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KIT Kanazawa Institute of Technology

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ENGINEERING AN INNOVATIVE FUTURE

A conversation with **Satoshi Osawa**, Ph.D, president of Kanazawa Institute of Technology (KIT), Japan

Founded 52 years ago, Kanazawa Institute of Technology is renowned among universities for its unique approach to turning out self-driven engineers. Students set out major projects and implement them with diverse collaborators. KIT graduates are highly sought-after among major companies and research institutes. Biochemist, Satoshi Osawa, who became president of KIT in 2016, explains why these approaches generate innovation.

What are the main objectives at the Kanazawa Institute of Technology (KIT)?
KIT aims to foster self-driven engineers who can think and take action independently. More than 7,300 students are enrolled at three graduate schools covering 11 specialties and four undergraduate colleges within 14 departments ranging from mechanical engineering and psychological informatics to architecture and applied chemistry. Now that science and technology opportunities are more diverse and hard to predict, our mission is to produce next-generation engineers who can innovate continuously. This is what society needs, and it is key for Japan to keep growing as the world's science and technology powerhouse.

What sets KIT apart from other research universities?
We combine two approaches: project-based education and 'co-creation education,' a collaboration which spans generations, disciplines and cultures. We expect students to find problems that face society, and design and implement projects to solve them.

For example, one team of students has recently proposed a project called 'a future life created by an eco-house.' For the project they hope to develop new technologies such as compact wind power and super insulated materials. They also want to enrich the user's life by developing robots as human partners. These ideas couldn't be realized without collaborating with people from different backgrounds on and off campus. Even a single project like this requires a lot of collaboration, and this is the process by which new technologies are born.

The project-design program is the core curriculum for all students. It is tough to accomplish, but our students are ambitious and come up with thousands of projects every year. Students can also take advantage of our electronic syllabus which deepens their understanding of coursework, and develops their skills to interact with others. In Japan, we are the only university that employs such comprehensive project-based education school-wide.

What measures have you incorporated to encourage innovation?
The era of innovation through a single spark of genius is over. The contemporary world demands co-thinking and broad collaboration, because innovation is born through users' experience.

In the past, some people invented innovative services and products, and other people just followed. But, now the process is reversed. We first need to understand what users want to have and what they want to do. Here, the ability to empathize with other people is highly important because it helps

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identify the potential needs of society. We believe our students can learn these skills to become engineers capable of empathizing, and eventually become a key player in society to create innovation.

How does KIT make the most of its global network?
As one of the few Japanese members of the Conceive, Design, Implement and Operate (CDIO) Initiative, an international network for innovative education for next-generation engineers, we are actively working with collaborators to create the world's leading engineering education.

Our project-based education is also being recognized globally, and the Vietnam Japan Institute of Technology, established in 2015 in Ho Chi Minh City, has applied our concept for their main curricula. We are also looking to export it to the United Kingdom, the United States, New Zealand and Australia.Meanwhile, next year we will launch the dual degree master's program in collaboration with the Rochester Institute of Technology, New York.

What exciting projects are coming up over the next few years?
We have just completed a 4,994-square-meter building, where students are working to shape their ideas into concrete forms. At the new Yume-Kobo (Dream factory) building, more than double the size of previous Yume-Kobo buildings, students can devote themselves to extracurricular projects such as developing solar cars and cutting-edge robots, while producing prototypes for their official projects. In July, another building, called the Challenge Laboratory, was also opened, where people from different cultural and academic backgrounds gather to tackle social issues such as promoting and raising awareness of sports for people with disabilities.

Another interesting project in the pipeline is a review of historically classic scientists — dating back 50 to 500 years. We collect original editions of 2,000 established pivotal books written by science and technology authorities, such as Isaac Newton, Nicolaus Copernicus and Galileo Galilei. We will make prototypes based on the original drawing of experiments, and learn viewpoints of the masters' forerunners. We are very excited to apply what we learn to develop future innovative technologies.

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