



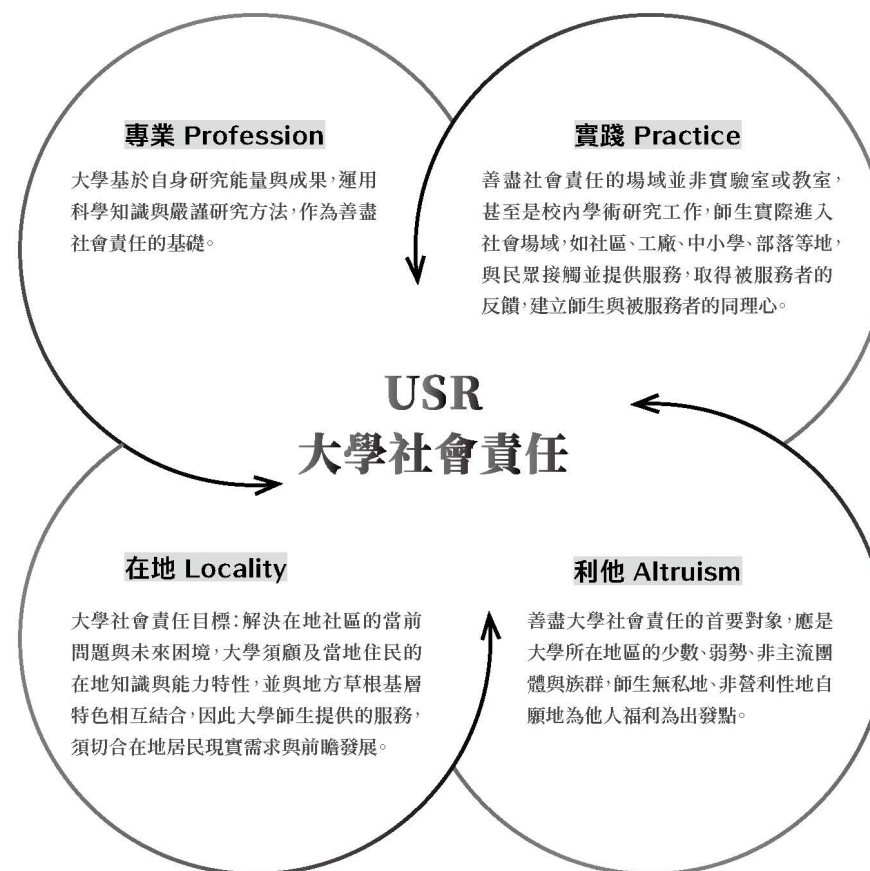
National Central University
University Social Responsibility
Annual Report 2021

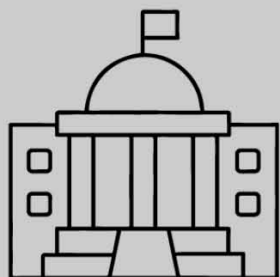
VISION

The National Central UNIVERSITY(NCU) is the first university to initiate sustainable development program in Taiwan. With the school motto of "Sincerity" and the vision of "a world-class university with deep humanistic care", the NCU has blended dynamic academic energy into local needs and devoted to striking balance among economic, social development and environmental protection, in order to achieve mutualism and the ideal way of running school of sustainable development.

The Social Responsibility Office (SRO) embraces the positive beliefs of co-existence and co-prosperity with the local communities, which were rooted in the core values of university social responsibility: profession, practice, locality, and altruism, by the exercise of our professional knowledge, beyond the traditional functions of research, teaching service and counseling. The teachers and students go to the practical field to provide grass-roots public services, solve the actual problems of the residents, and deepen the sense of identity and social influence.

The core values of university social responsibility





- Career Center
- Center for Service Learning
- Center for General Education
- Office of General Affairs
- Research and Development Office
- Center for Academic and Industry Collaboration
- Office of International Affairs
- Research and Development Office/SD&USR Office/ Office of Secretariat



Career Center



Leveraging knowledge to enhance the career continuity of local high school students

The University's Career Center and the 104 Career Academy collaborated to offer "Interdisciplinary Career Development and Practical Micro-Courses", which aim to introduce rich industry resources to help students understand their strengths and potential, transcend the limitations of department major, and create a career path that is closely aligned to their career goals. In addition, the program also brings into play the power of knowledge and connects universities and local high schools to pass on university students' learning experiences to high school students who will soon face the decision of university departments. It allows for the sharing of experiences in selecting university departments, learning experiences in current departments, and future career goals will inspire high school students to have more diversified thinking and values-based choices when they are confused about their career choices, and allow university students to take stock of their past experiences, plan their future paths, and further find their self-worth through this feedback initiative!



Center for Service Learning



WE CARE Environmental Education: Remove Mile-a-minute Weed

小花蔓澤蘭：Mile-a-minute Weed

When the COVID-19 pandemic spread rapidly around the world, the Service Learning Volunteer Team of National Central University not only participated in epidemic prevention work, but the Center for Service Learning "WE CARE Environmental Education" student volunteer team also actively participated in the cultural development of Longtan Sanhe Community, and worked closely with Sanqia Water Environment Education Center to plan a series of friendly farming environmental education courses and social service activities to put into practice environmental education social services.



[Center for General Education](#)



Social innovation under COVID-19: NCU Students Boldly Imagine the Future

In order to encourage students to apply their interdisciplinary learning and innovation in advocating and solving social issues, NCU held the first campus-wide “Social Innovation and Practice Competition”, which brought together teams of students and faculty from various departments to participate. The students' diverse and innovative ideas, such as developing a fun board game on climate change, publishing a bee farmer's picture book to promote agri-food education, designing water-saving devices by makers, education cultivation for local revitalization, and developing a seniors health management system, all of which are in line with the United Nations' sustainable development goals. The competition not only invited faculty members from various departments of NCU as judges, but also invited NCU's outstanding alumnus, Chairman Chih-Nien Chang of Unice E-O Services Inc., to participate in the competition. After a rigorous review of papers and presentations, five teams were selected from 14 teams to receive the Grand Prize, Outstanding Prize, and Honorable Mention Prize. A voting activity was also launched to select the best posters, with the hope of attracting and inspiring more students to participate.



