

Faculty of Engineering

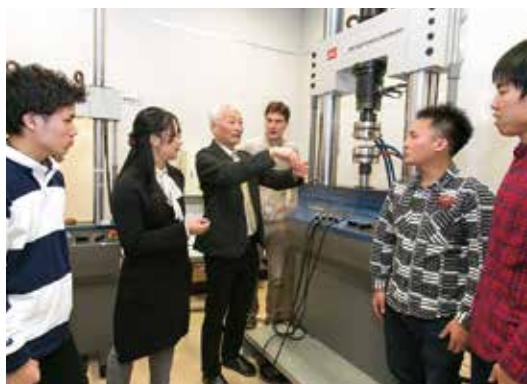
As the economy becomes increasingly global in nature, new technologies are urgently required to resolve global environmental and energy problems, and help achieve a sustainable society. The goal of the Faculty, recognizing the responsibility of graduates in supporting the societal infrastructure with technology, is to nurture specialists with knowledge in advanced engineering fields, capable of contributing to the sustainable development of society through a realization of their social responsibility, judgment to match the changing needs of the era, and creative science and technology.

Department of Mechanical Engineering

Since mechanical engineering is the foundation of almost all kinds of engineering and technology, the Department of Mechanical Engineering's aim is to produce young engineers who have broad perspectives and can play an active role in many industries. To realize this, the Department organizes its learning areas, educational staff and laboratory divisions into five fields: strength of materials, thermal engineering, fluid engineering, design and manufacturing science, and system dynamics and control. This ensures that our students gain a comprehensive knowledge of mechanical engineering.

In order to respond to the rapid developments in technology, engineers need both solid academic knowledge and the ability to use their knowledge in practice. For this reason, mechanical engineering majors study physics and mathematics intensively during their first year, while the main mechanical engineering courses begin from the second year. From

their third year on, students confirm what they learn in lecture courses through corresponding experimental courses using the Department's state-of-the-art facilities. Students also learn the process of machine designing from the second term of their second year to their fourth year through seminars in mechanical engineering design. In the fourth year, students specialize in one of the five fields mentioned above and undertake a graduation research project as final preparation for their careers in mechanical engineering.



Department of Electrical Engineering

The Department's curriculum has the following features. From their first year on, students take specialized courses including electrical circuitry, electromagnetics, physics and mathematics. Corresponding to current needs, specialty courses cover a broad spread of technological fields: electric power systems, power electronics, electrical and electronic materials, system engineering, communications engineering, optical electronics and energy conversion engineering. Courses for other relevant fields include computer science and information processing. The Department attaches great importance to seminars in which final-year students tackle

advanced graduation research in small classes that nurture their creativity and problem-solving capabilities.



Department of Electronics Engineering and Computer Science

Advanced-technology industries are developing with phenomenal speed, including information and communications technology (ICT), high-performance computers, LSI circuits and high-density optical memory. All of these fields rely on electronics and information technologies. By studying both electronic communications engineering (hardware) and information processing (software), students grow into electronic communications engineers with a solid understanding of information processing, and information engineers who know their electronics. Graduates have the knowledge

and skills needed to construct new electronic information systems to serve the changing needs of the era.



Department of Chemical Engineering

In the Department of Chemical Engineering students learn about chemistry, the basis of molecular engineering, along with the other elements of chemical engineering essential in manufacturing new materials and other products in biotechnology, energy, environmental, and other fields.

In the first two years the curriculum covers a broad range of topics including molecular engineering, basic chemical engineering theory and environmental protection technology. In the third year students select either the Chemical Process Engineering course to gain a broad understanding of chemical engineering from the basics of plant engineering to advanced specialties, or the Chemical Systems Engineering course to acquire a wider range of molecular engineering knowledge.

In their final year, students choose their graduation research themes regardless of

course. These themes cover a broad spectrum of advanced fields including biofuels, supercriticality, functional catalysis technology, high-performance chemical equipment, bio-interface control, environmental and safety control technology, self-aligning functional materials and high-level recycling technology.



Department of Civil Engineering

Civil engineering is involved in the design of public spaces, and is therefore significantly different from the other departments in the Faculty of Engineering that specialize in manufacturing. The field covers a wide range from the spaces of daily life to those large enough to be shown on the map, and from the local environment to the global.

To nurture professionals capable of resolving problems in many realms, the curriculum stresses the formation of a solid foundation while ensuring student interest in a wide range of fields. The well-balanced curriculum is divided into six field groups to ensure mastery. The program is also known for its strong emphasis on environmental issues.

The curriculum is certified by the Japan Accreditation Board for Engineering Education (JABEE), and students are recognized as engineers working to international standards upon graduation, along with certification equivalent to an Assistant Professional Engineer and an Assistant Professional Surveyor.



Department of Architecture

The three fundamental elements required for a building are safety, functionality and beauty. Therefore, the Department of Architecture offers students a broad range of courses covering these fundamentals. Architecture courses begin from the first year; then, as they progress through their four years, students select their own areas of study according to their interest and aptitude. The Department has also established a JABEE (Japan Accreditation Board for Engineering Education) certified course.

Architecture courses cover a broad spectrum of themes including the design of residences, office buildings, theaters and museums, environmental engineering that creates comfortable interior environments, structural and materials engineering to withstand earthquakes, storms and floods, and urban planning to design the future of our cities and communities. The Department has experimental facilities that put it in the top rank among Japanese universities, such as

testing facilities for earthquake simulation and an environmental laboratory where temperature and humidity conditions can be minutely controlled, as well as a CAD (Computer Aided Design) room. In their fourth year, students are individually guided to work toward the completion of a graduation project or graduation thesis as the culmination of their university careers, and to fully demonstrate the depth of their knowledge of architecture.

