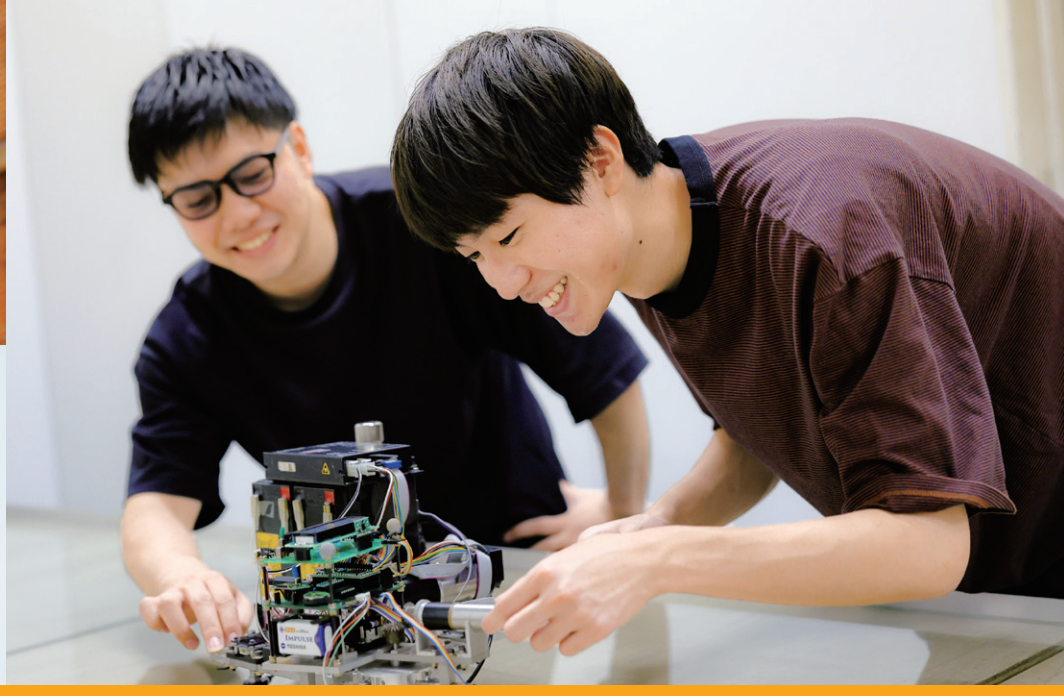


BACHELOR'S PROGRAM IN GREEN SCIENCE

DEPARTMENT OF MATERIALS AND LIFE SCIENCES

グリーンサイエンスコース　物質生命理工学科

BACHELOR'S PROGRAM IN GREEN ENGINEERING

DEPARTMENT OF ENGINEERING AND APPLIED SCIENCES

グリーンエンジニアリングコース　機能創造理工学科

FACULTY OF SCIENCE AND TECHNOLOGY, SOPHIA UNIVERSITY

上智大学 理工学部

FACULTY OF SCIENCE AND

GREEN SCIENCE PROGRAM

DEPARTMENT OF MATERIALS AND LIFE SCIENCES
(DEGREE: BACHELOR OF SCIENCE IN MATERIALS AND LIFE SCIENCES)

GREEN ENGINEERING

DEPARTMENT OF ENGINEERING AND APPLIED SCIENCES
(DEGREE: BACHELOR OF SCIENCE IN ENGINEERING AND APPLIED SCIENCES)

PREPARING YOUNG TALENT TO BECOME NEXT-GENERATION SCIENTISTS AND ENGINEERS IN GLOBAL COMMUNITY

A NEW ERA OF SCIENCE AND TECHNOLOGY SERVING THE PEOPLE AND THE PLANET

Students at the Faculty of Science and Technology of Sophia University are deeply immersed in their own areas of study while freely interacting with other fields to develop a sensitivity, knowledge, and ability to integrate these fields and move fluidly in thought between humanities and the sciences. The goal is to produce graduates with "crossdisciplinary knowledge" that enables them to participate in unraveling the complex problems challenging society today. The curriculum is grounded in the basics of science and technology while keeping up with the innovations and increasing diversity of industrial technology, enabling students to acquire a crossdisciplinary knowledge that includes the knowledge and wisdom of caring for people and the environment. To be able to fully leverage this crossdisciplinary knowledge, the students must understand the fundamentals of all areas of science and technology, and in order to be able to freely move between fields, each one must build a firm foundation in her or his own area of study. Thus, each department has key themes that indicate the scope of study and connect to the selection of a specialty. To build crossdisciplinary knowledge, students must select courses of study from among the numerous fields that are classified by these key themes and that are compatible with their primary field of interest. The small number of students typical of this university gives students ample access to professors to discuss the selection of courses and to decide the best path for their specialty.