[Center for General Education](#)



Digital Board Games Fostering Revitalization Action at Local High Schools

The NCU Creative Games Community Team has long been dedicated to cultivating game development skills and actively incorporates various issues into game development through educational and entertaining themes. The Xinwu Senior High School Handwork Creative Club is composed of a group of high school students who care about Xinwu District. By exploring the natural beauty of the region and through card design, they transform the culture of their hometown into an educational board game to achieve the vision of sustainable development and interdisciplinary learning. This year, the university students guided senior high school students through the IT expertise of university students combined with the learning autonomy of senior high school students, and successfully applied for a grant from the Taoyuan City Department of Education's Hands Together Project. In addition, an inter-school programming micro-course is planned for high school students to develop digital board games with the context of “local revitalization” by featuring their home culture as the theme and applying what they have learned. It is hoped that in the learning process, students not only pay attention to the social environment, but also find self-affirming values in it. Especially this year, with the continued spread of the COVID-19 epidemic, digitization can not only break through geographical restrictions, but also better achieve the aim of promoting local values.



[Office of General Affairs](#)



Tree Conservation, Tree Adoption - Sustainable NCU Campus

National Central University (NCU) covers an area of 66.04 hectares, with the main campus covering 61.36 hectares. The university has always been committed to promoting a green campus with a green coverage rate of over 95%. Everywhere on campus, one comes across green avenues, forming the green paradise of Zhongli City - Central Park. The campus is rich in forest phytoncide and features different foliage and flowers in all seasons. The campus is also rich in animal life, adding to the ecological diversity of the campus. For plant maintenance, we adopted the principle that prevention is better than a cure, and plan maintenance schedules according to the season, supplemented with biological control to reduce the use of chemical pesticides. We hope to protect the original campus landscape through sound tree management and maintenance.

NCU actively protects trees by planting Taiwan's endemic plants in new construction projects. We also adopt new technologies (i.e. stress wave) and surgery to inspect trees and protect the health of old trees in schools. Since 2005, we have established a tree adoption program, and since 2007, we have been promoting tree adoption activities. 650 trees have been adopted to date, and we leverage donations from tree adoptions to raise awareness of trees and the connection between people and trees to maintain the sustainability of trees on campus. This promotes the integration of environmental and ecological education with the campus environment, and also creates a good space for recreation and teaching, becoming a family-friendly park for the citizens of Zhongli City.



[Research and Development Office](#)



Establishing an International SDG Talent Pool of Academics and Researchers to Support the Advancement of Global Sustainability

The “NCU Pure Academic and Research Talent Database” was established in 2021, and offers both Chinese and English versions. Launched on November 1, 2021, the database covers 66 teaching and research units and 679 faculty and research staff of the university. Through the system's intelligent computing and linkage to internal and external databases, the university takes stock and presents the units, talents and achievements of the university in promoting the United Nations 2030 Sustainable Development Goals (SDGs). In addition to showcasing NCU's capabilities and strengths, the database can also be used by organizations and people around the world who are committed to promoting sustainable development to search, understand, and apply related content, and to organize teams to work together to promote global sustainable development, thus fulfilling their social responsibility and mission according to the needs and plans of SDGs and other social responsibility-oriented issues.



[Center for Academic and Industry Collaboration](#)



2021 Rising Startup Competition: Creating a Comprehensive Startup Ecosystem

Taoyuan City has long been committed to promoting the development of innovation and entrepreneurship, and National Central University has been actively working with local startup teams and government agencies to link up resources in Taoyuan. This year's “2021 Rising Startup Competition” saw 220 teams registered to compete. In line with the development trend of digital transformation, an industry-based enterprise empowerment category has been added to the 2021 Rising Startup Competition, in which companies raised topics and issues and teams resolved them in an online competition to actively promote the potential of mutual collaboration. The winning teams were given the opportunity to be featured on Startup 101 and 2021 Meet Taipei, and were also invited to participate in the “International Innovation Forum” held on December 9 during the 2021 Taoyuan Entrepreneurship Day. The forum invited SunSino Venture Group's partner and CEO and other venture capitalists to deliver their valuable experience to the team with the theme of “2021 International Startup Trends and Analysis of Overseas Market Deployment Strategies”. It is hoped that through this interactive exchange and connections, startup teams will be able to access the capital market, promote brand image and open up new horizons in the post-epidemic era.



[Office of International Affairs](#)



