

Report of Student International Exchange Program 2025-2026 at Tokyo

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1. Introduction

The Student Committee of the Society of Automotive Engineers of Japan (JSAE) continuously implements international exchange programs with overseas student organizations with the aim of fostering a global perspective among students who will lead the next generation of the automotive industry and deepening cross-border technical and cultural exchanges. In particular, collaboration with students from the Asian region (such as Thailand and Taiwan), which has seen rapid development in mobility in recent years, is an important opportunity to cultivate the cross-cultural understanding and multifaceted perspectives that are essential for engineers who will lead the automotive industry in the future.

As the automotive industry undergoes a once-in-a-century transformation, facing global challenges such as electrification, autonomous driving, and reducing environmental impact, there is a need to share a wide range of knowledge that transcends the technology of a single country or a single field of expertise. This program is expected to expose students from overseas and Japan to new ideas and values through face-to-face interaction and discussion. This international exchange involved a total of nine students: five from Japan, two from Thailand, and two from Taiwan.

Activity Schedule

March 9 (Mon): Students from Thailand and Taiwan arrive in Japan.
March 10th (Tue): Tour of Honda's complete vehicle factory (Yorii)
March 11th (Wed): Tour of Subaru Yajima Plant
March 12th (Thu): Academic Research Lecture Meeting @ Tokyo City University
March 13th (Fri): Visit to Ono Sokki Yokohama Technical Center
March 14th (Sat): Thai and Taiwanese students departure.

2. Day 1 of the exchange

2.1 Tour of Honda's finished vehicle plant (Yorii)

During my visit to Honda Motor Co., Ltd.'s finished vehicle plant, I was deeply impressed by the integration of production efficiency and spatial design. Most notably, the vehicle assembly line was optimized

in an integrated manner, with process layout, transport flow, and work efficiency all perfectly integrated. The aisles used for transport were also wide enough. This meticulous and beautiful factory layout truly embodied the theory of "good design and good flow" on the factory floor. I not only gained a visual understanding of the rationality of the production line, but I was also able to understand it firsthand by actually walking around the factory.

Furthermore, the state-of-the-art automatic welding machines attracted strong interest from international students. Through explaining the technology to them, I also gained insights into my own communication skills. Instead of directly translating technical terms that I usually use unconsciously, I learned to explain complex techniques and it was necessary to break down the technical concepts and explain their essential mechanisms using simple English. This experience provided an opportunity to understand the importance of "articulating concepts" in order to correctly understand and communicate technology to others, and it was an extremely practical and meaningful experience where a visit to a cutting-edge manufacturing site intersected with cross-cultural exchange.



Figure 1. Group photo at Honda Motor Co., Ltd.'s complete vehicle plant.

3. Day 2 of the exchange

3.1 Subaru Yajima Plant Tour

The tour of Subaru's production plant was very interesting, as it allowed us to see firsthand how vehicles destined for overseas markets are

manufactured. The production line on site was designed to flexibly handle the assembly of a variety of vehicles.

Furthermore, the tour route adopted a system that allowed visitors to view the factory from above, providing an overview of the entire production process. While it was possible to grasp the entire production process from a bird's-eye view, the close physical proximity to the cars being manufactured and the immersive experience of being on-site were also major attractions.

For the international students who accompanied them, the opportunity to observe and experience the manufacturing processes of two of Japan's leading automobile manufacturers firsthand was an extremely valuable experience for both Japanese and international students.



Figure 2. Group photo at Subaru Yajima Plant

4. Day 3 of the exchange

4.1 Academic Research Conference

The 2025 International Conference of Automotive Technology for Young Engineers (ICATYE) was held at Tokyo City University's Setagaya Campus. This conference is significant for engineers and researchers as a forum for technical and research exchange and exchange of ideas and provides students with a platform to present their research results. Students from Thailand and Taiwan who participated in the international exchange program also gave presentations. From Thailand, Channarong Khempech presented on the design and development of automotive battery packs based on a Formula Racing Car Thermal Management System, and Porramat Damraksa presented on research on the estimation of reversible heat generation of lithium-ion batteries using heat flux measurement. From Taiwan, Chieh-Yu YANG presented on research on predictive maintenance of vehicle electrical systems based on IoT architecture, and Quan-You SHI presented on research on two-stage powertrain sizing for fuel cell buses. Although battery research is outside my area of expertise, much of the content, particularly regarding how to manage heat, was very interesting. Furthermore, Channarong Khempech's research received the Best Paper Award.



Figure 3 Overseas students who presented at ICATYE

4.2 Tokyo City University Lab Tour

After the presentations by international students at ICATYE, a student from Tokyo City University gave me a tour of the Internal Combustion Engine Engineering Laboratory. This laboratory specializes in research on hydrogen engines and engine oil. One particularly impressive study investigated the extent to which bearing performance deteriorates when water vapor from a hydrogen engine mixes with the engine oil. The laboratory boasts excellent facilities and demonstrates consideration for neighbors, such as using soundproofing materials, given its location in a residential area. The research was fascinating, and I had a very worthwhile experience.



Figure 4: Tokyo City University Lab Tour

5. Day 4 of the exchange

5.1 Visit to Ono Sokki Yokohama Technical Center

Ono Sokki Co., Ltd. deals in automotive measurement and the sale of measuring instruments, with a wide range of measurement activities from powertrain performance evaluation to acoustics and evaluation of advanced driver-assistance systems (ADAS). On the day of the visit, we toured the gasoline engine evaluation facilities, ADAS evaluation facilities, and anechoic and semi-anechoic chambers at the Yokohama Technical Center.

During the tour of the gasoline engine evaluation facility, students observed the operation of a visualization engine. Participating students expressed interest in the differences between this facility and laboratory equipment, as well as in the measurement

techniques used.

At the ADAS evaluation facility, we were able to see the equipment and ingenuity used to drive and steer front-wheel drive vehicles on a test bench. The specially made equipment to enable testing under limited conditions, and the technical skill that made its manufacture possible, were very impressive. We also saw everything from completely unfamiliar equipment to controllers made from commercially available products, which showed ingenuity in the manufacturing process.

In the anechoic and semi-anechoic chambers, we were able to tour the rooms and learn about the measurement processes. We learned about the differences in the roles of the two rooms and heard about measurement conditions and sounds that are unimaginable in everyday life, allowing us to learn about acoustics other than those of automobiles.

Finally, we were given the opportunity to interact with current employees over a meal, and we were able to have a lively exchange of ideas.

Through the tour, we were able to understand firsthand that the functions of the cars we use every day are the result of countless repeated field tests before being commercialized, and we also learned how those tests are conducted.

6. Summary

Through this program, I was able to deepen my cross-cultural understanding through interactions with students from different countries, while also developing an international perspective on automotive technology and gaining exposure to cutting-edge technologies and research. These experiences provided an extremely valuable opportunity to broaden my horizons. I strongly believe that the continuation of international exchange programs such as this is essential for nurturing the next generation of young engineers. I hope to apply the experience and knowledge gained through this program to my future research activities and professional career.

Finally, I would like to express my sincere gratitude to the members of the Society of Automotive Engineers of Japan for giving me this opportunity and to the professors and companies who made tremendous efforts in their preparations and arrangements on the day of the event.