MESSAGE FROM THE DEAN

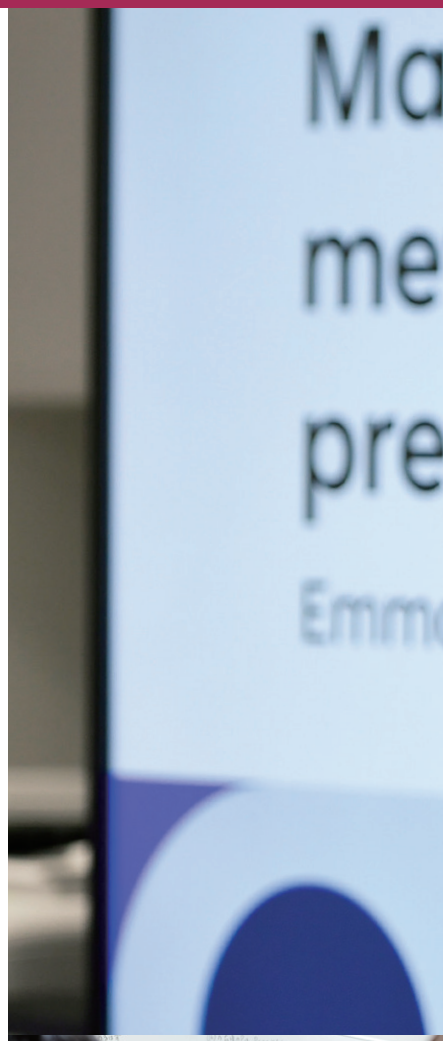
TOMOHARU SHIBUYA, Dean of the Faculty of Science and Technology

This year marks the 12th anniversary of the establishment of the Green Science and Green Engineering Courses in the Faculty of Science and Technology, Sophia University. Because all subjects in both courses are taught in English, students can enroll in a variety of subjects including laboratory subjects and conduct undergraduate research in English. The main appeal of these courses is small-group tutorials where individual students can receive detailed instructions from mentors. In science and engineering departments in Japanese universities, there are few degree-granting science and technology courses that offer subjects only in English. For this reason, both courses have attracted a large number of students from many countries and regions around the world.

In the Green Science Course, students learn the basics of chemistry, applied chemistry, physics, and biology as outlined in the curriculum of the Department of Materials and Life Sciences. In the Green Engineering Course, students learn the basics of physics, mechanical engineering, and electrical/electronic engineering as detailed in the curriculum of the Department of Engineering and Applied Sciences. In the first and second years of both courses, students study extensively basic subjects in science and engineering to acquire the academic skills necessary to learn specialized subjects. Each course provides specialized subjects tailored to students' future career plans, with some offered even in the second year. Students take mainly specialized subjects in their third year and receive specific guidance for undergraduate research from the laboratory advisor in their fourth year. On top of these, graduate programs in the Green Science and Engineering Division, which are offered only in English and lead to master's and doctoral degrees, are also available in the Graduate School of Science and Technology, enabling students to equip themselves with even higher expertise.

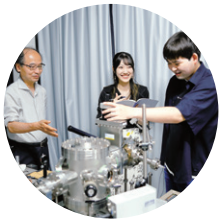
Students who wish to learn in Japanese have several opportunities to do so. Students can learn with Japanese-course students when they enroll in laboratory subjects or conduct undergraduate research, which can lead to deepening exchanges with Japanese-course students. In addition, as most faculties are located in the Yotsuya Campus, active interaction among students from different faculties or departments is possible, allowing students to experience Japanese culture and daily campus life firsthand.

