Saitama University

PROSPECTUS

INTERNATIONAL GRADUATE PROGRAM ON CIVIL AND ENVIRONMENTAL ENGINEERING

DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING

Greetings from the Head of the Foreign Student Office (FSO)

I am delighted to introduce you to the International Graduate Program on Civil and Environmental Engineering at Saitama University, Japan. This graduate program is taught in English and has been running since 1992, offering master's and doctoral courses to students from all over the world. The program has successfully produced over 650 graduates from more than 30 different countries. This prospectus provides you with all the necessary information about our program.

Our graduate program offers outstanding opportunities to highly qualified international students who want to pursue graduate-level studies in Japan to gain advanced academic and practical expertise, skills, and experiences in various fields of civil and environmental engineering. The fields of study that we cover include geotechnical and geological engineering, earthquake engineering, structural engineering, concrete and material engineering, infrastructure maintenance and management, hydraulics and water resources engineering, coastal and ocean engineering, environmental engineering, ecological engineering, transportation engineering, and land and regional planning.

Our graduate program comprises coursework and research, with a strong emphasis on research activities that provide students with valuable problem-solving skills. These skills will be instrumental in their future careers when they encounter various unsolved problems. Our doctoral program is primarily research-focused, with students expected to make original contributions to their respective fields of study. With the guidance of our experienced faculty members, students are equipped to advance the knowledge and capabilities of their field.

The program requires a standard full-time attendance of two years for a Master's degree and three years for a Doctoral degree, beginning in either April/October. While the program offers various full scholarships for international students, admission is highly competitive, with only 20-25 students accepted each year. A few self-financed students are also accepted each year.

For more information on our graduate program and the selection process, please visit our website http://intl.civil.saitama-u.ac.jp/admissions.
We look forward to welcoming you to our program.

Yasunao Matsumoto
Professor and Head of the Foreign Student Office

International Graduate Program on Civil and Environmental Engineering

The International Graduate Program on Civil and Environmental Engineering, part of Saitama University's Graduate School of Science and Engineering, and managed by the Foreign Student Office, provides opportunities for highly qualified international students to pursue advanced studies and conduct research in the fields of civil and environmental engineering. The program covers a wide range of disciplines, including Infrastructure Management, Transportation Planning, Environmental Engineering, Ecological Engineering, Coastal and Ocean Engineering, Hydraulics and Water Resources Engineering, Geotechnical and Geological Engineering, Concrete and Material Engineering, Structural and Wind Engineering, Earthquake Engineering, etc.

This graduate program is specifically tailored for international students and offers instruction and research guidance in English. International students submit their Master's theses and doctoral dissertations in English. Additionally, Japanese language courses are available for foreign students to help them adapt to the local environment. Currently, the program hosts nearly a similar number of international students as Japanese graduate students in the department.

Details of the program are as follows:

A : Enrolment times:
Based on course type, there are two enrolments: April or September, aligning with the spring and fall semesters.

B : Program Duration:
Master of Engineering: A minimum full-time attendance of two years.
Doctor of Engineering/Doctor of Philosophy: Typically, a three-year study period.

C : Financial Support:
Various scholarships are available:
(1) Asian Development Bank-Japan Scholarship Program (ADB-JSP) for master's degree students.
(2) World Bank's Joint Japan/World Bank Graduate Scholarship Program (JJ/WB GSP) for master's degree students.
(3) Ministry of Education, Culture, Sports, Science, and Technology of the Government of Japan (MEXT) scholarships for talented doctoral candidates.
(4) Various private and public agencies also offer scholarships to facilitate your graduate studies within our program.

Requirements for Admission to the Program

The students are admitted to the Graduate School of Science and Engineering of Saitama University on the recommendations of the Department of Civil and Environmental Engineering. The Department selects students on the basis of the applicant's academic qualifications shown on the documents submitted by the applicants. However, the applicants who have already been studying in Japan must take written examinations and interviews held at the university. Such applicants should consult the Graduate School of Science and Engineering well in advance for the timetable and other information related to the examination and interview.

Since the program is highly competitive and the number of foreign students that can be accommodated is limited, only the most qualified applicants are admitted. After the Department has thoroughly reviewed and evaluated the application materials of each applicant, a specified recommendation of the Department for admission is granted.

To be eligible for admission to the master's degree course, an applicant should hold a degree from an accredited institution comparable to the bachelor's degree offered by Saitama University and have sufficient undergraduate training to undertake graduate study in civil and environmental engineering. For admission to the doctoral course, an applicant should hold a Master's degree comparable to that offered by Saitama University or its equivalent. However, an applicant with equivalent professional experience may be admitted to the program in lieu of the university credentials.

