



University : National Chin-Yi University of Technology
Country : Taiwan
Web Address : www.ncut.edu.tw

[SDGs 1] No Poverty

[1.4.1] Does your university as a body provide assistance in the local community assisting the start-up of sustainable businesses through relevant education or resources? (e.g. mentorship programmes, training workshops, access to university facilities)?

NCUT's Role in Supporting Sustainable Business Start-Ups and Community Innovation

NCUT, located in Taichung, Taiwan, actively supports the development of sustainable enterprises and community-based innovation through education, research, and resource-sharing. The university integrates academic expertise with practical training to empower local businesses and start-ups in achieving sustainability and competitiveness in the global market. These initiatives directly align with the United Nations Sustainable Development Goal (SDG) 1.4 — ensuring equal access to economic resources and opportunities.

1. Support Through Education and Certification

To strengthen the capabilities of industries transitioning toward sustainability, NCUT has expanded training programs that provide professional certification in carbon management and greenhouse gas (GHG) auditing:

- **ISO 14064-1 Greenhouse Gas Organizational Inventory** – Equips professionals with the ability to quantify and report GHG emissions.
- **ISO 14067 Product Carbon Footprint Certification** – Trains individuals to calculate the lifecycle carbon footprint of products.

By certifying faculty and researchers in these standards, NCUT has become a national leader in environmental education and compliance training, directly supporting small and medium-sized enterprises (SMEs) to meet Taiwan's and the European Union's carbon disclosure requirements.

2. Enterprise and Community Support

Approximately 190,000 Taiwanese companies must perform carbon inventories to maintain compliance with international trade regulations. NCUT assists these enterprises through:

- **Comprehensive Carbon Inventory Services:** Providing consulting and auditing support for GHG and product carbon footprint inventories.
- **Workshops and Training Programs:** Hosting community sessions and capacity-building workshops on ESG (Environmental, Social, and Governance) reporting and sustainability best practices.



- **Carbon Management Laboratory:** Serving as a technical support hub that offers access to analytical tools and datasets for local industries.

These initiatives enhance competitiveness for Taiwanese enterprises, particularly exporters, enabling them to meet the rising global demand for sustainable products and processes.

3. Integration with Research and Innovation

NCUT's **Department of Chemical Materials Engineering** collaborates internationally to advance green chemistry, renewable energy materials, and sustainable industrial processes. Faculty and students conduct joint research with universities and laboratories in **Canada, India, and Poland**, focusing on:

- Nanotechnology and polymer science for sustainable manufacturing.
- Green materials for solar cells, batteries, and fuel cells.
- Environmentally friendly production methods and energy-efficient materials.

From 2022 to mid-2024, NCUT's faculty co-published 11 international research papers, showcasing strong academic and industrial collaboration that benefits both the local and global sustainable innovation ecosystem

4. Resource and Infrastructure Support

NCUT provides tangible resources and infrastructure access to local start-ups and small businesses, including:

- **Innovation and Entrepreneurship Base:** Offers mentorship, prototyping facilities, and access to the university's R&D laboratories.
- **Smart Equipment Application Platform:** Supports businesses in developing intelligent, energy-saving systems.
- **ESG Sustainable Development Center:** Established in 2023 to assist enterprises with carbon transition strategies, sustainability certification, and ESG capacity-building.

These facilities and programs serve as incubators for sustainable entrepreneurship, supporting innovation in renewable energy, carbon reduction, and green manufacturing technologies.

5. Economic and Environmental Impact

Through these programs, NCUT has achieved:

- **Enhanced Local Capacity:** Training numerous industry professionals and university students in sustainable technologies.
- **Improved Enterprise Competitiveness:** Enabling SMEs to meet global environmental compliance requirements.



- **Innovation in Green Products:** Encouraging the design and production of low-carbon, energy-efficient products for both domestic and international markets.

This approach fosters **inclusive economic growth** and contributes to **poverty reduction** by promoting sustainable employment and entrepreneurship in the local community.

6. Alignment with SDGs

NCUT’s sustainable enterprise initiatives directly support the following UN Sustainable Development Goals:

Goal	SDG Title	Relevance to NCUT Initiatives
SDG 1.4	Equal rights to economic resources	Providing SMEs and local entrepreneurs access to training, mentorship, and university facilities.
SDG 8.3	Promote development-oriented policies that support entrepreneurship	Offering ESG workshops and start-up incubation for sustainable enterprises.
SDG 9.5	Enhance scientific research and industrial innovation	Conducting research in renewable energy, green chemistry, and materials science.
SDG 13.3	Improve education and awareness on climate change	Training certified GHG auditors and supporting carbon literacy programs.