We at Sophia University's Faculty of Science and Engineering have prepared a comprehensive curriculum and an exciting learning environment for students from abroad. Both the faculty and the Japanese-course students eagerly look forward to having you with us.



TECHNOLOGY PROGRAM





* Sophia University is planning to launch a brand-new English-taught program "Department of Digital Green Technology" in April, 2027. Please check more details on https://fst.sophia.ac.jp/en/department/dgtech or QR code.

PROGRAM FEATURES

INTERNATIONAL UNDERGRADUATE PROGRAMS FOR ENVIRONMENTAL SCIENCE AND TECHNOLOGY

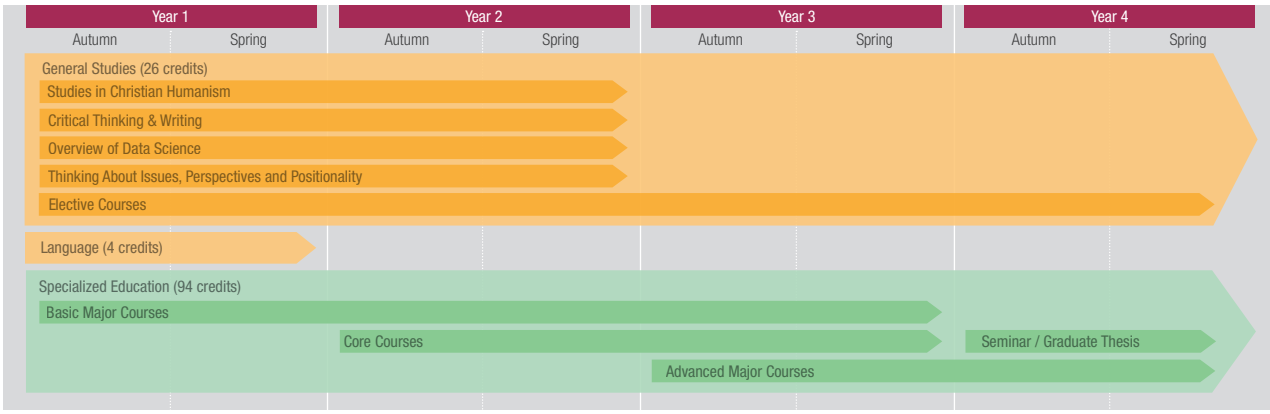
To meet the diverse needs of internationalization, the faculty added two new programs taught entirely in English as part of its regular curriculum in September 2012. The Green Science Program offered by the Department of Materials and Life Sciences and the Green Engineering Program offered by the Department of Engineering and Applied Sciences each has an enrollment capacity of 25 students. Students enrolled in those programs are required to complete all classes, take examinations, submit reports, undergo research guidance, and submit their undergraduate thesis in English.

"GREEN SCIENCE" program, offered by Department of Materials and Life Sciences, is designed to acquire fundamental knowledge of substances, and to overcome environmental issues at the atomic and molecular levels based on green material sciences.

"GREEN ENGINEERING" program, offered by Department of Engineering and Applied Sciences, is designed to learn electrical and mechanical engineering skills to help develop energy conservation technology, efficient power generation and distribution and power transmission.

