports science analysis instruments such as 3D motion tracking systems and force plates in running tracks and jumping areas. This enhancement enables precise analysis of various sports, transforming the gymnasium into a large-scale precision sports laboratory. It also features the "Location Position System (LPS), It's a sports monitoring system" and the "sports technology analysis track."

Students participate in various physical fitness training courses

Multifunction classroom of the Department of Recreational Sport & Health Promotion

- This Department, along with representatives from the fitness industry and educational training institutions, formed the "Fitness Industry Strategy Alliance", aiming to create an excellent training environment where schools, training institutions, and businesses collaborate for learning, internships, and employment opportunities—a win-win situation for all three parties. They have planned the "Higher Education Sprout Project-Fitness Instructor Talent Cultivation Interdisciplinary Program," the first of its kind in Taiwan, which combines colleges with training institutions and fitness industry enterprises to cultivate students with the professional skills required by the industry during their academic studies, as well as international certifications and practical experience. In addition to various sports equipment, the classrooms also include professional sports science testing and training equipment.

Senior exercise program

Smart Media Research Center

- This center combines the expertise of educational technology teachers with industry-academic certification courses to encourage teachers and students to enhance their proficiency in technology teaching within NPUST. They continuously provide guidance to primary and secondary schools outside the campus to develop robotics teaching materials and maker education training. They have collaborated with many primary and secondary schools in Tainan, Kaohsiung, and Pingtung, such as establishing robotics maker classrooms and training teachers from rural elementary schools to integrate robotics teaching into their curriculum. Additionally, they collaborate with teachers and students from National Fengshan Senior Commercial & Industrial Vocational High School's Dept. of Computer Mechanical Drafing to enhance the STEM education literacy of the community through community STEM education experience activities, including participation in robot programming. Simultaneously, they have developed: 1. AR and VR digital learning materials to allow students to conduct experiments in virtual reality. 2. A multifunctional virtual reality teaching management system that enables teachers to simultaneously observe all students' VR screens and conduct VR broadcast teaching. 3. AR digital games and AR interactive learning systems to increase student interest in learning.

Working Dog Training Center

- This center is the only working dog training unit established in universities nationwide, with the goal of cultivating diverse working dogs such as detection dogs, assistance dogs, companion dogs, and providing obedience training for pet dogs. It integrates professional resources from departments such as Veterinary Medicine, Animal Science, Social Work, and Child Care to cultivate professional talents with expertise in dog care and training techniques. These talents are then deployed in various fields to serve society, such as collaborating with the Social Work Department in providing social care dogs for elderly care, cooperating with the Modern Language Department in learning assistance dog-related compassionate animal care projects, "Reading with Dogs" life education programs, and English learning support programs in rural areas. Students participate in training programs for reading dog handlers and are invited to promote reading dog activities at the Buddha Light International Book Fair and Vegetarian Expo. Collaborating with the Sustainable Health Care Center, they conduct animal-assisted activities to promote the health of elderly people in the community, bringing social care dogs to community activity centers to accompany the elderly in exercise and games. They also participate in the Fengliao Science Fair obstacle course event, leading detection dogs, hearing assistance dogs, and learning assistance dogs to elementary schools. They promote knowledge related to working dog training, enhance public awareness of working dogs, and advocate the concept of respecting life. This center also has complete kennel facilities to provide services such as pet dog boarding and behavior training.

Working dogs interacting the elderly in communities

Adorable working dog

Sustainable Economies

Renewable Green Energy

Sustainable Circular Economy R&D Center

- This center is a research and development unit for the development of renewable energy combined with circular economy. It consists of teams specializing in advanced green energy technology, agricultural and forestry circular economy, biomass energy circulation, and sustainable technology for animal husbandry environments. It focuses on the collection, storage, and utilization of renewable energy. The Advanced Green Energy Technology laboratory integrates renewable energy sources like solar photovoltaic, solar thermal, wind, geothermal, wave, and other lab-produced renewable energy. These are combined with various green energy applications in high-pressure compressed air energy storage hybrid microgrid systems and smart grids. The energy generated supports other laboratories' development of technologies for circular economy, providing them with the required electricity and heat energy to reduce power consumption. The synergy among these four laboratories aims to apply these technologies to industries, enhancing sustainable competitiveness.

