

Graduate School of Engineering, Master's Degree Curriculum – An overview

This curriculum is aimed at the development of a high level of expertise and advanced research capabilities in the field of engineering from a broad range of perspectives, through study and research conducted in the engineering programs, building upon the general and specialized education gained during undergraduate studies. A Master's degree in Engineering is awarded upon the successful completion of the two-year term of study, which includes specified credits and courses, acceptance of the Master's thesis, and good performance in the final examinations.

1. Programs in profile

Mechanical and Energy Systems Engineering Program

Complexity and diversification has made it difficult to meet technological needs with traditional individual disciplines alone, such as mechanical engineering and energy engineering. In light of this, the engineering program is directed towards developing individuals with a wide field of vision who can perceive and resolve problems through knowledge and insight that transcend the bounds of their own field of specialization.

From the beginning, the students are affiliated with a laboratory in their course sector and conduct their studies and research under the guidance of the class teachers, for the purpose of gaining mastery in areas peripherally related to their own specializations in the mechanical and electrical fields.

Electrical and Electronic Engineering Program

This program is intended to foster highly creative researchers and engineers who can play a leading role in the field of electrical and electronic engineering with the expertise. Therefore, this program focuses on developing research capability in addition to the acquisition of more advanced knowledge on top of the university education. Here, we offer a wide range of electrical and electronic engineering-related courses that graduate students can select and attend. Each graduate student belongs to one of the laboratories related to research themes such as control communication, electronic devices engineering, electromagnetic dynamics, and electronic information systems engineering. In each laboratory, graduate student will gain mastery in meeting the emerging needs and demands from society under the guidance of professional supervisors.

Computer Science and Intelligent Systems Program

This program is focused on gaining a deep insight into the essence of “knowledge” and “information” through study and research conducted in three research groups of information science fundamentals, computer systems, and intelligent systems. Its aim is to cultivate information engineers and researchers who have a high-level of expertise in hardware and software for information generation, processing, and communication, and who can build intelligent, organically integrated systems that include human aspects.

Applied Chemistry Program

The purpose of this program is the development of researchers, engineers, and educators who can play a leading role in identifying and resolving problems through chemistry. In the curriculum, students gain a comprehensive knowledge of chemistry and proficiency with related technologies through lectures and guided research. Research topics include the development of new functional materials relating to the environment and energy; food products from local agricultural, forestry, and fishery products; technology for waste recycling as resources; laser chemical analysis technology; and high-pressure organic chemistry. Students are guided through the research and development cycle, from planning, implementation, results analysis, and discussion to their summarization in papers and reports. Consideration is given throughout to development of the skills essential for conducting research on the frontiers of applied chemistry.

Architecture and Mechatronics Engineering –Architecture Program

This program is focused on study and research for the conceptualization and planning of safe, secure, and comfortable urban, local, and residential environments and facilities for greater well-being. It includes structural and anti-seismic design, architectural materials, and construction technologies, and their relation to the environment and resources. Its aim is to develop architectural engineers and researchers with the capabilities and technologies necessary to meet the expectations of a society marked by rising levels of inequality and diversification, and the need for sustainability in architecture and in cities and local environments.

Architecture and Mechatronics Engineering – Mechatronics Program

The goal of the mechatronics program is to educate students in the field of mechatronics and assistive technology and to promote mechatronics equipment for improving social welfare.

The curriculum consists of two areas of specialties: Bioinformatics and Human System Engineering. Bioinformatics focuses on studying the human body's sensory and mental functions by applying mechanical or mathematical control logic models, and in this way, we hope to instruct students to acquire a good knowledge of sensorimotor functions and to help people with physical disabilities. The aim of the human system engineering study is to use electrical and mechanical engineering technology to expand barrier-free environments so that people may have a better quality of life. The aim of research and education of this program is to develop devices that can assist the rehabilitation of people with a disability and to develop more efficient and user-friendly man-machine systems.