Through its comprehensive educational programs, ESG training, and research initiatives, NCUT acts as a catalyst for sustainable business development in Taiwan’s central region. By combining academic expertise with practical community engagement, the university supports local industries in achieving low-carbon transformation, contributing to Taiwan’s net-zero goals and global sustainability objectives.

Project List (Translated and Converted to USD)

Project Code	Project Title (English)	Amount (TWD)	Amount (USD)
NCUT25TER001	Testing and verification analysis of HVAC system for the NIH Center for Geriatric and Health Welfare	1,250,000	38,750
NCUT25TER002	HVAC system testing, balancing and adjustment for the new BOT hospital project at China Medical University	3,400,000	105,400
NCUT25TER018	HVAC system testing and analysis for Mitsui LaLaport Kaohsiung project	1,700,000	52,700

NCUT25TCC004	Research and development of proprietary interface technology for smart equipment application platform	1,200,000	37,200
NCUT25TMI006	Defense Advanced Technology Project - Subproject 3: Development of smart assistive devices and AI-optimized training programs for military physical and combat skill training	1,469,200	45,545.20
NCUT25TER051	HVAC system testing and performance verification for the new Zhumin Hospital project	3,600,000	111,600
NCUT25TER054	HVAC system testing, adjustment, and balancing for MediaTek Tongluo campus Phase I factory	1,500,000	46,500
NCUT25TER061	Performance testing and analysis of chillers and HVAC systems for the new medical building at Taichung Armed Forces General Hospital	2,000,000	62,000
NCUT25TER067	HVAC system testing, balancing, and performance verification for MSI Taoyuan Guishan factory	2,400,000	74,400
NCUT25TER070	HVAC system testing, adjustment, and balancing for Taichung Green Museum project	1,200,000	37,200
NSTC 114-2218-E-167-001	Development of intelligent high-speed grinding technology for compound semiconductor chip materials (3/4)	5,900,000	182,900
NSTC 114-2622-E-167-008	AI modules and energy-saving detection technology development for HVAC systems (1/3)	1,503,000	46,593
NSTC 113-2221-E-167-010-MY2	Flame-retardant polyurethane composites made from spent coffee grounds for thermal runaway prevention in energy storage systems (2/2)	1,320,000	40,920
NSTC 114-2221-E-167-003-MY2	Development of global MPPT system for new high-performance PV module arrays (1/2)	1,415,000	43,865
NSTC 114-2221-E-167-039	Modular multifunctional exosome collection system	1,342,000	41,602
NSTC 114-2221-E-167-001-MY3	Design and synthesis of new linear, block, and 3D-crosslinked electroactive polymers integrated with MOFs and green-synthesized magnetic graphene for environmental catalysis and sustainability (1/3)	1,500,000	46,500
NSTC 114-2221-E-167-020-MY3	Design and development of integrated regenerative PEM fuel cell stack and energy storage system (1/3)	1,386,000	42,966

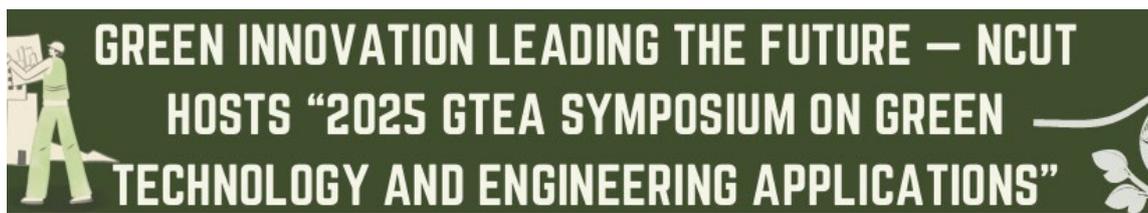


NSTC 114-2221-E-167-027-MY2	Immersed dual-phase liquid cooling lithium battery with thermoelectric cooling integration (1/2)	1,425,000	44,175
NSTC 114-2221-E-167-028-MY3	Study on the regeneration of internal cooling solution dehumidification systems using tri-fluid flat-tube heat exchangers with ionic liquids (1/3)	1,318,000	40,858
NSTC 113-2221-E-167-002-MY3	Photocatalytic application of 2D covalent organic frameworks in energy and environment (2/3)	1,400,000	43,400

To support environmental sustainability and drive innovative solutions for climate action, NCUT has consistently invested substantial research funding into sustainability-related projects. These projects span various areas such as HVAC system efficiency, renewable energy, smart equipment, advanced materials, energy-saving technologies, and green engineering solutions.