Various International Activities • Enhance Students' Mobility

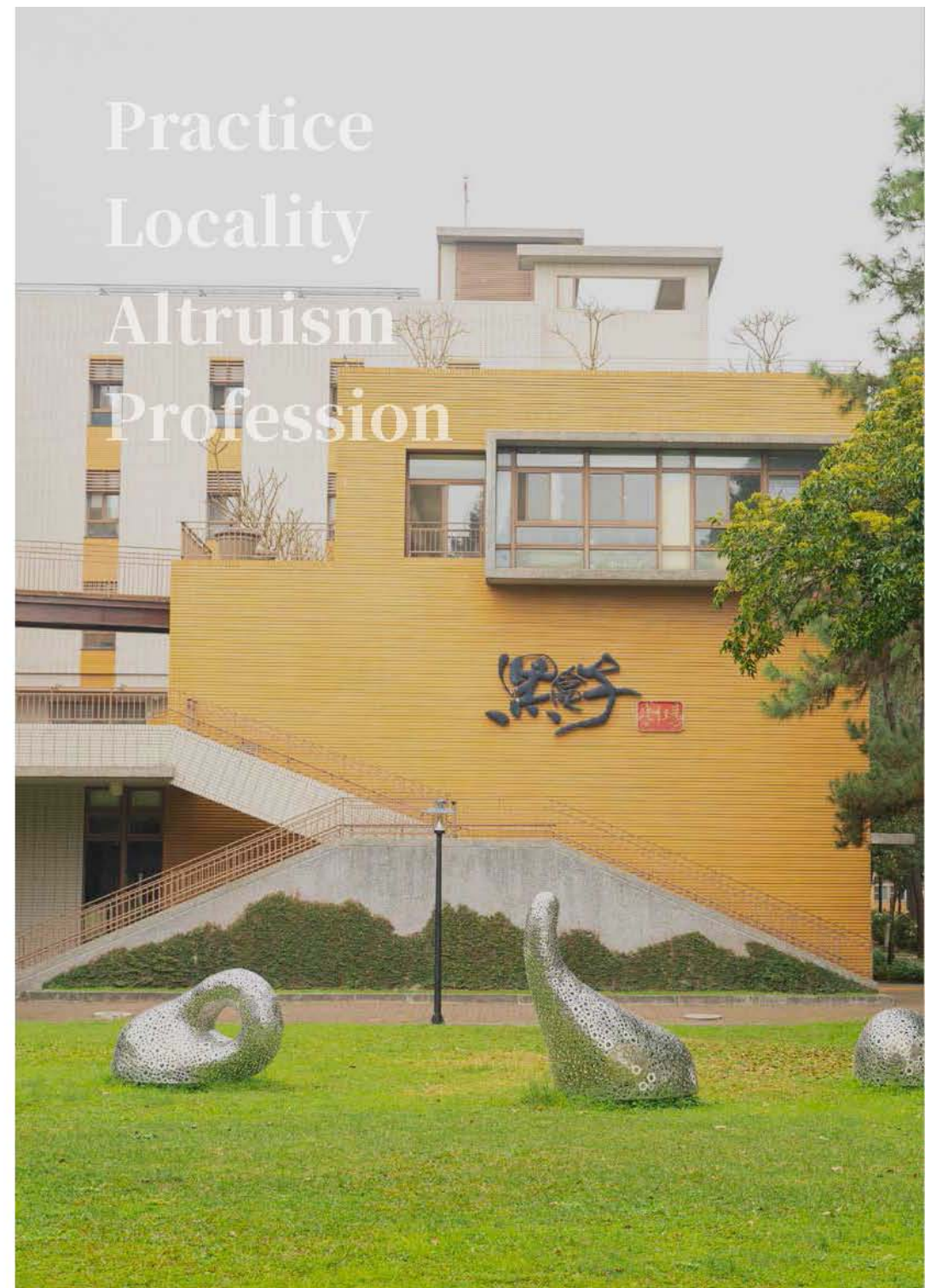
1. To enhance student mobility, Office of International Affairs develops several supporting strategies, such as provide with subsidy for disadvantaged students, who are to participate in the going abroad program.
2. Continuously encourage students to join Going Abroad Session, where provide more detail information regarding studying in foreign countries.
3. Since 2013, OIA has been holding an International Student Cultural Day, welcoming not only people from NCU, but also people from near community to join. This cultural day provide opportunity for people to experice difference culture in Taiwan.
4. To Implement the “Hands Together Plan”, which is supported by the MOE, with local high schools. The plan aims to motivate high school student learning foreign languages and enahcne global view through various cross cultural activities.



[Research and Development Office/SD&USR Office/ Office of Secretariat](#)

NCU, the First University that Advocates Sustainable Development, Declared to Attain 100% Carbon Neutrality in 2050.

As the first university in Taiwan that set “sustainable development” as its main goal of education and research, National Central University (NCU) has been actively responding to the international consensus on sustainability—net zero emissions. At the forum of “Sustainable and Decarbonizing Technologies” held on Feb. 16, NCU President Dr. Jou Jing-Yang took the initiative to declare that NCU is estimated to attain 50% carbon neutrality on campus in 2030 and 100% in 2050.





- College of Engineering
- Department of Chinese Literature
- Graduate Institute of Philosophy
- The College of Health Sciences and Technology
- College of Earth Sciences
- School of Management
- College of Hakka Studies
- Department of Optics and Photonics
- Science Education Center
- College of Electrical Engineering & Computer Science
- Center for General Education
- Language Center



College of Engineering



Enhancing Vitality for Society and Communities

The College of Engineering strives to play a greater role in regional innovation and development as the creative abilities and strengths of students are brought into nearby communities. By integrating professional knowledge with local culture and industry, students help resolve challenges facing communities and create new opportunities for growth. The College of Engineering encourages students to undertake social responsibility initiatives including COVID-19 prevention services, building checkup, and volunteering activities. Aligning with the United Nations Sustainable Development Goals (SDGs), the College of Engineering aims to enhance the prosperity between university and communities, making contributions to sustainable local development and incorporating social responsibility as an important objective in education mission.



Department of Chinese Literature



promote Rural teaching quality

In 2021, due to the COVID-19 epidemic, students in the NCU' s Department of Chinese Literature service learning courses were unable to serve at off-campus units such as Shandong Elementary School. In order to resolve this problem, the faculty discussed with the NCU Center for Service Learning, Shandong Elementary School, and student representatives, and the teaching service provided to the school was changed to the production of "teaching audio-visual materials" .The elementary school provided requests for teaching materials, which were subsequently addressed by the Department' s students, with five videos produced.The Department held the 110th Annual Service Achievement Presentation in the form of a small film exhibition.