Application forms are available to download from the program' s website (http://intl.civil.saitama-u.ac.jp/application-forms).

The following documents must be submitted when applying to the program:

- Completed application form
- Certified copies of previous academic records
- Certificate of graduation
- Two letters of recommendation
- Essays on selected topics
- A concise resume
- Certificate of English proficiency
  (an official score of TOEFL,IELTS or equivalent)

The schedule for the application and admission processes is shown below:

(A-1) Doctoral applicants who are seeking admission with Japanese Government (MEXT) scholarship

Deadline/Timeline	Tentative Month
Deadline for receiving applications	October
Notification of results to the short-listed candidates	December
Internet-based interviews for the short-listed candidates	December
Notification of results to successful candidates	January
Graduate program begins	September

(A-2) Master's applicants who are seeking admission with ADB-JSP scholarship

Deadline/Timeline	Tentative Month
Deadline for receiving applications	June
Notification of results to successful candidates	January
Graduate program begins	April

(A-3) Master's applicants who are seeking admission with JJ/WB GSP scholarship

Details are to be announced from here:
https://intl.civil.saitama-u.ac.jp/important-dates

(B) Applicants who are seeking only admission, and are self-funded or have already obtained other scholarships/financial assistance

Deadline/Timeline	Tentative Month
Deadline for receiving applications for the April intake	October
Notification of results to applicants for the April intake	December
Graduate program begins for the April intake	April
Deadline for receiving applications for the October intake	April
Notification of results for the October intake	June
Graduate program begins for the October intake	September

An applicant must be in good mental and physical health. If admitted, the applicant must be able to come to Saitama University by April (for April intake) or September (for October intake) of the following year.

Requirements of Study Programs

Currently, the program offers Master of Engineering and Doctor of Engineering/ Doctor of Philosophy degree programs in a broad range of environmental and civil engineering disciplines.

I) Master of Engineering

To qualify for the Master of Engineering, the student must comply with the following requirements :

- The period of full-time attendance to fulfil the requirements of the degree program is a minimum of two years.
- A minimum of 30 credits beyond the Bachelor's degree is required, including 10 credits awarded for a thesis.
- A thesis based on the research carried out under the supervision of his/her thesis supervisor must be completed and satisfactorily presented.

II) Doctor of Engineering/Doctor of Philosophy

To qualify for the degree of Doctor of Engineering/Doctor of Philosophy, the candidate must have a broad knowledge of his/her field of study and demonstrate distinguished accomplishment and substantial contributions to the advancement of that field through profound knowledge and original ideas. The candidate must comply more specifically with the following regulations :

- The period of full-time attendance is a minimum of three years beyond a Master's degree.
- A minimum of 12 credits from course and laboratory works beyond a Master's degree is required.
- The student must satisfactorily present his/her dissertation proposal, approximately one and a half years from his/her enrollment in the program.
- As the most important requirement for the doctoral degree, a dissertation based on original research

carried out at Saitama University under the supervision of his/her advisor and with the assistance of the candidate's supervising committee must be completed and presented. The candidate must pass a final examination on the dissertation and a comprehensive examination in his/her specific field of study.

- At least two recognized journal publications (accepted or published) based on the doctoral research with a minimum of one paper as the first author.

■ Qualifications and Financial Assistance

The selection process is highly competitive, and the program admits only 15 to 20 students to the master's course and 7 to 10 to the doctoral course. Scholarships offered by MEXT, ADB-JSP, and JJ/WB GSP are available to students who have demonstrated academic excellence.

All scholarships cover both the tuition and academic fees and provide a monthly allowance and a round air ticket to the awardee's home country. The MEXT Scholarship for doctoral course is granted, in general, for three years subjected to the satisfactory performance of the student. The master's degree scholarships are granted for two years. Both master's and doctoral scholarships are non-extendable beyond two and three years, respectively. The master's degree scholarships require the awardees to return to their home countries upon completion of study to contribute to their countries' development.

(A-1) A doctoral degree applicant for the Japanese Government (MEXT) Scholarship must:

- be a national of a country where the Japanese Government (MEXT) Scholarship is offered.
- not be over 35 years of age as of April 1 of the application year.

If admitted, the applicant must be able to come to Saitama University within the guided schedule. An applicant who was a recipient of the Japanese Government Scholarship for the last three years is not eligible for this scholarship program.