The university's dedicated sustainability research fund for the past three years is summarized below:

Year	Total Sustainability Research Funds (USD)
2022	15,679,707
2023	15,470,437
2024	15,737,791
3-Year Average	15,629,323





國立勤益科技大學
National Chia-Yi University of Technology



2024 GTEA
2024 Conference on Green Technology Engineering and Application

綠色科技

工程與應用研討會

5/31 五

報名網站: <https://gtea2024.iware.com.tw/>
活動報名費用: 1500元/篇

重要時程

- 3/29 (五) 論文初稿截止
- 4/12 (五) 審查結果通知
- 4/26 (五) 論文定稿截止
- 5/05 (日) 報名繳費截止
- 5/31 (五) 研討會活動

徵文範圍

- 智慧機械與機構設計(SMD)
- 智慧製造(SM)
- 綠色製造與碳循環科技(GMCRT)
- 綠色材料(GM)
- 冷凍空調技術(RAC)
- 綠色能源與節能(GEES)
- 機電自動化(MA)
- 其他工程相關領域(OTH)

主辦單位
國立勤益科技大學 工程學院

協辦單位
國立勤益科技大學 機械工程系
國立勤益科技大學 化工與材料工程系
國立勤益科技大學 冷凍空調與能源系
國立勤益科技大學 精密製造科技研究所博士班
國立勤益科技大學 智慧自動化工程系

贊助單位
財團法人張明王國秀文教基金會

台灣冷凍空調學會
國立勤益科技大學 冷凍空調與能源系

2024年能源與冷凍空調學術暨技術研討會

第六屆能源與冷凍空調「多元綠能創新創意實務專題」競賽

EPAC 2024

Energy and Refrigerating Air-Conditioning

10/26 (六)

國立勤益科技大學
圖書資訊館六樓國際會議廳

重要日程

- 09/06 國際論文投稿截止(論文全文投稿截止)
- 09/13 論文全文投稿及動車檢核資料截止
- 09/23 國際論文審查結果通知
- 09/30 論文全文及動車檢核資料審核通知
- 10/11 論文全文及動車檢核資料審核完成截止
- 10/18 註冊費截止
- 10/25 國際研討會報名及作品上傳
- 10/26 研討會開幕及競賽

投稿注意事項

- 論文全文格式請參閱會議網站下載，論文請寄至: tbkai@act.org.tw (郵 寄) hsiang@ncut.edu.tw (傳真) ai@ncut.edu.tw (電子郵件)
- 截稿日期第一階段(專業及第二階段)海報截稿日期請參閱會議網站下載，並請參閱: psidem@ncut.edu.tw (黃老師) / spalin@ncut.edu.tw (葉老師)
- 論文加贈摘要、至少需安排一位投稿人註冊，並對研討會會場門口領取。

註冊費用事項

- 學術研討會論文每篇1,500元; 學生每篇1,000元+ 國際郵資(銀行:玉山銀行帳號分行戶名:台灣冷凍空調學會 / 帳號: 0048-940-001680)
- 國際郵資 參閱研討會(Email: tbkai@act.org.tw)
- 截稿後即款項為免

徵文範圍

- 冷凍系統技術
- 冷凍系統技術
- 建築與環境控制
- 特種空調技術
- 節能與環境評估
- 智慧能源與智慧
- 智慧控制與機電整合
- 工業製程技術報告
- 機電空調技術
- 資料中心節能技術
- 多能源系統及其他相關領域
- 國際論文

2024 Conference on Green Technology

International Symposium on Diversified Green Energy Creative Inventions



Da Yin is deeply engaged in sustainable education and cultivating talents for intelligent manufacturing (NCUT receives high-precision industrial robots as a gift)

Water and Soil Conservation Agency Guides 49 Rural Shops – Taitung “Tauzing Ranch” Successfully Transforms into a Hip Cultural Spot (NCUT’s Professor Yen Chia-Sung Participates in Project Evaluation)



Seeds of Cooperation Bloom in Sustainable Community Development: Shigen District's Culinary Cooperative



To foster student creativity and awareness of local characteristics, our Department of Landscape Architecture collaborated with Taichung City's Nangu District's Jishan Neighborhood to organize an exhibition showcasing friendly environment planning and design for both old and new communities. Landscape



Our University Joins the Changhua County Net-Zero Industry Counseling Team