Students from the Department of Chinese Literature leveraged their expertise in language and literature to create tailored teaching materials for local elementary schools. This helps address the teaching issues faced by local schools, increases the social impact of NCU, and meets the requirements of university social responsibility such as professionalism, localism, altruism, and practicality. Under the COVID-19 epidemic, the Department has demonstrated active thinking about the digital transformation of volunteer services, which will also enrich the possibilities of future service learning courses.



[Graduate Institute of Philosophy](#)

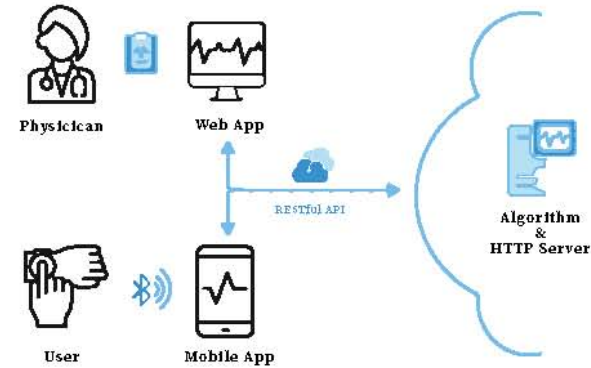


Graduate Institute of Philosophy assisted the further education of the teachers in The Affiliated Zhongli Senior High School of National Central University

In the 2020 academic year, the NCU Institute of Philosophy organized a “Workshop on Life Education Learning Community Enrichment at the Affiliated Zhongli Senior High School of National Central University”, with lectures delivered by the Institute’s faculty. The five major themes were utilized to help community teachers enhance their abilities, and were designed according to the five major life education themes in the 2019 academic syllabus. Faculty from the Institute of Philosophy conducted workshops on these themes at the Affiliated Zhongli Senior High School, with topics and sessions including:

1. Prof. Ya-Hsien Huang - Thinking literacy: Philosophical Thinking of Critical Thinking? What is the Scope of Philosophical Thinking?
2. Prof. Yun-Ping Sun - Humanistic Inquiry: Humanistic Inquiry - What Makes a Person a Person?
3. Prof. Jing-Jong Luh - Ultimate Care: Life, Death, and Religion: The Meaning of Life, Purpose, and Faith
4. Prof. Jenn-Bang Shiau - Value Speculation: Environmental and Aesthetic Value Speculation
5. Prof. Chong-Xiu Huang - Spiritual Recuperation and Personality Integration - the Practice of “Hsing Tong Hsin Qing” and EIL Realization

Through the above workshops, the teachers of Zhongli Senior High School were assisted in their self-growth, spiritual self-care, and teaching enthusiasm to enhance the quality of life education and youth services for secondary school teachers.

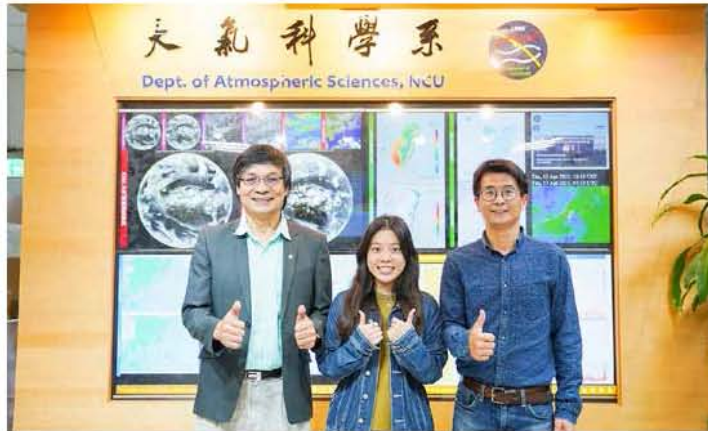


[The College of Health Sciences and Technology](#)



Deepening Social Impact through Professional Knowledge

1. Intelligent cloud monitoring system for quarantined patients infected with COVID-19 has been successfully approved by the FDA EUA, which is the first instance of AI technology applied to the complementary treatment of COVID-19.
2. In order to implement university social responsibility, we go beyond conventional teaching and enhance students' motivation for independent learning. Easy-to-understand general knowledge videos were produced to help the general public to learn more about COVID-19 and related vaccines.
3. Launch of 2021 Taiwan Cognitive Neuroscience Online Summer School Program, which attracted 767 students from all over the world, including college students and researchers, special education teachers from elementary and secondary schools, and counselors and occupational therapists from various organizations in Taiwan.
4. The Department of Health Sciences and Technology offers “Smart Medicine in Communities” courses, which apply existing information and communication technologies to the medical and health fields, utilizing these smart devices to assist doctors in diagnosis and self-health management. The introduction of these technologies not only provides accurate diagnosis but also improves the efficiency of medical institutions.



College of Earth Sciences



Research Momentum and Teaching Practice-Guarding the Earth, Sustainable Taiwan

The impact of climate change is profound. Taiwan experienced the lowest rainfall in 52 years, and the drying up of reservoirs serves as a wake-up call. How to accelerate the adaptation of Taiwan society to the impact of climate change is an important sustainability issue. The College of Earth Sciences is the only institution in Taiwan that integrates earth system science, and the application of research results is closely related to the safety of people's livelihoods. The College has long been cooperating with government ministries and agencies to enrich our academic research and enhance our ability to respond to climate change, such as: examining the potential analysis of landslide hazards, the potential map of earthquake hazards in Taiwan, the analysis of ground subsidence and early warning management, and the improvement of meteorological monitoring technology. This year's research found that air pollution reduces rainfall and affects the storage capacity of Shimen Reservoir, as well as investigated the causes of groundwater salinization for effective water management. The faculty and students also participated in local community disaster prevention activities to prepare for the flooding season. Actions include assisting community elders in building stone weirs to demonstrate local techniques for sustainable land use; and promoting environmental education for students to ensure sustainable water resources in the Shimen Reservoir.



