

12

RESPONSIBLE CONSUMPTION AND PRODUCTION

	2018-2022 Publications	88
	Course Units	384
	Student Engagements with Units on SDG 12	9,935
	2018-2022 Percentage of all Taiwan Publications	2.6%

Research

Human-Computer Interactions: Promoting Sustainable Behavior

The applications of AI have spread to every corner of human life. The research team led by Associate Professor Shih-Yu Lo of NYCU's Institute of Communication Studies explored how smart robots influence people's recycling behavior. The study found that participants exposed to the robot sorted waste more accurately than participants exposed to a tablet computer, and that the smart robot can effectively increase participants' willingness to recycle waste. The research results confirm that the use of AI can increase people's accuracy and willingness when it comes to recycling, thereby promoting sustainable behaviors. The findings have been published in the international journal *International Journal of Social Robotics*.



Research

Sustainable Materials and Components Workshop

NYCU's College of Electrical and Computer Engineering teamed up with the Thin Film Physics Division of Linköping University, Sweden, to establish the Joint Research Center for Sustainable Materials and Devices (SMD) and organize the Taiwan-Sweden Workshop on Sustainable Materials and Devices. Six professors from Linköping University and five professors from NYCU's College of Electrical and Computer Engineering exchanged and shared their experience in their research fields, and developed plans for interdisciplinary collaboration. It is hoped that both parties will have specific research results and contributions to the development of sustainable materials and components.



Social Impact

Creating a Green, Eco-Friendly Life Circle

NYCU participated in the Environmental Protection Administration's "Green Catering Service and Waste Reduction Action Competition," and received the "Exceptional" award in the Environmental Pioneer Category, becoming the only university in Taiwan to qualify. NYCU also helped the Environmental Protection Administration organize observations, shared its campus plastic reduction experience, and was invited to the Ministry of Education's presentation to promote plastic reduction to other colleges and universities, establishing an inter-university collaboration model and inter-university exchange and mutual aid system. To establish a plastic-free campus life circle, help promote campus plastic reduction, and create a sustainable future of mutual prosperity, NYCU worked closely with the Hsinchu City Government to promote eco-friendly delivery and reusable containers, helping to promote the reduction of single-use products at institutions and schools under the jurisdiction of the Hsinchu City Environmental Protection Bureau. NYCU also actively worked to cultivate a plastic-reduction life circle across campuses, not only working with surrounding businesses to provide a discount for those who bring reusable utensils, but also creating maps and pamphlets that provide teachers and students with options for green living and eco-friendly consumption. NYCU also collaborated with the startup company behind the "circular cup," making the campus a part of the startup's testing sites.



Education & Cultivation

Student Response to Environmental Protection Actions

The department association of NYCU' s Department of Industrial Engineering and Management teamed up with Fitipower Environment Foundation to organize campus flea markets and promote the circular reuse of second-hand goods, encouraging students to exchange items they no longer needed so that these items could have a second life. In doing so, NYCU aimed to reduce resource waste and consumption, promote a green economy, and ensure sustainable consumption and production models. NYCU' s Department of Humanities and Social Sciences and Department of Computer Science also worked with the foundation to organize second-hand clothes markets and eco-friendly straw events to promote waste reduction, reduce the amount of waste generated, and contribute to society and environmental sustainability.

Consumption and Production Issues and Relevant Legal Systems

The NYCU School of Law organizes many forums and training courses such as "The History and Current Situation of Good Distribution Practice in Taiwan," "The Challenges of Supply Chain Compliance," "Public Construction Contracts Under Public-Private Cooperation and ESG and Government Purchasing: With France and Taiwan as Examples," "Fair Trade Act," and "Seminar on Environmental Law." These forums and courses teach students about circular economy and help them understand responsible consumption and the legal basis of sustainable production, promoting the sustainable management and effective use of natural resources.

Stewardship

Promoting Laboratory Chemical Reduction and Paperless Management

NYCU has established a comprehensive digital management system to manage chemicals. The procurement, declaration of use, discarding, and transfer of chemicals are all managed online, achieving nearly 100% paperless operations and effectively controlling the flow of chemicals throughout each stage of their life cycle. With the help of the management system, laboratories planning to discard chemicals that can still be used will first look for other laboratories in need of the chemicals, thereby reducing unnecessary waste. Since the system was implemented this year, four bottles of toxic chemical substances that were to be discarded were successfully transferred to other laboratories that needed them. The management system has also successfully recommended the replacement of a high-risk chemical with a low-hazard one. As for reducing chemical usage from the source, regarding the toxic chemical substance methylene chloride, which is often used in large quantities, NYCU has adopted measures to limit the maximum amount a single laboratory can store, mandated that laboratories purchase smaller packages according to actual usage, and prohibits laboratories from purchasing more when the inventory is larger than the procurement amount. These strategies control the amount of chemicals laboratories purchase, reducing them from the source.

Plastic Reduction Actions on Campus

In 2022, NYCU established the "Disposable Utensils and Packaged Drinking Water Reduction Plan," not only actively organizing plastic reduction seminars and presentations to increase teachers and students' knowledge on sustainability, but also encouraging departments to purchase reusable utensils for teachers and students to borrow. When organizing school fairs, reusable utensils are used for all catering events. For events that serve food, attendees are required to bring their own utensils or vouchers are distributed to encourage attendees to eat at restaurants, thereby reducing the use of single-use containers. Additionally, NYCU actively encourages vendors on campus to provide circular delivery services with reusable containers and discounts for bringing reusable utensils, and has established a campus eco-friendly lunch box program. Currently, there are 15 restaurants on campus that provide delivery services with reusable containers, and 41 restaurants with discounts for bringing reusable utensils or cups.

