

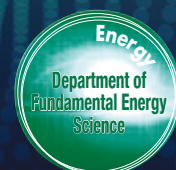


KYOTO UNIVERSITY

Graduate School of **ENERGY SCIENCE**

New Interdisciplinary Field for Solutions to Energy Problems

JAPAN



Students

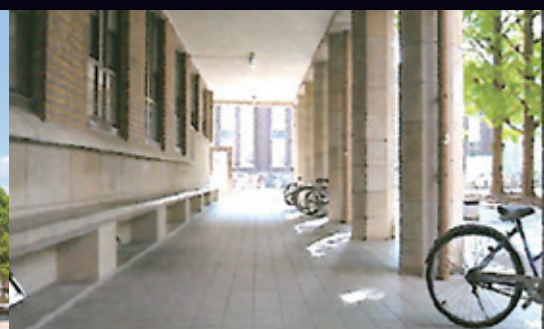
130 students in Master's program and
35 students in Doctoral program

Academic Staff

90 employees:
Professors, administrative
and technical employees



International Advanced
Energy Science Research
Education Center



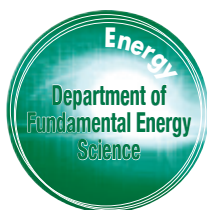


Organization

The Graduate School of Energy Science (GSES) has four departments, i.e., the Department of Socio-Environmental Energy Science, the Department of Fundamental Energy Science, the Department of Energy Conversion Science, and the Department of Energy Science and Technology. The School has 22 chairs and 17 cooperative chairs from the Institute of Advanced Energy, the Institute for Integrated Radiation and Nuclear Science, and the Graduate School of Human and Environmental Studies. These chairs cover a spectrum of advanced and interdisciplinary research fields.



Chairs: Engineering for Social Systems, Energy Economics, Energy Ecosystems, Energy and Information, Energy and Environment, Energy Policy(**), Societal Energy Education(**), Energy and Communication(***)



Chairs: Energy Chemistry, Quantum Energy Processes, Functional and Solid State Chemistry, Plasma and Fusion Science, Electro-Magnetic Energy, Plasma Physics, Fusion Energy Control(*), High-Temperature Plasma Physics(*), Interfacial Energy Processes(*), Energy Nano Engineering(*), Biofunctional Chemistry(*), Bioenergy (*), Fundamental Neutron Science(**), Energy Transport(**)



Chairs: Thermal Energy Conversion, Conversion Systems, Materials Design for Energy Systems, Design for Functional Systems, Advanced Energy Conversion(*), Highly Qualified Energy Conversion(*), Functional Energy Conversion Materials(*)



Chairs: Device Physics, Process and Energy, Materials Process Science, Thermochemistry, Resources and Energy Systems, Advanced Processing of Resources and Energy, Mineral Processing, Quantum Radiation Energy Science(*), The Physics of Energy Materials(*), Photon Energy Science(*)

(*) cooperative chairs from the institute of Advanced Energy (at Uji campus)

(**) cooperative chairs from the institute for Integrated Radiation and Nuclear Science (at Kumatori)

(***) cooperative chair from the Graduate School of Human and Environmental Studies



Greeting from the Dean of Graduate School

Energy security and environmental protection are perhaps the most important issues for the sustainable development of our modern society. They have a great influence on the trends of politics, economy and industry, especially in Japan, which has minimal natural resources and professes to be a scientific, technology-oriented nation. In 2011, the earthquake off the Pacific coast of Tohoku, and the subsequent accident at the nuclear power plant gave us the opportunity to re-recognize that energy problems are closely related to the life of the individual and require the efforts of all members of society. Additionally, climate change at the global scale has become clearly overt and numerous large scale natural disasters have happened each year in all parts of the world including Japan.

To solve such varied problems of energy and environment, the Graduate School of Energy Science was founded in 1996, gathering together experts from wide-ranging academic areas including technology, science, agriculture, economics, and law, among others. Since then, the Graduate School has been working on the creation of a novel learning base for energy science, the development of technology for energy and the environment, the cultivation of excellent human resources with specialized knowledge in energy and environment, and on making a contribution to society.

We welcome individuals who have motivation high enough to challenge the significant energy and environmental problems that are currently the most pressing global issues. We invite such individuals to join the Graduate School and succeed in partnership with our faculty members in creating a new world of energy science.



Dean of the School, Prof.