CURRICULUM

MODEL



COURSE LIST

Faculty of Science and Technology

	Course Title	Cr.
Faculty of Science and Technology Common Subject Group Ⅰ	INTRODUCTION OF SCIENCE AND TECHNOLOGY	2
	MATHEMATICS A (LINEAR ALGEBRA)	2
	MATHEMATICS B (CALCULUS)	2
	MATHEMATICS EXERCISE 1	1
	BASIC PHYSICS I	2
	BASIC CHEMISTRY	2
	BASIC BIOLOGY	2
	BASIC INFORMATICS	2
	EXPERIMENTS & EXERCISE OF BASIC SCIENCE	1
	ENGL. FOR SCI / ENGINEERING (ENVIRONMENT)	2
Faculty of Science and Technology Common Subject Group Ⅱ	BASIC PHYSICS 2	2
	MATHEMATICS C1 (STATISTICAL DATA ANALYSIS)	2
	MOLECULAR BIOLOGY	2
	MATHEMATICS B2 (CALCULUS OF SEVERAL VARIABLES)	2
	BASIC DIFFERENTIAL EQUATIONS	2
	INORGANIC CHEMISTRY (ANALYTICAL CHEMISTRY)	2
	ORGANIC CHEMISTRY	2
	PHYSICAL CHEMISTRY	2
	FOURIER & LAPLACE TRANSFORMS	2
	THERMODYNAMICS	2
	CELL BIOLOGY	2
	INTRODUCTION TO QUANTUM MECHANICS	2
	ATOMIC & MOLECULAR SCIENCES	2
	GEOSCIENCE	2
	ATMOSPHERIC CHEMISTRY	2
	ELECTROMAGNETISM	2
	SCIENCE, TECHNOLOGY AND ENVIRONMENT	2
	FUNDAMENTAL BIOCHEMISTRY	2
	TECHNOLOGY & INNOVATION -CAREER DEVELOPMENT-	2
	CHEMISTRY OF MATERIALS	2
	APPLIED MECHANICS	2

Department of Materials and Life Sciences (Green Science)

	Course Title	Cr.
Department Core Courses	MATERIALS AND LIFE SCIENCES (PHYSICS)	2
	MATERIALS AND LIFE SCIENCES (CHEMISTRY)	2
	MATERIALS AND LIFE SCIENCES (BIOLOGY)	2
	MATERIALS AND LIFE SCIENCES LAB. A	1
	MATERIALS AND LIFE SCIENCES LAB. B	1
	MATERIALS AND LIFE SCIENCES LAB. C	1
	CHEMISTRY LAB. 1	1
	CHEMISTRY LAB. 2	1
	PHYSICAL CHEMISTRY LAB.	1
	BIOLOGY LAB. 1	1
	BIOLOGY LAB. 2	1
	BIOLOGY LAB. 3	1
	SEMINAR 1	1
	SEMINAR 2	1
	GRADUATION RESEARCH 1	1
	GRADUATION RESEARCH 2	1
Department Specialized Courses	ATOMIC AND MOLECULAR SPECTROSCOPY	2
	INSTRUMENTAL ANALYSIS	2
	ORGANIC AND NATURAL PRODUCT CHEMISTRY	2
	ENVIRONMENTAL ANALYTICAL CHEMISTRY	2
	GREEN CHEMISTRY	2
	RADIATION PHYSICS AND CHEMISTRY	2
	CATALYSIS CHEMISTRY	2
	THEORY-AIDED MOLECULAR DESIGN	2
	QUANTUM REACTION DYNAMICS	2
	TOPICS OF PLANT SCIENCE	2
	STRUCTURAL CHEMISTRY	2
	SEPARATION CHEMISTRY IN ANALYSIS	2
	METALLIC AND ELECTRONIC MATERIALS	2
	POLYMER CHEMISTRY	2
	RESEARCH TOPICS IN LIFE SCIENCES	2
	RESEARCH TOPICS IN ORGANIC AND INORGANIC CHEMISTRY	2
	RESEARCH TOPICS IN PHYSICAL CHEMISTRY AND CHEMICAL PHYSICS	2
	ENVIRONMENTAL PHYSICS	2
	INTRODUCTION TO MODELING OF NATURAL PHENOMENA	2

Department of Engineering and Applied Sciences (Green Engineering)

	Course Title	Cr.
Department Core Courses	ENGINEERING AND APPLIED SCIENCES 1	2
	ENGINEERING AND APPLIED SCIENCES 2	2
	ENGINEERING AND APPLIED SCIENCES 3	2
	ENGINEERING AND APPLIED SCIENCES LAB. 1	1
	ENGINEERING AND APPLIED SCIENCES LAB. 2	1
	GREEN ENGINEERING LAB. 1	1
	GREEN ENGINEERING LAB. 2	1
	GREEN ENGINEERING LAB. 3	1
	TOPICS OF GREEN ENGINEERING 1	1
	TOPICS OF GREEN ENGINEERING 2	1
	GRADUATION RESEARCH 1	1
	GRADUATION RESEARCH 2	1
Department Specialized Courses	THERMAL ENERGY CONVERSION	2
	FLUID ENERGY CONVERSION	2
	ENERGY & MATERIALS	2
	NUCLEAR ENERGY ENGINEERING	2
	MOTOR DRIVE SYSTEMS	2
	CLEAN ENERGY	2
	SIMULATION ENGINEERING	2
	COMMUNICATION AND NETWORK ENGINEERING	2
	TOPICS OF GREEN ENGINEERING 3	2
	AIRCRAFT DESIGN WITH MECHANICS OF FLIGHT	2
	POWER ELECTRONICS	2
	ELECTRIC POWER SYSTEM ENGINEERING	2
	FUNDAMENTALS OF SYSTEM ANALYSIS	2

