

# Undergraduate Programs

## Faculty of Systems Engineering

### Mission Statement

The mission of the Faculty of Systems Engineering is to equip students with the ability to respond to the demand of the times with a wide-ranging perspective and innovative problem-solving skills. They will acquire insight into their specialized field as well as interdisciplinary knowledge and the ability to communicate and collaborate with diverse stakeholders.

### Diploma Policy

A bachelor's degree in engineering is granted to those who are deemed to have achieved the following goals defined by the Faculty of Systems Engineering according to the Mission Statement and Wakayama University policy on granting diplomas of Wakayama University.

1. Broad knowledge and multidisciplinary academic ability
  - Wide-ranging knowledge of nature, society, humanity, and culture
  - The practical abilities required by society and the times
2. Specialized knowledge and skills
  - The knowledge and skills required in engineering
  - The specialized knowledge and skills required in specific engineering fields
3. Problem-solving and independent learning
  - The ability to solve problems by utilizing specialized knowledge and the fundamental academic ability required of an engineer
  - The attitude for continuing to learn via independent study to improve specialized thinking ability
4. Ability to cooperate and communicate
  - The ability to tackle problems as an engineer via cooperation with others
  - The clear and logical communication skills to convey thinking processes, work processes, research outcomes, and the validity of those results
5. Regional interest and global perspective
  - Interest in the challenges of local communities and the ability to contribute to addressing those challenges
  - The ability to collect a wide range of information and correctly analyse it

### Curriculum Policy

The curriculum is designed and implemented based on the following policy.

## Perspective and Content of Curriculum

1. Liberal education subjects are included to enable students to acquire broader knowledge of the natural environment, society, humanity, and culture.
2. Specialised subjects are included to enable students to develop in-depth understanding as an engineer, applicable expertise and skills across multiple disciplines, and the ability to cooperate and communicate.
  - Basic subjects are included preparation for the study of systems engineering, which requires a broad perspective.
  - The program offers the following 10 majors:
    - Mechatronics
    - Electrical and Electronic Engineering
    - Materials Engineering
    - Chemistry
    - Intelligent Informatics
    - Network Informatics
    - Environmental Science
    - Environmental Design
    - Media Design
    - Socio-InformaticsStudents can select two majors: a primary major for acquiring main specialized knowledge and skills, and a secondary major for acquiring specialized knowledge and skills across fields.
3. Fieldwork and internships are embedded to cultivate social adaptability and enhance professional awareness.
4. Graduation research is assigned to enable students to acquire the ability to communicate and to logically explain the validity of a conclusion and the thinking and work process acquired via the study of multiple majors.

## Teaching Mode and Methodologies

1. Lectures to develop the fundamental academic ability required for the basic technical fields that support industry
2. Exercises to enhance the ability to apply the learned knowledge and methods
3. Experiments to establish safety knowledge and skills related to each technical field
4. Practical to experience to become familiar with what society and the times require
5. Seminars to cultivate the ability to understand and solve problems and the ability to describe and express the problem-solving process.

## Assessment Methods

1. Each course subject shall be assessed through examinations, reports, technical works, and presentations, according to the goals indicated in the syllabus.
2. Graduation research shall be assessed through graduation theses, research presentations, and oral examinations.

## Admissions Policy

The Faculty of Systems Engineering seeks those who have acquired the following knowledge and abilities:

1. Knowledge/skills
  - The fundamental academic knowledge and skills, particularly proven knowledge in science and mathematics required for learning specialized fields of engineering in a composite manner across multiple scientific and technical domains
2. Ability to think, evaluate and communicate
  - The ability to think and make decisions to solve problems
  - The ability to express opinions and thoughts to others and society at large in a manner that is easy to understand
3. The skills and attitude to work independently with people of diverse backgrounds
  - The flexibility and cooperative attitude to respect others and accept their opinions
  - Curiosity and creativity

## Expectations After Admissions

Students are expected to gain the following abilities and knowledge to learn independently and aim to become autonomous engineers who can play an active role in a wide range of engineering fields including academia and industrial research.

1. The ability to think through their potential career path and select two majors accordingly
2. The specialized knowledge and skills and the practical engineering abilities required by society and the times
3. Diverse knowledge and skills and problem-solving skills
4. Communication skills to logically convey ideas and thoughts as well as the ability to cooperate with others to solve problems