

ASPIRE Undergraduate Engineering Design Challenge 2023

Five of Asia's top science and engineering universities participate

ASPIRE Undergraduate Engineering Design Challenge (UEDC) 2023, an international workshop for undergraduate students of the ASPIRE League*, of which Tokyo Tech is a member, was held over a five-day period from Monday, June 26 to Friday, June 30. The ASPIRE League is a consortium of top science and engineering universities in Asia, established in 2009 under the leadership of Tokyo Tech with the aim of creating an innovation hub in the region. Continuing from last year, Tokyo Tech also hosted this year's event, which was held in person at the Ookayama campus for the first time.

This program was planned and implemented by Associate Professor Kazuaki Inaba (Department of Transdisciplinary Science and Engineering, School of Environment and Society) together with Associate Professor Masaki Yagisawa (Department of International Digital and Design Management, School of Management, Tokyo University of Science) as a workshop where students can learn the basics of engineering design.

A total of 27 undergraduate students participated in this workshop: 8 students from Tokyo Tech, and 19 students from Tsinghua University, Korea Advanced Institute of Science and Technology (KAIST), Hong Kong University of Science and Technology (HKUST), and Nanyang Technological University.

For Tokyo Tech participants, the program was also offered as a 2-credit course called "International Engineering Design Project Fundamentals S."

Workshop schedule

	June 26 (Mon)	June 27 (Tue)	June 28 (Wed)	June 29 (Thu)	June 30 (Fri)
10:45-11:35	Ice Breaker & Orientation	Instruction	Instruction	Instruction	Group Work
11:35-12:25		Group Work	Group Work	Group Work	
13:45-14:35	Instruction	Visiting Museum in Ueno (by reserved bus)	Instruction	Instruction	Group Work
14:35-15:25	Group Work		Group Work	Group Work	Final Presentation & Reception (-18:00)
15:40-16:30			Group Work	Group Work	
16:30-17:20 (Final Day -18:00)	Feedback Meeting		Feedback Meeting	Feedback Meeting	

Workshop

As with the 2022 program, the aim of this year's UEDC was to understand the five basic steps of design thinking — empathy, definition, conception, prototyping, and testing — and to explore new designs and services. Students worked in groups on the task of designing a product, system, or service that only Japanese people would buy, inspired by a Japanese cultural or seasonal event. The students were divided into five groups of students from different universities, and began by researching Japanese events and comparing them to those in their own countries. Each team chose a unique event such as *hanami*, fireworks, *setsubun*, or the coming-of-age ceremony, interviewed Japanese participants about the occasion, and repeatedly tested their ideas by making them tangible through prototypes before finalizing their product or service proposals for presentation on the final day.

During the workshop, Professor Shigeki Saito, Professor Miki Saijo, Associate Professor Takumi Ohashi, and Assistant Professor Yuki Taoka — all of whom belong to the Department of Transdisciplinary Science and Engineering of the School of Environment and Society — made comments on and gave advice regarding each team's activities at three feedback meetings, after which participants refined their ideas for their final presentations.

In addition, five graduate students from Tokyo Tech joined each team as teaching assistants to support team discussions.

Faculty members

Teaching staff and mentors

 Kazuaki INABA Engineering design	 Masaki YAGISAWA Art		
 Miki SAIJO Communication design	 Shigeki SAITO Design thinking	 Takumi OHASHI Smart agriculture	 Yuki TAOKA Co-design



Group #2

A male student in his 20s used to wearing casual clothing + the fashion festival process & has always been the norm. HOWEVER, he wants to express his individuality through clothing + get some special awards

3-11-18

① How might we use the "peer pressure" in our favor?

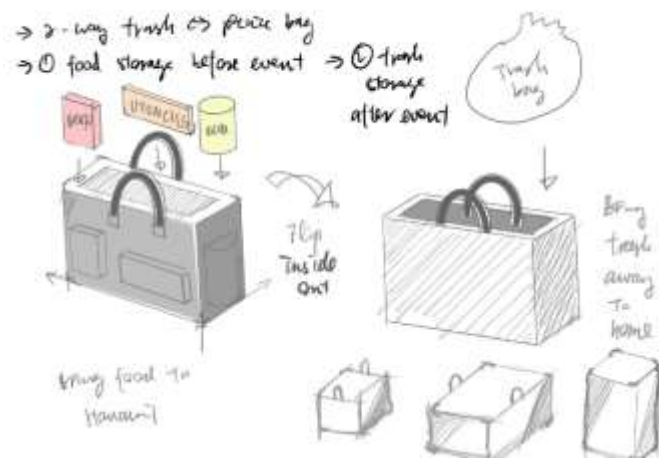
② How might we offer last minute mind change advice?

③ How might we make wearing Yeosta a fast, easy, simple for males?

→ How might we create a reason to wear Yeosta?



Perfect Trash





Tokyo National Museum

On June 27, a tour of the Tokyo National Museum was organized for all participants to immerse themselves in the world of Japanese culture, gain valuable insight, and deepen their knowledge.



Final presentations

At the final presentation on 30 June, the results of the group work were presented in the form of a service to solve litter problems at hanami and fireworks events, a service that allows men to easily rent yukata kimonos, an idea for children to enjoy cleaning up the beans scattered at setsubun, and a cute, wearable alcohol-level checker to prevent young people from getting drunk at the coming-of-age ceremony. Outcomes were presented in the form of slides and skits, enthusiastically performed by the participants.

In the limited window of five days, the teams were able to deepen their understanding of Japanese events and culture, and each team researched user needs from interviews and presented their solutions in a practical and accessible way.





The final presentation was followed by comprehensive feedback from the overseeing faculty and Professor Junichi Takada (Dean of the School of Environment and Society), Secretary General, ASPIRE League.

Reception

At the reception before the closing ceremony, all participants enjoyed an hors d'oeuvre-style *bento*.



Closing ceremony

After closing remarks by Associate Professor Inaba and Professor Takada, the participants were presented with certificates by Vice President for International Affairs Nobuhiro Hayashi.

Associate Professor Inaba:

"This time, the participants learned about the process of design thinking that dances with ambiguity (going back and forth while having fun) and how to use Katsushika Hokusai's view of things, which can be said to be the starting point of manga, as a tool. I believe that these experiences will be useful for the current students in their future research, whatever their field of specialization."







Participants and faculty pose for a group photo on the last day



*The ASPIRE League is a consortium of top science and engineering universities in Asia, established in 2009 at the initiative of Tokyo Tech, with the aim of forming a hub for innovation in Asia through the development of science and technology and the development of human resources. The five member universities are Tsinghua University (China), Hong Kong University of Science and Technology (China), Nanyang Technological University (Singapore), Korea Advanced Institute of Science and Technology (Korea), and Tokyo Tech, the last of which has served as the secretariat since its establishment.

Official Site of the ASPIRE League
<http://www.aspireleague.org/>

ASPIRE League
<https://www.titech.ac.jp/english/international-cooperation/global/featured/aspire>

ASPIRE League: Tokyo Tech Global Stories
<https://www.titech.ac.jp/english/public-relations/global/stories/aspire-league>