Team of students and professors at the Sustainable Circular Economy R&D Center

High-Pressure Air Energy Storage Applied Composite Power Generation System

- Led by NPUST's former president, Dr. Chang-Hsien Tai, this "High-Pressure Air Energy Storage Applied Composite Power Generation System" is different from traditional green energy generation, using compressed air storage instead of battery storage. Given the high cost and short lifespan of lithium batteries, using compressed air storage can significantly reduce energy consumption costs and ensure long-term use. This invention converts various energy sources from wind energy, solar energy, and biomass energy into high-pressure gas for storage, then utilizes the principle of shockwave resonance to convert the high-pressure gas into high-energy momentum or for power generation applications, marking a significant breakthrough in the utilization of renewable energy technologies.

Green Power Apparatus of a Boat for Cooling Storage Box

- Developed collaboratively by Prof. Uzu-Kuei Hsu of NPUST and Prof. Chia-Hao Ku of Ming Chi University of Technology, this invention addresses the inefficiency of cooling chips. It uses the swaying motion of ships on the waves, with special multi-stage oscillating compressors and tubular wind collectors, it compresses air to high pressure for storage. Then, high-pressure air is released from the air tank to the storage container. High-speed high-pressure gas has an endothermic effect and, when used with refrigeration chips, produces excellent cooling effects. At the same time, the tubular wind collector converts seawater into fresh water for the entire ship's use through flash distillation, which is environmentally friendly and promotes sustainable environmental protection concepts.

Green Sustainable Energy System Integrated by the Wind Turbine with High-Pressure Air Storage and Heat Pump

- This system not only serves as a wind power high-pressure gas storage machine heat pump energy system, but also be combined with multiple green energy applications in high-pressure gas storage composite microgrid systems and smart grids, providing support for the electrical and thermal energy needed for other circular economy technologies, reducing the power consumption during energy production. For example, the large amount of heat energy required in the biomass pellet process, heating required for biogas production, aeration treatment for livestock wastewater in sheds, and high electrical energy for odor scrubbing towers can all be interconnected by the renewable energy produced by the Sustainable Circular Economy R&D Center, enhancing energy production efficiency.

Exterior of the Sustainable Circular Economy R&D Center with wind and solar-powered streetlights

AI Mechatronics Building

- This facility includes interdisciplinary teaching laboratories such as industrial robots, motor engines, artificial intelligence (AI), unmanned aircraft operations, and logistics robot collaboration. By integrating local industries, it develops distinctive courses oriented towards practical employment, cultivating talents in technology agriculture and electromechanical integration related fields with expertise in Industry 4.0, automation, robotics, artificial intelligence, cloud computing, big data analysis, and the Internet of Things (IoT), meeting the manpower needs of local industrial development.

Interdisciplinary Teaching of Industrial Robotics

- This laboratory is equipped with six industrial-grade six-axis vertical articulated robotic arms for teaching students how to operate the robotic arms and write control programs. Additionally, six personal computers installed with simulation software for the robotic arms are available, allowing students to familiarize themselves with the operation software on the computer beforehand. The course is open to all university students interested in robotics and also offers robotics experience camps during the summer vacation for high school students to practice operation, extending robotics education to younger generations.

Simulation Factory Laboratory

- This laboratory includes a warehousing area, construction production line, automatic storage/retrieval system, shipping reserve area, and robotic arm processing area. Through practical exercises in various training modules, students understand the basic techniques involved in industrial management and their practical applications, thereby achieving the goal of integrating theory with practice in vocational education.