School of Management



1. Hope Media Online Salon - Telling Stories to Create Social Impact
2. Social Enterprise Teaching Innovation and Practice
3. Student-led Team - Creating Value through Social Practice

公益傳播線上沙龍：Hope Media online salon

The Center for Media and Social Impact at National Central University (CMSI) held six online salons in 2021, inviting speakers from three major fields: public welfare, communication, and public welfare communication, in order to expand the influence of society. The Yunus Social Business Centre is committed to promoting cross-unit teaching integration and student social engagement. Through the Social Enterprise Manager Project, the Social Enterprise Entrepreneurship Competition, and the credit courses, the CMSI links multiple resources to enhance students' actual social engagement and their motivation to proactively identify and solve social issues. Our student teams are uniquely positioned with skills in SAP, Big Data, and LBD, and have been operating for many years. In addition to enhancing students' professional abilities, each team also continues to create an interdisciplinary self-regulated learning environment and create value through social practice by passing down knowledge through mentorship models.



[College of Hakka Studies](#)



Hakka Revitalization and Promotion

Language is the carrier of culture. Without language, the culture of a community is bound to fade and cease to exist. The Hakka Basic Act, as amended in 2018, has included Hakka as one of the national languages, and the College of Hakka Studies is bound to play a key role in preserving, reviving, and promoting the Hakka language. The College has been promoting the "Taoyuan Hakka Language Teacher Training Program", "Academic Terminology Hakka Language Compilation", "Hakka Language Teacher Post-Bachelor's Credit Course and Second Specialization Course", and the establishment of the "Center for the Study and Development of the Native Language (Hakka) as a Language of Instruction". We aim to integrate the three major units of the Department of Hakka Language and Social Sciences, the Center for Teacher Education and the Teaching and Learning Development Center to develop teacher training programs for secondary education using Hakka as the medium of instruction in collaboration with the external consultant team and various committees. In addition to teaching methods and teacher empowerment, we are actively involved in Hakka language revitalization policies, so that Hakka language teachers can undergo professional training and examinations and cultivate more Hakka language professionals who are willing to participate in the revitalization and promotion of the Hakka language. This year, the "International Biennial Conference of the Consortium of Global Hakka Studies" and the "International Conference on Policies of the Hakka Language Policy and Minority Languages" were held, and the consensus of the conference will serve as a reference for our government to promote language policies.



[College of Hakka Studies](#)



Combining Interdisciplinary Resources to Promote Local Revitalization

The College of Hakka Studies offers interdisciplinary courses that integrate digital technology applications, and lead students to participate in the courses and local practices through the course content to revitalize the local area and inject new vitality into community industries. The courses and projects include "Hakka Village Revitalization Design Workshop", the "Yongan Conch Cultural Experience Park", a community exhibition of marine debris art installations, the "Keng Xin Journal- Xinwu Local Literature", a student-founded community that promotes Hakka language heritage, and the development of a picture book "Lebah Bee Honey Flower" and an online teaching platform.



[Department of Optics and Photonics](#)



Optical Tutorial

The scientific activity named "optical tutorial" for the junior high school students in Taiwan's remote areas, was originated by Prof. Cheng-Chung Lee and his colleagues in 2015, and has been held 21 times in the Department of Optics and Photonics, National Central University. This activity has been partially supported by industrial companies. Our undergraduate students utilize the existing resources in our department to design several electro-optical experiments for the participants. The participating junior high school students experience the scientific details of optics and photonics directly, and understand how are them related to the daily lives. Importantly, the scientific activity can raise their learning interests in science. Furthermore, to clarify the interests in science for the participating junior high school students, such a scientific activity will be continued holding in the future, and will be extended to senior high schools.



[Science Education Center](#)



Visitation for local science activities of the Science Education Center

Science Education Center provides K-12 school teachers and students inquiry and practicing science learning patterns for social responsibility, try to solve the situation of education resources lack. Science Education Center holds science events, serve local schools, and supply education resources to teachers and students. The features of the curriculums are cross-cutting and local-cultural.



[College of Electrical Engineering & Computer Science](#)



Social Services to Extend University Field Learning: IT Computing Concepts to Create Environment and Planters

The College supported Taoyuan City's rural elementary schools and relatively disadvantaged schools such as Sanhe Elementary School and Longyuan Elementary School to develop children's self-regulated learning (SRL) camps and promote the deepening of self-regulated learning among students.

In response to the theme of Earth Day 2021 "Restore Our Earth", Hsin-Yu Hsieh, a student in the bachelor's degree program of the College of Electrical Engineering & Computer Science, introduced the webduino-based "Smart Planting - Building a Cloud-based Irrigating System" to Taoyuan mayor Wen-tsang Cheng. The students formed a social innovation community, combining computer programming and environmental education, and were invited to participate in the "Simple Life Lab - Environmental Education Theme Exhibition" jointly organized by the Center for Service Learning and the Taoyuan City Department of Environmental Protection. A number of students from the College of Electrical Engineering & Computer Science served as guides to present the environmental education exhibition to fully practice the integration of information technology and social services.



[Center for General Education](#)



Cross-domain teams cultivate talents in innovative and creative industries

The center's cross-domain course team cultivates innovative, creative and entrepreneurial talents, artificial intelligence cross-domain team of students, through the development of SaaS services, provides a graphical interface operation platform; creative and creative course team, through creative ideas to apply for entrepreneurial fund proposals, To practice entrepreneurial dreams; the cross-field social participation team, the science and education team ITM set up with the theme of science and technology education, through the combination of 3D printing, radar and programming, etc., bring the topic of robot control into the curriculum, and practice it in the primary school. And youth science and technology education.