MESSAGE

FROM TEACHING STAFF

JIRO KONDO Professor (Class Advisor of Green Science)

Today, the ability to combine knowledge and skills from different disciplines to generate new ideas and results is increasingly required. For example, in the drug discovery research in which I am involved, chemistry knowledge and techniques are essential for synthesizing drugs, but life science experiments are necessary to confirm their efficacies, and physics research methods are needed to understand the interaction between drugs and their target molecules. Furthermore, computer science, artificial intelligence, and mathematical statistics are actively used in the design of modern pharmaceuticals. The Green Science Program focuses on fostering human resources who can create new value by combining knowledge and skills from different disciplines. In small classes made up of students from diverse backgrounds, you can learn both basic and advanced knowledge and skills from faculty members who are experts in their respective fields.

TADASHI ADACHI Professor (Class Advisor of Green Engineering)

Address the environmental issues confronting humanity and achieve the SDGs. Many of you are aware of this. Among many ways to achieve, in our Green Engineering course, students can learn the fundamentals of creating new science and technology that is compatible with the environment, based on physics, mechanical engineering, and electrical and electronics engineering. For example, students can learn from the basics to applications, such as research on the synthesis of new materials in which Japan excels and research to improve energy efficiency and environmental performance. In addition, Sophia University, one of Japan's leading international universities, is the place where you can not only gain scientific knowledge but develop cultural literacy as well. When you graduate, your knowledge and skills will be boosted overall, and you will be equipped with a solid foundation to become a global leader.

MASAKI BANDAI Professor (Teaching a course in communication and network engineering)

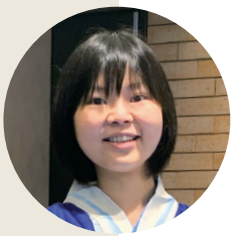
Solving global issues requires the cooperation of many experts from various fields. One of the important technologies for realization of sustainable society is digital technology. The Green Science and Engineering course provides high-quality courses related to digital technology such as information technology, computer science/engineering, and data science/engineering. Communication and Network Engineering is one of the courses. This course focuses on the fundamental technology and state-of-the art communication and network systems. Digital technology is a field that will become important in the future, and it can be applied to various technologies in other fields. Yotsuya Campus is located in the heart of Tokyo and has an international atmosphere, with students from around the world gathering to study various subjects. Let's study together in this diverse environment and become a global leader!

FROM STUDENTS

SAKI IWAMOTO Student (Green Science Program)

Admittedly, my decision to choose Sophia University was based on its location. At the time of my application, I was looking for a university that offered a science course taught entirely in English while remaining close to home. Sophia University was one of the few institutions in Tokyo that provided such a combination. Beyond science courses, the university offers English-taught classes in a variety of disciplines, allowing students to develop a well-rounded perspective on global issues while engaging with people from diverse backgrounds. The university provides many opportunities for English-speaking students, which has helped me see how my studies can be applied in an international context. For example, participating in a youth exchange program sparked my interest in international relations, which contributed to my internship experience in environmental policy. The Green Science Program at Sophia has given me a strong interdisciplinary foundation in mathematics, biology, chemistry, physics, and informatics. The small class sizes and interactive environment foster an engaging and personalized learning experience, where students are encouraged to ask questions and actively participate. The program also encourages a global perspective, which is necessary to address today's complex challenges. After graduation, I plan to pursue a master's degree to further explore my interest in science-related policies.