Industrial Wiring Classroom

Simulation Factory Laboratory

CNC milling-turning composite machine laboratory

The Machinery Factory

- This factory includes a CNC milling laboratory, machine shop (lathe, milling, drilling, grinding, planning), CNC lathe-milling composite laboratory, CNC five-axis machining laboratory, welding workshop, automation processing classroom, and intelligent flexible manufacturing laboratory. It houses 18 large CNC machines, 11 milling machines, and 9 lathe machines, as well as 1 CNC EDM machine, 1 five-axis machining center, 4 industrial robotic arms, 1 Autonomous Mobile Robot (AMR), 1 coordinate measuring machine, 1 CO2 welding machine, 1 argon welding machine, and 4 electric welding machines for teaching equipment. In line with the highly automated development of the industry, this factory cultivates talents in precision machining technology, trains students in CAD/CAM software editing and practical machine operation skills and assists students in obtaining Level B technician licenses to enhance their employability and competitiveness in the workplace.

The Mechanical Technology Service Center provides services such as education promotion, technical services, and consulting for both internal and external institutions. To implement practical talent selection and connect with skills development education in technical and vocational colleges, it continues to promote precision manufacturing and industrial robotics summer camps for junior and senior high school students in the southern region, as well as visits to high schools and vocational schools.

Intelligent Flexible Manufacturing Laboratory

Innovative Stud Welding Technology

- This advanced welding technology can directly achieve tight joints without the need of inserting an ignition tip into fasteners. It eliminates the process and cost of producing an ignition tip, thereby enhancing welding efficiency and reducing production costs. It is widely used in applications such as ships and yachts, automotive bodies, building bridges, mechanical facilities, petrochemical equipment, and green energy devices. Recognized for its significant contributions, the research and development efforts in academia and industry received the "Outstanding Technology Transfer Contribution Award" from the Ministry of Science and Technology in 2021, with “Localized post-weld heat treatment technology for metal tubes.”

Prof. Kuang-Hung Tseng Receiving the 2021 Award for Excellent Contributions in Technology Transfer

Nanofluid Ultrasonic Atomization Micro-Lubrication System Development

- This globally pioneering technology disperses nanofluids using cavitation, followed by a second-stage atomization using high-pressure air, converting the liquid nanofluid into a gas, making it easier to enter the cutting zone for cooling and lubrication. The system is intricately designed with a special spacer membrane and is dual-container, which prevents the deposition of nanoparticles, thereby avoiding a decrease in the effectiveness of the nanofluid. Coupled with various intelligent modeling methods, it significantly enhances the quality and efficiency of various manufacturing processes. This technology was awarded the "Future Technology Award" by the Ministry of Science and Technology in 2021.

Embedded Actuator Ultrasonic Vibration-Assisted Turning System for Enhancing Green Process Technology

- This technology is the first in the world to use an embedded actuator vibration design, unlike many systems currently used domestically and internationally which employ the Langevin-type external actuator vibration design. It overcomes and solves the problems of the previous ultrasonic vibration-assisted turning systems, such as large volume, difficult setup, and non-adjustable frequency and tool structure. The frequency and tool structure for processing high-hardness materials developed by this technology are adjustable, can be promoted and sold separately, and can be used with various brands of machine tools domestically and internationally. It significantly improves the processing performance and efficiency of existing machine tools and reduces energy consumption without the need to invest a large amount of money to purchase dedicated machine tools for vibration-assisted turning. This technology won the 'Platinum Award' at the "2022 Taiwan Innovation Technology Expo."

Prof. Wei-Tai Huang Receiving the Platinum Award at the 2022 Taiwan Innovation Technology Expo.

Integrating intelligent mechatronic technology and unmanned vehicle applications to enhance students' future employability

Adjusting courses to meet industry talent needs and training students to become intelligent mechanical engineers

Chapter 06

University Social Responsibility

The Sustainable Momentum of the Green University

Since the establishment in 1924, NPUST has been devoted to developing eco-friendly farming, environmental conservation, and the circular economy. Even before the concept of sustainable development emerged, NPUST had already been actively engaged in various environmentally related sustainable actions. Through the strength of our institution, NPUST has consistently contributed to the social and environmental well-being and has made ongoing progress in promoting sustainable development, aiming to create enduring and perpetual sustainable momentum.