[Center for General Education](#)



Diversified Practice of Social Participation

The "Cross-Field Social Participation" credit program of the center links local creation and social responsibility practices in the practical courses. The current social participation program team focuses on and invests in multiple topics covering social and humanities, agricultural environment, and science and technology education. Social practice care issues, such as the all-round development of food and agricultural education and plastic reduction policies, cross-field learning science and education services and promotion, deep cultivation of the local ecological and cultural preservation of the peach orchard, and the promotion of local ethnic culture and industry.



[Language Center](#)



Read Aloud Program Micro-Course: Allowing NCU Students to Experience the Joy of Storytelling with Children

The Center's Read Aloud Program is a self-regulated learning micro-course that combines self-learning and community service. In the first phase, the Center's teachers conducted three training sessions for a total of nine hours that taught students to simulate real-life situations and conduct English self-training. After the course, the second phase of the program took students into the community to partner kindergartens, including NCU Kindergarten, Ya Shuo Kindergarten, Formosa Kindergarten, and Ping Xing Non-Profit Kindergarten, for a five-week story-telling (read aloud) service.

This activity is very popular among the community kindergartens and has become a highlight activity for many kindergartens in the Zhongli area and has inspired the teaching activities of kindergartens.



[Language Center](#)



Offering a Variety of English and Foreign Language Programs to Serve Faculty, Staff, Students and the Community

The Language Center offers a wide range of English and foreign language courses for faculty, staff, and community members. The teachers are strictly vetted before recruitment to ensure the quality and content of teaching. The Center has been recognized for its high renewal rate and excellent response from students. Despite the epidemic, the Center offered 11 credit/non-credit foreign language courses in 2021. Since its establishment, the Center has offered a wide variety of credit and non-credit English and foreign language courses to serve the people of the greater Taoyuan area. In addition to various English courses, popular second language courses, such as Japanese, German, Spanish, and French, are all well-received and have attracted students from all walks of life and all ages, enabling the people of the greater Taoyuan community to realize lifelong learning habits. In recent years, in line with the government's New Southbound Policy, and considering the many industrial parks in the Zhongli area, we have strengthened our community services by offering courses in Vietnamese, Thai, and Indonesian every semester to facilitate the planning of further education courses for employees of various agencies and entities in the Greater Taoyuan area.



[Language Center](#)



Uninterrupted English Self-Study, Every Occasion in Life can be an Opportunity in Self-learning

Since 2006, NCU has been promoting self-study in English, and from its humble beginnings to its vibrant growth, the initiative has accumulated considerable achievements in both quality and quantity. As the English self-study program continues to evolve and with the varying interests of students, new activities are created and the most popular ones are retained.

English Corner: Focuses on communication and a supportive learning environment where student leaders design oral themes, interact with participants and have fun speaking English.

English Café: A party-style event where both international and local students learn multiculturalism in English through well-designed games and have fun learning cross-cultural experiences and gaining insights.

Talks on Various Topics: Teachers from the Language Center collaborate to host exciting talks and seminars. The teachers share their knowledge and recommend effective self-learning methods for the participants.



[Language Center](#)



Language Program Offers Diverse Courses to Develop Students' Communication Skills and improve the Chinese learning environment

The Language Center's Chinese Language Program consists of quarterly intensive Chinese language classes, semester-long Chinese language classes, and professional credit courses in Chinese language teaching, with the main objective of providing Chinese language courses for non-native speakers to help them understand and immerse themselves in Chinese culture with considerable success so far. The Chinese Language Program focuses on developing fluent Chinese language communication skills, supplemented by familiarity with Chinese society and culture, and also aims to cultivate outstanding Chinese language teaching professionals, with the establishment of an interdepartmental credit program in Chinese language teaching. The faculty members of the program have degrees related to Chinese language teaching and have extensive experience in the field of teaching Chinese as a second language. In addition, in line with the university's internationalization policy, we are committed to research on teaching and learning the Chinese language in order to provide a perfect Chinese language learning environment for international students coming to Taiwan to study Chinese.



- Humanities Center
- Center for Space and Remote Sensing Research
- Research Center for Hazard Mitigation & Prevention, NCU.
- Research Center for Taiwan Economic Development



[Humanities Center](#)



The new energy of cultural asset: creativity, practice and teaching

The Humanities Center treats the campus as a community and introduces the concept of local revitalization and cultural assets, and engages in the cultivation of the humanities on campus by organizing activities and publishing books on humanities, with the hope of exerting influence in the social responsibility of the university. “Inscriptions and Memories” records the history of NCU since the university was first moved to Miaoli and its subsequent relocation north to Zhongli, evoking the memories of campus life. The “Advancing to the North and South Poles” campaign provides a glimpse into the mysterious world of the North and South Poles through information gleaned from different perspectives, and encourages people to cherish the Earth on which we depend for our survival. In addition to its collection of valuable Kunqu artifacts, the Kunqu Museum also actively promotes the intangible cultural asset of Kunqu performing arts, fulfilling the museum’s role as a collection research and social education institution. First, the museum shares resources for “teaching” and “art” : leveraging museum resources to provide “hands-on” and “interdisciplinary” innovative learning. Secondly, in 2021, the museum collaborated with the Affiliated Zhongli Senior High School of National Central University to develop a theatre curriculum, and actively promoted the collaboration and local connection of the “performing arts industry” and the revitalization of “local Kunqu performing arts groups in Taiwan” , bringing performing arts momentum to the Kunqu Museum and becoming an educational resource for the community.



