

Education and Research Areas in the Doctoral Course

Department of Energy and Environmental Engineering

The aim of education and research of the programs in this department is to gain an understanding of the environmental impacts of human activities. The focus of these programs is to investigate the relationship between energy and environment, planning and design of livable environments, information systems to control environments, and support for intellectual activity.

The increase in industrial production activity along with advances in science and technology has brought rapid changes to the environment in which humans live, which was previously believed to have an infinite capacity to absorb this production activity; however, society is now beginning to witness serious environmental effects on a global scale, underlining the pressing need for a more harmonized approach to development. On the other hand, the demand for more comfortable living environments is growing in line with advances in living standards and the rise of the information society. In order to address these social needs, rather than relying on simple problem-solving approaches, we need to adopt approaches based on ergonomics and information and systems science to create human-made environments that are in balance with the natural environment. In this department, the main goal of education and research concerning environmental issues is undertaken from the standpoints of human environments and environmental information.

The two major courses in the department of Energy and Environmental Engineering are as follows:

○ Human Environment

Topics in this course include the design of amenable living environments, housing and facilities planning to realize improvements in the welfare environment, structural and earthquake-resistant design, construction materials and building technology, city-wide environmental planning, and the relationships between environments and resources.

○ Environmental Information

On the basis of mathematical analyses of information structures, we seek out associative and collaborative applications of information through high-speed networks. We will make use of control technologies of parallel computation systems to support intellectual human activities and construct information-oriented societies. Working in close collaboration with other research fields, we aim to consider various kinds of information as an interactive system, not just a collection of individuals.