Keiichi Ishihara



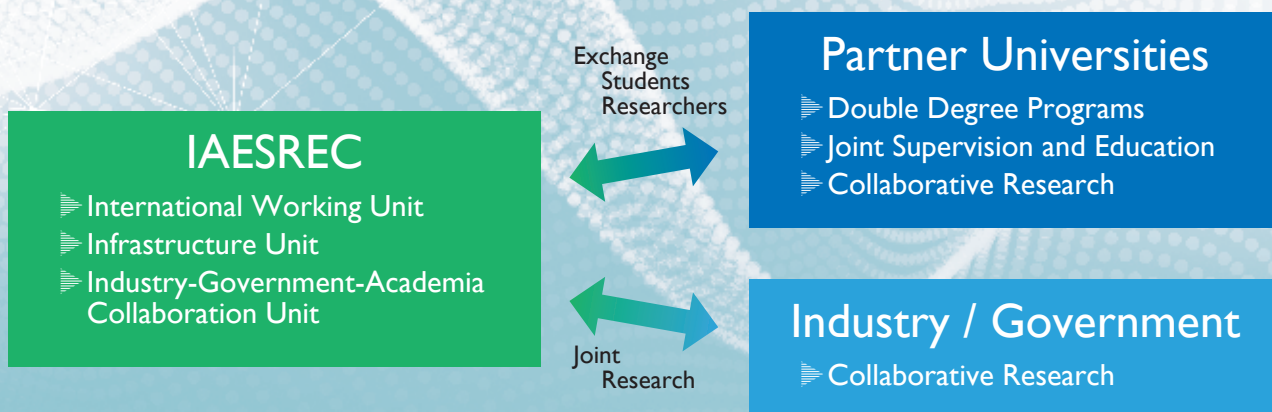
Our mission

At the GSES, we are striving to develop a sustainable energy society by establishing theories in energy science, an interdisciplinary field that incorporates a humanistic perspective into science and technology, for fostering people who contribute to the harmonious coexistence of a global society, have an international perspective, and high-level abilities in various specialties. To meet our objective, the graduate school provides postgraduate students and researchers with advanced learning and research opportunities on the development and practical utilization of new energy technology. This is backed-up with social, economic and environmental assessment of energy systems within the context of a sustainable future.



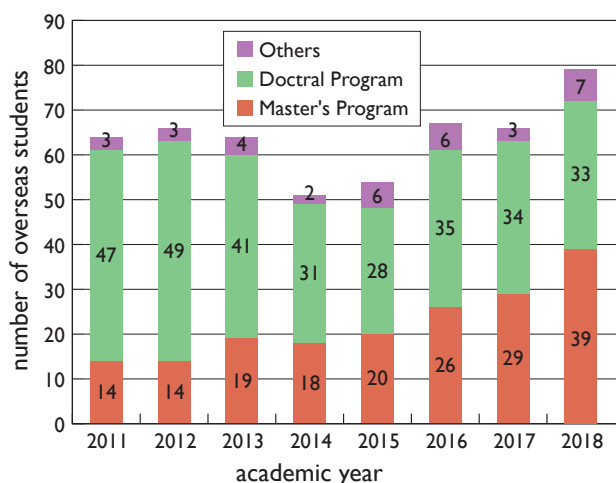
International Advanced Energy Science Research and Education Center (IAESREC)

IAESREC was established with the aim of promoting research and education activities in collaboration with other organizations such as academic institutions, government, and industry. IAESREC is responsible for not only conducting joint research, but also training students through advanced study. Additionally, we will develop international collaborative 'on-site laboratories' with our partner universities. Furthermore, IAESREC is expected to act as a nucleus for promoting international collaboration involving industrial partners.

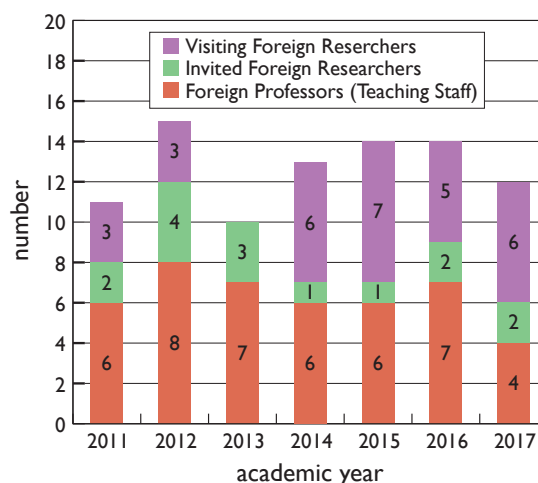


DATA

Number of Overseas Students



Foreign Researchers





Exchange of Researchers

The GSES has invited visiting professors from abroad visiting as teaching staff. We have also received researchers from various countries. The members of the GSES have organized numerous international conferences and visited foreign universities and research institutions, contributing greatly to developments in academic research on energy science.