[Center for Space and Remote Sensing Research](#)



IoT's system for agricultural monitoring

“Smart farming” means that farmers use IoTs connecting smart machines and sensors integrated on farms to make farming processes data-driven and data-enabled. It helps to increase the quantity and quality of products while optimizing the human labor costs required for agricultural production. The GIS Laboratory of Center for Space and Remote Sensing Research, National Central University, Taiwan cooperates with Taiwan Agricultural Research Institute (TARI) to deploy an IoTs system for agricultural monitoring. This system integrates sensors to monitor soil conditions, water availability, light, humidity, temperature, etc. It also connects data to the cloud server through the 4G network, installed in a cooperative orchard field in Pingtung county. As equipped with such tools, farmers can monitor their field conditions through the cloud data service. For example, based on the long-term soil moisture records, farmers can not only have an accurate control plan for the field irrigation but also reduce efficiently the task of water leak checking, as well as save the irrigation expenditures of water and electricity. The application demonstrates to farmers the potential ability of IoTs for monitoring purposes concerning smart agriculture and environmental sustainability.



[Reserch Center for Hazard Mitigation & Prevention, NCU.](#)



Promote the Independent Disaster Prevention ability of Taoyuan Community with Disaster Prevention Professionalism and Local Service Spirit of Reserch Center for Hazard Mitigation and Prevention, NCU.

In the spirit of professionalism and local service, the Research Center for Hazard Mitigation & Prevention of National Central University, in cooperation with the Taoyuan City Government, selected Shilei Borough in Xinwu District, Baozhang Borough in Guanyin District, Bai' nian Borough in Longtan District, and Sanguang Borough in Fuxing District as demonstration sites in 2021 to promote "resilient communities" through collaboration and guidance of NCU staff with borough heads, community leaders, and enthusiastic residents. By observing disaster prevention, and first responder activities by seed disaster prevention specialists, community residents will have a higher awareness of disaster prevention, correct concepts and home protection skills, and will be able to enhance the community's disaster preparedness, so that communities will have a higher disaster tolerance, and will be able to respond quickly to reduce disaster losses in times of disaster. This will enable the community to resume community life more quickly after a disaster to achieve the goal of community sustainability.



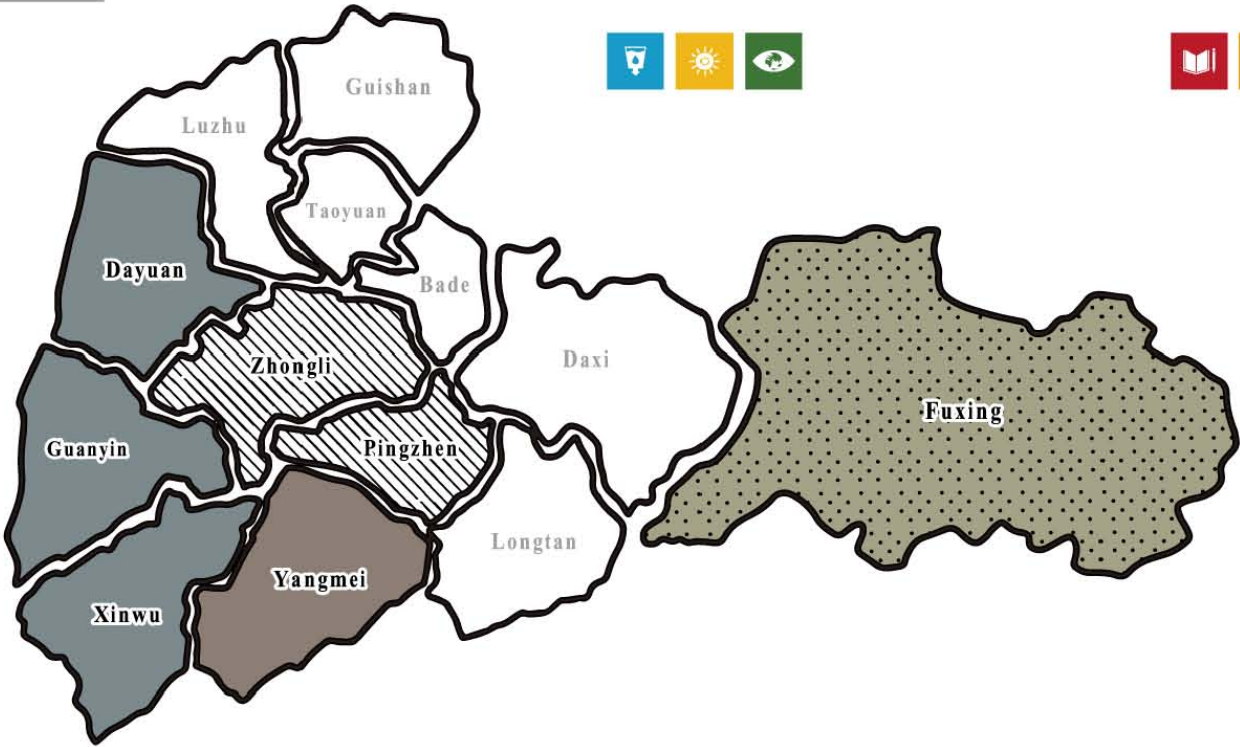
[Research Center for Taiwan Economic Development](#)



Master the domestic economic situation and fulfill the social responsibility of the university

Research Center for Taiwan Economic Development proceeds with the survey of Taiwan Consumer Confidence Index every month since 2004. As Consumer Confidence Index reflects consumers' perception of economic environment, it can be treated as the poll of contentment for family economy and thus attract the attentions of the mass media and economists. Research Center for Taiwan Economic Development hold press conference 4 times a year. In each press conference, Research Center for Taiwan Economic Development invites scholars in various fields to make comments on the CCI survey and current economic issues. CCI survey and the related comments are usually reported by the mass media and influence civilians' investment decisions and the government's economic policy making.