NPUST Sustainable Development Office: Integrating Sustainable Resources on Campus

NPUST has pioneered new initiatives and inherited the excellent traditions in response to the wave of environmentally sustainable development. **Since 2015, the United Nations Sustainable Development Goals (SDGs) have been integrated into the university's development plan, in addition to promoting sustainable campus construction. In 2020, the Sustainable Development Office was established.** This office is responsible for policy research on sustainability-related issues within the university and inventories SDGs-related resources on campus. It creates a cross-disciplinary, cross-sector, and cross-national platform to integrate SDGs into campus development and social responsibility management. The spirit of sustainable development is infused into education, research and development, operations, and community service.

To promote sustainable development and enhance public awareness and concern for sustainability issues, **NPUST signed a memorandum of cooperation with the Taiwan Institute for Sustainable Energy (TAISE) in 2021.** Through this collaboration, we aim to integrate efforts from industry, government, academia, and research to advance sustainable development initiatives. This includes furthering goals related to corporate social responsibility, university sustainability governance, sustainable energy, climate change, and overall sustainable development.

2015

Integration of the SDGs into NPUST's Development Plan

2020

Establishment of the Sustainable Development Office

2021

Cooperation and Memorandum of Understanding Signing with the Taiwan Institute for Sustainable Energy (TAISE), Recipient of the 14th TCSA Taiwan Corporate Sustainability Awards - University Sustainability Report Award - Platinum Category

Taiwan University Alliance for Sustainable Governance: Connecting National Sustainable Momentum

In response to the United Nations' Higher Education Sustainability Initiative extended commitments, nine national universities—National Taiwan University (NTU), National Taiwan Normal University, National Taiwan University of Science and Technology, National Central University, National Chung Hsing University, National Sun Yat-sen University, National Taiwan Ocean University, NPUST, and National Dong Hwa University—jointly initiated the establishment of the "Taiwan University Alliance for Sustainable Governance" in 2022 at NTU. The alliance hopes to share the information and knowledge related to campus sustainability governance among all higher education institutions to achieve the goal of sustainable development through collaboration.

Establishment of the Taiwan University Alliance for Sustainable Governance for the Sustainable Development of Universities

After joining the Taiwan University Alliance for Sustainable Governance, NPUST collaborates with other member institutions to share experiences in sustainable governance. Each university has established dedicated units for sustainable governance, planning and promoting sustainable development activities, identifying and addressing gaps in campus governance. Based on each university's conditions, they implement low-carbon transitions and resilience adaptations to achieve carbon neutrality goals. The alliance fosters inter-university cooperation in teaching, research, service, and governance to promote cross-institutional sustainability research. It aims to gather the bottom-up sustainable momentum from each university, connect faculty and student activities to generate innovative solutions, align Taiwan's higher education sustainability capabilities with international standards, and expand the national higher education sustainability perspective.

Raptor Perch – The black-winged Kite Capturing a Mouse

Sustainability Hub: Realizing the Global Sustainable Vision

NPUST is the first technological university in Taiwan to establish a "Sustainability Hub." Global Warming anomalies and fears that a 1.5°C increase in global temperatures may impact food production or cause species extinction, has incited a major response. To fervently promote sustainability goals, NPUST has partnered with the Taiwan Sustainability Hub (TSH). In 2023, we established the 7th Sustainability Hub in Taiwan, "TSH@NPUST 1.5 Degree Food and Consumption Transformation Sustainability Hub," focusing on the Water-Food Nexus (WF). The hub aims to develop and promote new production models such as carbon-reducing farming methods and regenerative agriculture, further assisting farmers in collaborating with enterprises.