WU BING Student (Green Engineering Program)



I chose Sophia University for several reasons, including its prime location in central Tokyo, the opportunity to engage in multidisciplinary exchange programs, and the multicultural experience provided by its English-taught degree programs. During the COVID-19 period, I was considering transferring to a Japanese university, and among my options, Sophia stood out with its excellent location, English-taught engineering programs, and the open and inclusive atomsphere. At Sophia, I can meet friends from all over the world. The campus life is rich with diverse activities that allow me to broaden my horizons. I can pursue my academic goals while also engaging in extracurricular activities, which makes me feel like I am living my life to the fullest here. After graduation, I plan to pursue a direct PhD in the United States, majoring in mechanical engineering with a focus on fluid mechanics and thermodynamics. I aim to delve deeper into these fields and explore uncharted areas of human knowledge. The Green Engineering Program at Sophia University is an outstanding initiative that integrates technical education with a global perspective. Taught in English, it offers an ideal environment for learning, especially as English is the global language of communication for engineers. Being in Tokyo, the center of Asia, Sophia provides an exceptional international community where talented engineers are in need to address the challenges of the future.

INFORMATION

ADMISSIONS

Academic Year

Entry to Sophia: September

There are two semesters, beginning in September and April. Each semester consists of 15 weeks of classes.

Application Schedule

Applications are accepted twice a year.

1 First Application

- Application Period (on-line): Mid-November – Early-December
  Application materials must reach Sophia Admissions Office by the appointed date.
- Notice of Results: Mid-February

2 Second Application

- Application Period (on-line): Mid-March – Early April
  Application materials must reach Sophia Admissions Office by the appointed date.
- Notice of Results: Early June

For details, please refer to: https://adm.sophia.ac.jp/eng/admissions/ug_p/en_ug/fst

For more information

SCHOLARSHIPS (As of 2025)

Students can apply for the scholarship at the time of admission application.

Sophia University New Student Scholarship: Successful applicants will receive the tuition reduction scholarship that covers either one-third, one-half or the full tuition fee for the first year.

The application form for the scholarship is available at https://piloti.sophia.ac.jp/eng/scholarships1/scholraship_e0005/

Other scholarships are also available after the entrance to the University.

For more information, please refer to the website: https://piloti.sophia.ac.jp/eng/scholarships1/

For more information

HOUSING

Sophia University has several off-campus dormitories and offers affiliated housing options.

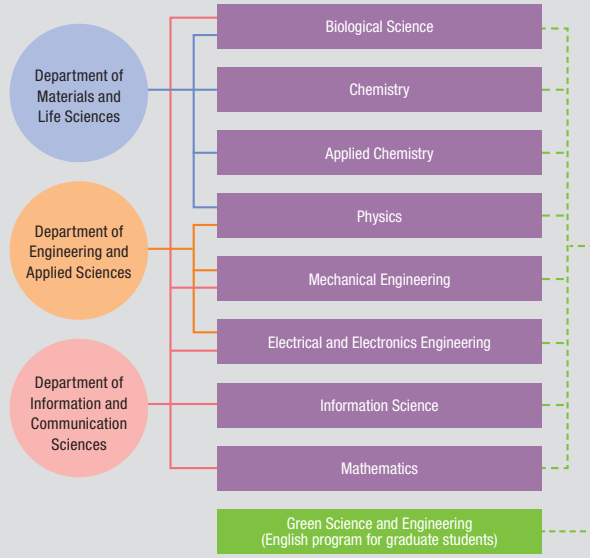
For more information, please refer to the website: https://piloti.sophia.ac.jp/eng/housing/

For more information

GRADUATE SCHOOL OF SCIENCE AND TECHNOLOGY

https://www.st.sophia.ac.jp/english/graduate-studies/index.html

The Graduate School of Science and Technology has one interdisciplinary graduate program with nine divisions.
The interdisciplinary graduate program aims to be both specialized, to bring to light new scientific information and technological developments in all the academic divisions, and interdisciplinary, to foster a common regard for the effects of such developments on humankind, the society, and the global environment.
The first stage of the program is designed to maintain consistency with undergraduate instruction by combining crossdisciplinary knowledge and specialty with the objective of cultivating highly educated individuals who can contribute to the well-being of humankind and the society. The second stage of the program aims to produce researchers who can execute independent research in one or more academic fields.



