

Activities of JAPIA

The 8th. Initiatives for Industry-Academia Collaboration Agreements

Report: General Technical Committee

Bringing new discoveries and virtuous cycles to both Industry and Academia

In the eighth, we will introduce the Industry-Academia Collaboration Agreement, an initiative of the General Technical Committee. In March this year, JAPIA signed its first comprehensive Industry-Academia Collaboration Agreement with Toyohashi University of Technology (President: Kazuhiko Terashima, Toyohashi City, Aichi Prefecture). In addition to the special lectures given by engineers from member companies to students, this agreement is designed to consider a variety of initiatives in the future, including tours, internships for students, and opportunities for university faculty to provide recurrent education to engineers. This time, we will focus on the special lectures and introduce this project by asking students, professors, and JAPIA staffs who have finished listening to the special lectures to gather and talk about the purpose of the agreement and their impressions of the special lectures.

Active engineers introduce the present and future of auto parts

"As you know, there are big changes going on around the world right now, but I think Japanese scientific and technological capabilities can solve a variety of current problems, such as declining birthrates and scarcity of resources." Mr. Shigeo Furuno, a technical advisor to JAPIA, gave an impassioned speech. He worked for TOYOTA MOTOR CORPORATION. for a long time and now works for DENSO CORPORATION. and its subsidiary research company SOKEN,INC. (President : Yoshifumi Kato, Nisshin City, Aichi Prefecture). In fact, he was one of the first graduates of Toyohashi University of Technology.

On the other hand, Mr. Masashi Oshita, Executive Director of JAPIA, and Mr. Furuno believe that JAPIA can contribute to the rapid global movement toward carbon neutrality and lead the once-in-a-century revolution represented by CASE (connected, automated driving, sharing, and electrification) in automotive industries. It was at this time that Mr. Furuno, who was an external member of the university's management council, approached President Terashima, who was also a member of the council, and was in charge of industry-academia collaboration at Toyohashi University of Technology. Although the COVID-19 disaster forced us to postpone for a year, we were able to conclude an agreement

in March and hold special lectures.

The special lectures were divided into two sections, I and II, and were held seven times each, for a total of 14 lectures from April 28 to August 2. In the first lecture, Mr. Furuno gave a lecture on "Environmental Changes Surrounding the Automotive Industry and the Future Mobility Society," and in the remaining lectures, engineers from various suppliers explained the current status and future vision of related technologies to the students.

The students were very interested in the lectures in the opposite direction from usual.

The target audience for the special lecture was students in master's courses majoring in mechanical engineering. Of the approximately 130 students enrolled in the program, about 100 each wished to take the course. Vice-President Tadaharu Adachi (Professor, Department of Mechanical Engineering, Graduate School of Engineering) recalls, "I thought about half of the first-year students in master's courses would take the course, but there were more than I expected, and the course has been well received by the students."

So what were the thoughts of the students who attended the special lectures? Mr. Kazuma Hirota, who reread all the lecture materials in order to participate in this interview, said, "Since I was able to understand the whole picture in the first lecture, I was able to better understand what is required in the future in the remaining lectures. I was able to understand what each company makes and what need to be improved, and what the overall issues are. The fact that the people from the companies spoke directly to me was also very important, or rather, it changed my perception." By the way, Mr. Hirota specializes in non-destructive testing using ultrasound.

"Actually, I didn't know the word CASE before I took the lecture..." says Kaori Kobayashi, who is studying materials research. And she says, "Through lectures on ceramics, rubber, and seals, I learned how my research is used to make products."

Prof. Adachi echoed Ms. Kobayashi's comments, saying, "In schools, classes are taught from the basics to the applications, but in contrast, the engineers from companies talk about how to use the basics from the applications. We are very grateful for that, because they educate us from a slightly different perspective. I was expecting them to focus on relatively product-oriented topics, but they gave us a detailed lesson that included quite basic information." He thanked the

engineers who attended the special lectures.

An opportunity to think about employment and career development.

The special lectures seemed to be helpful to the students in thinking about their future as researchers and engineers. Mr. Hirota said, "When you want to work in the automotive industry, you probably want to work for an OEM company that makes cars, but even if they don't make a whole car, I felt that this place looked interesting, and I learned that the industry is not just about cars (OEM)." Ms. Kobayashi also said, "Hearing about companies I didn't know much about from the students, I was able to learn that there are manufacturers of such parts."

Professor Adachi and the two students agreed that it was a little disappointing that the special lecture was held online. Initially, we were planning to do this face-to-face, but since the number of people infected with COVID-19 began to increase in Aichi Prefecture since April, we hurriedly switched to online. "It was online, but there were lectures that actively used video. In some cases, the lectures were rather easy to understand. If possible, I would like to go on a factory tour," said Mr. Hirota. "It would be nice if we could learn in the real world rather than just from slides." Ms. Kobayashi said that she was satisfied with the content of the lecture, but she was still very interested in the field.

In fact, the "learn by moving" plan is already underway. Toyohashi University of Technology originally had a curriculum called "practical training," in which all students receive training at companies in Japan and overseas as a compulsory subject for two months before graduating from the undergraduate program, and it has been well received by students. We are considering, together with JAPIA, a new system in which students and companies can cooperate in solving problems, rather than merely gaining work experience.

As an example, Mr. Furuno says, "It would be good if you could create a roadmap of how companies in a certain industry should do things, looking at future issues like carbon neutrality or CASE." This is a great example of a "comprehensive agreement" that is not limited to a specific type of cooperation, but is a way for both parties to create something that might be useful.

Mr. Furuno, "In this era of great change, researchers and engineers who do 100% of what they are told are useless. At a time when the company's products and the company itself need to change, we need people who can make proposals to the company with their own ideas and strong convictions. Also, it is important to have interest in all academic fields. When thinking about something or facing

a certain challenge, combined approaches from completely different technical fields may help solve the problem," he emphasized to the students. The words of an engineer who is still working at the forefront of technology carried a lot of weight. The virtuous cycle of industry-academia collaboration will gain further momentum if people like Mr. Furuno come into contact with students through the comprehensive agreement.