AUN-KU Winter Seminar: debate(left) and cultural tour(right)



Exchange of Students

The GSES has received students from outside of Japan since its establishment, and has also promoted short-term study abroad for our own students. The GSES has started a student mobility program with ASEAN University Network (AUN) member universities in cooperation with other graduate schools of Kyoto University.



A typical IESC class



Academic programs

The GSES accepts 130 students in its Japanese master's program and 35 students in its doctoral program every year. The GSES also has English-based courses in both the doctoral program and in the master's program, which come under the banner of the International Energy Science Course (IESC). The IESC Master's is a two-year degree program with a combination of coursework, research and thesis, equating to 45 credits. It accepts students annually from the beginning of October. Both the acquisition of required credits and undertaking research are possible in English. An online application is open to applicants for the IESC, with initial online document submission and remote interview-based screening enabling candidates to take the entrance examination in their home country.

IESC Master's Program

	Semester 1 (Oct-March)	Semester 2 (Apr-Sep)	Semester 3 (Oct-March)	Semester 4 (Apr-Sep)
Course	Course work (14 credits - 7 courses)			
Research	Seminar / Project (4 credits)	Seminar / Project (4 credits)	Seminar / Project (4 credits)	Seminar / Project (4 credits)
Thesis			Thesis (15 credits)	

A semester-long weekly lecture is usually 2 credits.



Double degree programs

We have developed double master's degree programs and double doctoral degree programs with partner universities. Under these schemes, students can pursue their study in two universities and be awarded two degrees on fulfillment of both universities' requirements.



Areas of Expertise

The GSES was one of the first academic programs in the world focused on energy that included experts from a wide-range of disciplines including engineering, science, agriculture, and social science.



Socio-Environmental Energy Science Dept.

The Department of Socio-Environmental Energy Science aims at the establishment of ideal energy systems harmonizing with natural and human environments in order to sustain the continuous development of human civilization. For this purpose, various energy problems are systematically analyzed from sociological, political, economical, biological and environmental perspectives.

Main learning:

Engineering (Civil / Environmental Engineering, Electrics / Electronics Engineering, Material Science, Nuclear Engineering, Mathematics / Information Engineering) and **Social Science** (Economics / Business Administration, Sociology / Social Psychology) and **Agriculture** (Wood / Forest Science)



Fundamental Energy Science Dept.

We are doing education about basic science, and research, in order to contribute to energy problem solution. It is performed considering "physics", such as "chemistry", such as quantum chemistry, physical chemistry, and substance science, quantum mechanics and electricity and magnetism, statistical mechanics, condensed matter physics study, and nuclear physics, as a basis.

Main learning:

Engineering (Mechanical Engineering, Electrics / Electronics Engineering, Earth resources Engineering, Chemical Engineering, Nuclear Engineering) and **Science** (Biology / Applied Biology, Physics, Chemistry)



Energy Conversion Science Dept.

In order to contribute to the development of a human society that coexists with the natural environment, and to establish efficient clean energy systems, we offer education and conduct research on generation, conversion, control and the utilization of various kinds of energy from the perspective of science and engineering.

Main learning:

Engineering (Mechanical Engineering, Electrics / Electronics Engineering, Material Science, Nuclear Engineering) and **Science** (Physics)



Energy Science and Technology Dept.

We offer education and research opportunities for the development of more efficient utilization of direct and indirect energy supplies based on disciplines such as resources, metallurgical, mechanical and electrical engineering.

Main learning:

Engineering (Mechanical Engineering, Electrics / Electronics Engineering, Material Science, Earth resources Engineering, Chemical Engineering, Nuclear Engineering) and **Science** (Physics, Chemistry)



Access

- Kansai International airport to Kyoto station 75min by JR airport express "HARUKA"
- JR Kyoto station to Yoshida campus (main campus) 30min by Kyoto City Bus; 20min by taxi
- JR Kyoto station to Uji campus 25min by JR local train (Nara line, Obaku station)



Yoshida campus



Uji campus



Contact

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