NPUST actively promotes low-carbon rice farming in industry-academia collaboration with domestic enterprises

In terms of food production, a new model of regenerative agricultural production for the health of the earth, the soil and people –together with economic prosperity and equity for vulnerable communities was explored. In relation to food consumption, a new practice of “integrating production and consumption”, whereby the roles of consumers and producers intersect, was put into focus. And for food sustainability, the 3R (Reduce, Reuse and Recycle) prototype model was offered as a way to adjust paddy rice or biogas residue and slurry recycling and promote food consumption habits built on circular agricultural economies and a “1.5-degree lifestyle”. The integration of Information and Communication technology (ICT) was also encouraged as a means of promoting cross-domain, cross-border and civic engagement cooperation.

Assisting Mudan Township in developing under-forest cultivation of log-grown shiitake mushrooms

Brand of USR - University Social Responsibility

NPUST has been deeply committed to USR for many years, playing the role of a think tank at the local level and assisting in community regeneration and development. As a vital partner for urban and rural settlements, we have received numerous awards and recognition in fields like ecological conservation and guiding farmers in friendly farming practices. In 2021, NPUST won the first prize in the 'Ecological Harmony Group First Prize' from the USR Awards by Global Views Monthly, followed by winning the 'Technical Vocational Group First Prize' and 'Ecological Harmony Group Model Award' in 2022, and then 2023, the 'Green Campus Group First Prize' and 'Welfare Coexistence Group Model Award.' These achievements reflect the collective efforts of NPUST's faculty and students.

Prof. Yuan-Hsun Sun, leading the Bird Ecology Lab at the Institute of Wildlife Conservation, began conducting raptor perching experiments in 2017. To promote raptor-friendly agriculture, the team installed owl perches in fields without using rodenticides and hung nesting boxes for Collared scops owls in surrounding artificial forests. This biological pest control method aids farmers by reducing rodent damage to crops, further promoting raptor-friendly farming practices. Today, through the Far Farglory Life Insurance's "Protecting Millions of Owls" CSR project and NPUST's social media platforms, products such as "Owl's Pineapple" fresh fruits, dried fruits, pineapple cakes, and "Owl-friendly Rice" have become important brands for NPUST in fulfilling its social responsibility.

Automatic camera on raptor perch capturing collared scops owl and its offspring

Transplantation of Taiwan anoectochilus roxburghii at the Ali Tribe

Prof. Mei-Hui Chen from the Department of Forestry, leading the Community Forestry Research Team, has been deeply accompanying indigenous people on the road to reconstruction since the Typhoon Morakot disaster in 2009. With a core mission of "Sustainable Satoyama and Generational Inheritance", the team aims to maintain forest ecological sustainability while also focusing on economic development. They systematically promote the 6th Industrialization Development of under-forest economies, establish teaching sites for under-forest economy education, and tribal demonstration sites, cultivate talents among students and local youth, develop distinctive teaching plans, materials, and teaching aids, and combine the team's long-term involvement in local communities.

Prosperous Results in Under-Forest Beekeeping

Continuing to the Pursue in 2024

In the face of global changes and challenges, NPUST continues to link internal and external resources, collaboratively shouldering the responsibility for sustainable university development and social accountability. Through various concrete practices in sustainable development, rooted in sustainable education, NPUST aims to create a world of greater sustainability with sustainability as its core value. For instance, in the second phase of the Higher Education Sprout Project (2023-2027), we were granted a subsidy of 177 million NT dollars, making NPUST the only college in Pingtung to receive over 100 million NT dollars in funding. The Ministry of Education highly commends NPUST's USR support system. All five USR projects have been approved, making it the only technological university in Taiwan to receive funding from The Featured Areas Research Center Program, aligning our research topics with the local industry demands of Pingtung, also actively promoting the abundant achievements in agriculture that NPUST has cultivated externally.

NPUST focuses on four main axes in its university development: " Technological Agriculture," " Ecological Industries," "Platinum Society," and "Sustainable Economies." By aligning with SDGs and supporting Taiwan's six core strategic industries and the 2050 net-zero emissions transformation targets, NPUST actively nurtures mid-to high-level talent and continually promotes international cooperation, fulfills in social responsibility with the aim of becoming a world-class, comprehensive agricultural science and technology university with sustainable development and social impact.

