

Electronics and Information Technology

Acquisition of knowledge that supports the foundation of a highly advanced information society.

Study of various electronic circuits and electronic material components, basic principles in computers, software, and computer network operations. Skilled persons who can flexibly respond from both the hardware and software fields are trained here.

Training skilled persons who can create new technology.

In graduate research, themes on advanced matters are raised, students are constantly taught the most advanced knowledge in order to be able to create new technology. Moreover, students develop the ability to accurately express achievement and the ethics to faithfully deal with various problems of an information society.

Opening up future society through electronics and IT

A wide-ranged education and research on electronic engineering, information engineering and integrated fields are carried out, including semi-conductor devices, functional electronic materials, VLSI engineering, computational science, image recognition and processing, soft computing, information system, etc.

Keywords

Embedded Systems, Algorithm, Programming, Operating System, Image Processing, Electrical Circuit, Electronic Circuit, Quantum And Electronic Device Engineering, Electronic Properties And Materials, Electronic Control System Engineering



Mechanical Science and Engineering

To meet the needs of current society while keeping in mind the needs in the future

We educate students to have a wide range of knowledge and flexible thinking skills, produce highly creative products, and have an ethical perspective to also pay attention to the risk posed by technology.

To contribute to society through designing and developing an advanced intelligent or medical system

For the alumni to flexibly cope with the innovation and international competitiveness in technology, we provide education, based on science, focused on acquiring the basics and sense of mechanical engineering.

Mechanoinformatics, a new-era machine combined with information technology

A new era is coming where people and machines or machines themselves exchange information. We are looking forward to working on researches to achieve the dream with you.

Keywords

Mechanical Dynamics, Fluid Dynamics, Mechatronics, Control Engineering, Robotics, Design of Intelligent Systems, Micro- and Nano-technology, Bionics, Biomedical Engineering, Biomechanics,



Sustainable Energy

Training human resources who can solve the problems from various viewpoints

We aim to train human resource personnel who can solve various issues involving natural and renewable energy from a comprehensive viewpoint.

Comprehensive study from resources to energy systems

Students can study the knowledge of energy systems and society from a global viewpoint, based on the field related to energy resources, conversion, transportation, storage and usage.

Comprehensive study from resources to energy systems

We aim to contribute to the region by training human resource personnel who are eager to use the natural energy that abundantly exists in the region and can comprehensively utilize their knowledge of natural science and social science.

Keywords

Introduction to Sustainable Energy, Thermodynamics, Electrical Engineering, Electrochemical Energy, Energy Material Engineering, Energy Storage and Transport, Energy Conversion Engineering, Fluid Science, Environment Assessment Overview, Laboratory Work in Sustainable Energy



Hirosaki University Faculty of Science and Technology

The Faculty of Science and Technology fosters creative scientists and engineers who can contribute to the progress of contemporary society. The students will learn basic concepts of cutting-edge science and technology and also a perspective, based on which they can play a role in developing a modern society. The faculty also promotes collaborations actively with the local community.



What we expect applicants

The Faculty of Science and Technology aims to foster talent that can contribute to the development of global and local communities. We instill in students how to investigate fundamental laws of nature, create new technologies, and analyze and resolve issues arising from quickly evolving modern society. The students would then acquire an ability to make the progress of science and technology, and a perspective that leads to flexible and creative ways of thinking, which would be helpful to cope with the rapid evolution of contemporary society.

The applicants should fully understand the "Policy to confer a graduation certificate or degree" (Diploma Policy) and the "Policy regarding the formulation and implementation of the curriculum" (Curriculum Policy). We also expect the applicants to possess skills, activity, and motivation listed below.

- Skills of mathematics, science, and social communication, all of which would be important for further studies and utilizing their expertise to develop modern society.
- Activity to grow themselves. The applicants are required to have been studying high school curriculum earnestly. They should also be positive in extra activities to develop their talent.
- Motivation for learning expertise continuously to find and resolve issues in contemporary society.

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Mathematics and Physics

Mathematical Science Course

Students learn systematically basic mathematical theory and engage in practical exercises such as mathematical model analysis and data analysis so that they develop skills of solving problems in natural and social systems.

Materials Physics and Astrophysics Course

This course focuses on the fields of functional materials physics and astrophysics, and provides education to promote interest in the fundamental laws of nature and their practical application in industry and society.

Applied Computational Science Course

Students learn basic mathematics, physics, and information science with the aim to understand social phenomena and to solve problems of social and economical systems.

Keywords

Algebra, Geometry, Analysis, Semiconductor Physics, Superconductivity, Astrophysics, Applied Computational Mathematics, Computational Science, Mathematical Economics, Finance, Statistics, Data Science



Frontier Materials Chemistry

Emphasis on basic chemistry

We place focus on organic chemistry, inorganic chemistry, analytical chemistry, and physical chemistry, and the training of human resource personnel with basic academic skills.

From basics to application

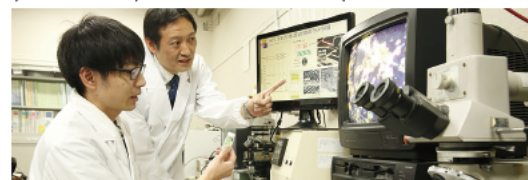
In addition to basic chemistry, we also teach the analysis methods used in the most advanced equipment, development of functional molecules and materials, chemistry to understand the environment and to work in harmony, chemistry of biomimetic material, and polymer chemistry.

Various research activities, such as promotion of functional materials, environment-conscious chemistry, are carried out.

LCD media, polymer material utilizing the characteristics of fluorine, and various functional materials, such as next-generation display materials which can be applied to digital paper technology, are developed. In addition, efforts are being made in environmentally conscious chemistry, such as developing a universal solvent, which can be used as an alternative to organic solvents, made with a water/carbon dioxide distribution system, and the generation of hydrogen from water using sunlight.

Keywords

Basic Chemistry, Organic Chemistry, Inorganic Chemistry, Analytical Chemistry, Physical Chemistry, Photoelectrochemistry, High Polymer Chemistry, Biochemistry, Quantum Chemistry, Theoretical Chemistry, Solid-State Chemistry, Materials Chemistry, Interface Chemistry, Catalytic Chemistry, Various Chemical Experiments



Global Environment and Disaster Prevention Sciences

Comprehensively teaching and researching the global environment

By deepening our understanding of the universe that surrounds the earth, we teach various aspects of the earth as an inter-related series of one system – for example, the atmosphere and water which are essential for our life, composite material and characteristics of the land that supports buildings.

Coexistence of human-being and the earth

Based on knowledge of the global environment, educated personnel will understand the mechanisms of environmental change that threaten human life and the technology to reduce disasters.

Searching the earth and the universe by one's own hand

We perform training and experiments to deal with various aspects of the earth, such as outdoor surveys and field observations. We have various facilities including earthquake and volcanic observatories, cold region weather laboratories, X-band weather radars to develop our understanding of the universe and the earth.

Keywords

Astronomy, Astrophysics, Meteorology, Climate Change Environmental Geochemistry, Seismology, Geology, Earthquake Engineering