NCU USR



Sustainable Fuxing – Building Smart and Resilient Tribes



From Atayal Reading to Interest-Driven Tribal Learning



Ecology, Living, and Economy of Taoyuan Coast – Facilitating the Sustainable Development of Taoyuan's Coastal Environment and Culture



Art Immersion and Sustainable Community - Foundation-building and co-prosperity of the local culture in Zhongli and Pingzhen



Reengineering of Yangmei District's Social Value Project





Ecology, Living, and Economy of Taoyuan Coast – Facilitating the Sustainable Development of Taoyuan’ s Coastal Environment and Culture

To inject public sector resources to improve the coastal environment and community development, and to facilitate the tripartite cooperation between the Central Weather Bureau, the Taoyuan City Government and the project team to build the “Taoyuan Marine Monitoring Network” along the Taoyuan coastline. The project team utilizes advanced marine remote sensing technology to provide real-time monitoring of the marine environment, and works closely with the City Government to host the Social Innovation and Entrepreneurship Competition, and the Social Business Gathering in Taoyuan to provide guidance to local social enterprises. We have been working on a variety of curriculum innovations to allow more faculty and student teams to participate in social practice, such as: social participation credit-bearing courses, self-regulated learning micro-courses, and hands-on teaching and research projects, including Design Practice of Hakka Regional Revitalization, and collaboration/co-learning with community partners and local residents, with more than 23 full-time faculty members, over 500 students, and 20 local communities/groups involved. Among them, air pollution is a major issue on the ground. The team has developed an air pollution light to monitor air pollution in real time on-site, which has been well received by the residents. The team will continue to add more installation sites and promote air pollution science, so that the public can have a correct understanding of air pollution and air quality monitoring. We have also expanded our international connections, signed MOA with partner universities in Southeast Asian countries to promote the international air pollution detection IoT technologies, and held international technical exchange seminars. To promote the preservation of Hakka culture worldwide, we also held workshops for young scholars on Hakka studies.



Sustainable Fuxing – Building Smart and Resilient Tribes

Through four sub-projects, we have been able to realize:

- (1) Smart Disaster Prevention: We have organized resilient community workshops, learning activities, Yisheng Borough elevation model handicraft activities, and disaster prevention training subsidies to enhance local disaster prevention momentum and build community awareness of autonomous disaster prevention.
- (2) Smart Energy: The Xiayun Borough Office was used as a demonstration site for microgrid system integration. We have built a micro-meteorological station in the elementary school for subsequent green energy potential analysis and energy education applications and organized renewable energy handicraft activities to promote entertaining energy education initiatives.
- (3) Sustainable Water: We held special courses on water resources and built aquaponics systems to promote water resources education. We promoted the use of phosphate-free detergents with handmade household soaps as well as the sampling of four inlet streams of Shimen Reservoir for water quality analysis.
- (4) Tribal revitalization: We drafted a proposal for local revitalization of Fuxing District by the National Development Council, with the bamboo industry as the main axis. We led students to experience the field site and promoted the connection between students and the local area. We collaborated with schools in the Fuxing District to conduct five projects on local issues.



From Atayal Reading to Interest-Driven Tribal Learning

1. Participated in the meetings of the Fuxing District Curriculum Strategy Alliance, actively assisted in local teaching and other related assistance, such as 3+1 distance learning at CHANG-SHING Elementary School and KUEI-HUEI Elementary School. We held 19 science and interdisciplinary workshops, 15 reading workshops for teachers, 2 parental reading guidance workshops, 3 training sessions for small storytellers in rural areas, 2 workshops for teachers on data visualization, 5 workshops on Atayal culture and games, etc. By combining technology and big data analysis, the system allows teachers in rural areas to do individualized remedial teaching, which is the best support for teachers. At the same time, nearly 100 students from NCU participated in activities such as distance learning volunteer counseling and workshops to expand the university's local influence.

2. Co-organized the MOE K-12 Education Administration's "Conference of The Week of Reading-For-Tomorrow 2021", inviting the principals and teachers of JIE-SHOU junior high school, CHANG-SHING Elementary School, and YI-SHENG Elementary School in Fuxing District to share their takeaways in the implementation of the program in their schools, such as Science Atayal and Math Island, so that more than 1,200 participants nationwide could better understand the implementation and effectiveness of the program and expand the impact of the community.

3. Visited all 12 schools in Fuxing District to understand the reading needs of schools and the effectiveness of reading promotion, and will actively promote reading and publication in the future.

4. Won the Best Highlighted Story Award from the Ministry of Education during the 2021 USR EXPO.



Art Immersion and Sustainable Community - Foundation-building and co-prosperity of the local culture in Zhongli and Pingzhen

The focus of this project is to inject public sector resources so local community arts and culture can take root, and at the same time cultivate humanistic qualities and social care, thereby creating local sustainability. In terms of rooting in arts and culture, we actively revitalize and preserve the local traditions of Pingzhen Township in Zhongli, and while passing on and promoting Hakka culture, we link the arts and cultural activities of multiple ethnic groups, and cultivate the community's cultural and living arts practices from social and cultural contexts. In terms of environmental sustainability, the project provides a professional platform to promote a sense of belonging among local residents, who can then participate in local affairs, raise awareness of environmental conservation and care for the physical and mental health of residents through community empowerment, and build a local social interaction network to achieve community sustainability. In addition, through the "Double Art Station" team, we plan to conduct a series of activities related to the "Community Art, Culture, and Creative Landscape Improvement Project" through the cooperation of professional teachers and local residents by organizing workshops to reach out to the nearby neighborhoods to communicate and match, and to translate the stories of the Shuanglian Military Dependents' Village through art, so that local residents can become involved in local affairs, and then contribute to transforming the community, and to sustain the local culture.