Jingsi Lake at NPUST

Chapter 07
Afterword

Afterword

National Pingtung University of Science and Technology started in 1924 as the "Kaohsiung State Pingtung Extension School of Agriculture" It was later expanded to "Kaohsiung State Pingtung Agricultural School" and then renamed the "Taiwan Provincial Pingtung Vocational School of Agriculture." In 1963, it merged with the "Taiwan Provincial Institute of Agriculture" and was renamed "Taiwan Provincial Pingtung Institute of Agriculture." In 1981, it was restructured into "National Pingtung Institute of Agriculture." In 1991, it was elevated to "National Pingtung Polytechnic Institute," and in 1997, it was renamed "National Pingtung University of Science and Technology" (NPUST). As NPUST celebrates its centennial in 2024, it proudly stands as a hundred-year-old institution. To commemorate this significant milestone, let us introduce the excellence and beauty of NPUST.

NPUST has grown from its beginnings as the "Kaohsiung State Pingtung Extension School of Agriculture" into a prestigious centennial university with seven colleges. This transformation is attributed to the vision and dedication of its successive presidents, including Torii Takeo, Tosaki Futami, Ching-Chin Liao, Lin-Tsang Chen, Yu-Kang Wang, Kai Chang, Le-Chien Lin, Meng-Hsiang Kuo, Kung-Hsien Wu, Hsien-Ta Liu, Chang-Hung Chou, Yuan-Kuang Ku, Chang-Hsien Tai, and Chin-Lung Chang. Their collective efforts have established NPUST as a leading institution in vocational education, technical research, and policy advocacy, both domestically and internationally. Throughout these 100 years, NPUST has received numerous blessings and witnessed countless beautiful moments. Due to the limitations of text and space, it is impossible to enumerate all the past achievements and future goals. Thus, this introduction will focus on highlighting the significant historical milestones (University History) and recent achievements (Honors and Data), academic units (seven colleges and their departments), key educational objectives and student care (Student Learning and Living), international connections, and the four main development axes (Technological Agriculture, Ecological Industries, Platinum Society, Sustainable Economies). It will also cover the current implementation of the university's social responsibility initiatives.

NPUST is located at the foot of Dawu Mountain in Pingtung County, boasting exceptional natural scenery. Therefore, the cover of this introduction features the beautiful campus view from the school entrance, looking towards Dawu Mountain in the distance. The back cover showcases the continuous mountain range behind the school, resembling the majestic and magnificent Dawu Mountain winding like a giant dragon. We hope that as you read through this introduction, you will feel as though you are stepping into the campus, experiencing firsthand the past, present, and future beauty of NPUST. As you close the introduction, it will be as if you are standing at the foot of Dawu Mountain, feeling a connection with the mountain and falling in love with all that NPUST has to offer.

This introduction has been compiled with the assistance of many units, including the Office of the Vice Presidents, Secretariat, Office of Academic Affairs, Office of Student Affairs, Office of General Affairs, Office of International Affairs, Library and Exhibition Hall, Center for General Education, College of Agriculture, College of Engineering, College of Management, College of Humanities and Social Sciences, International College, College of Veterinary Medicine, College of Professional Studies, General Research Service Center, Working Dog Training Center, Soil and Water Conservation Technology Service Center, the Sustainable Healthcare Center, Disaster Prevention and Mitigation Technology Research Center, Wildlife Conservation service Center, Research Center of Rail Vehicle, Animal Biologics Pilot Production Center, Plant Medicine Teaching Hospital, Center of Unmanned Vehicle Application R&D, Center for Agricultural and Aquacultural Produce Inspection and Certification, Center of Agricultural, Forestry, Fishery, Livestock and Aquaculture Carbon Emission Inventory and Emerging Compounds, Compound Disaster Prevention Research Center, NPUST Nan-Feng Team, among others. We express our deepest gratitude for their invaluable contributions.

Lastly, thank you all for your willingness to get to know NPUST, for liking and supporting NPUST, and for your willingness to join NPUST in creating another century of excellence together.

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