CAREER PATH

Undergraduate Students

- TPN Flexpak Co., Ltd.
- UD Trucks Corp.
- ALPSALPINE Co., Ltd.
- Internet Business Japan Co., Ltd
- AUTEL Intelligent Technology Corp., Ltd
- OPT, Inc.
- KOEI Tecmo Holdings Co., Ltd
- DIVA Corp.
- MITSUBISHI Corporation Life Science Limited
- MITSUBISHI Electric Corp.
- HINO Motors, Ltd.
- CMIC Holdings Co., Ltd.
- LINTEC Corp.
- SEKISUI Medical Co., Ltd.
- Amazon Japan G.K.
- JICA

Graduate Students:Master's Program

- UD Trucks Corp.
- BOSCH Corp.
- RAKUTEN Group Inc.
- RAKUTEN Mobile Inc.
- SHISEIDO Co., Ltd.
- IMI Critical Engineering
- Air Liquide Global E&C
- COTO World Inc.
- JFE Steel Corp.
- TERUMO Corp.
- MAZDA Motor Corp.
- HGST Japan
- KPMG Ignition Tokyo
- AVTEL
- San-Ei Gen F.F.I.,Inc
- TATA Consultancy Services Limited
- RIKEN
- Accenture Japan Ltd
- Renesas Electronics Corporation
- Hitachi Ltd.
- Sojitz Corporation

Graduate Students:Doctoral Program

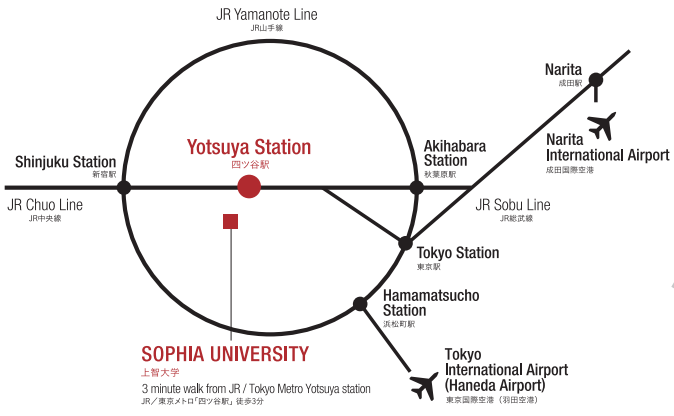
- Sophia School Corporation
- Harbin Engineering University
- Bandung Institute of Technology
- MI-6 Ltd.
- BOSCH Corp.
- Sophia University Junior College Division
- Fukui Prefectural University

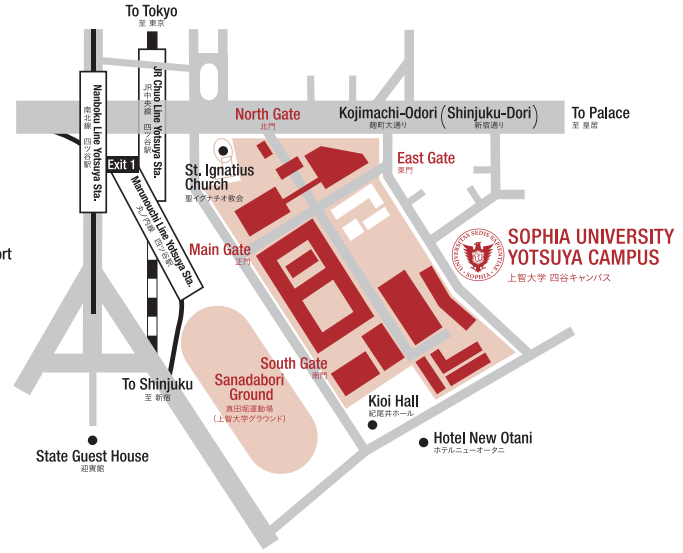
RESEARCH TOPICS

https://www.st.sophia.ac.jp/english/

The thesis research supervisor can be chosen from among faculty members of the Graduate Program in Science and Technology.
Information about the disciplinary specialties and research interests of faculty members are available on the Graduate Program in Science and Technology website:

YOTSUYA CAMPUS ACCESS GUIDE





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