(A-2) A master's degree applicant for the ADB-JSP Scholarship must:

- be a national of an ADB borrowing member country and Japanese ODA scholarship-eligible country which is listed on the ADB-JSP website page: https://www.adb.org/what-we-do/funds/japan-scholarship-program-jsp
- not hold dual citizenship of any developed country
- have acquired at least two years of full-time professional working experience after a university degree at the time of application.
- not be over 35 years of age at the time of application.
- agree to return and work in his/her home country for at least two (2) years after completion of studies under the program in order to contribute to its development.
- not be an executive director, an alternate director, management, staff and consultants of ADB, or the close relatives of the aforementioned by blood or adoption with the term "close relative" defined as: spouse, mother, stepmother, father, stepfather, sister, stepsister, brother, stepbrother, son, daughter, aunt, uncle, niece, or nephew.
- not be a staff of ADB-JSP designated institutions.
- not be living or working in a country other than his/her home country.
- not be enrolled in graduate degree programs.

(A-3) A master's degree applicant for the JJ/WB GSP Scholarship must :

- be a national of a World Bank member developing country listed on the World Bank scholarship website page : https://www.worldbank.org/en/programs/scholarships#3.
- not hold dual citizenship of any developed country.
- hold a bachelor's (or equivalent) degree earned at least 3 years prior to the application deadline.
- be employed in development-related employment in a paid full-time position at the time of submitting the scholarship application. Have at least 3 years of paid development-related employment since earning a Bachelor's degree (or equivalent university degree) and acquired within the past 6 years from the date of the Application Deadline.
- not be an executive director, his/her alternate, and/or staff of any type of appointment of the World Bank Group or a close relative of the aforementioned by blood or adoption with the term "close relative" defined as: Mother, Father, Sister, Half-sister, Brother, Half-brother, Son, Daughter, Aunt, Uncle, Niece or Nephew.

The program will, in principle, not support applicants who are pursuing a second master's degree. Applicants living or working in a country other than his/her home country are not eligible for the scholarship. Those admitted must be able to come to Saitama University within the specified time.

Applicants are requested not to contact the Asian Development Bank and World Bank regarding the scholarships. All inquiries about the scholarships should be directed to the Foreign Student Office.
There is no separate application form for all the above scholarships. The same application forms are used for all these scholarship programs.

Applicants who pass the selection without these scholarships must either be self-supported or obtain other scholarships, financial assistance, or financial grants to be admitted to the program.

Indicative figures for academic and living expenses for the year 2024 are: tuition fee 535,800 yen per year, admission fee 282,000 yen upon admission, and cost of living about 110,000 to 140,000 yen a month.

Courses offered

The following courses conducted in English are offered by the program. Foreign students with sufficient Japanese capability may also take courses taught in Japanese which are not included in the following list.
Most graduate courses are equivalent to two credits, i.e., two lecture hours per week for 15 weeks.

Master's Courses

- Advanced Analysis of Vibrations and Waves
- Advanced Course in Biological Environmental Responses
- Advanced Course in Landscape Planning
- Advanced Course in Technical English Ⅲ
- Advanced Course in Transportation System
- Advanced Geoenvironmental Engineering
- Advanced Lectures on Strong Motion
- Advanced Mathematics for Planning
- Advanced Theory on Earthquake Engineering
- Advanced Course in Landscape Planning
- AI and Data Science for Civil Engineering
- Climate and Society
- Concrete and Advanced Cement Based Materials
- Construction Management
- Environmental Vibration and Noise
- Geosphere System Engineering
- Geotechnical Earthquake Engineering
- Mechanics of Geomaterials
- Numerical Analysis for Civil Infrastructures
- Practical Numerical Simulation on Hydraulic Environment
- Structural Design and Analysis
- Structural Dynamics and Control

Doctoral Courses

- Advanced Lecture on Carbon Cycling in Aquatic Ecosystem
- Advanced Course in Landscape Engineering
- River Environmental Engineering
- Applied Mechanics of Materials
- Advanced Topics in Structural Dynamics
- Advanced Lecture on Seismic Resistant Design of Reinforced Concrete Structures
- Advanced Theory on Dynamic Design Method
- Environmental Geotechnical Engineering
- Geotechnical Aspects of Earthquake Engineering
- Advanced Theory on Elastic Waves
- Advanced Lecture on Geosphere System Engineering
- Advanced lecture on Geomaterials in Geosphere System
- Advanced Lecture on Microscopic Behavior of Cementitious Materials
- Disaster Management on Hydrosphere
- Advanced lecture on Earthquake Disaster Mitigation
- Sensing and analysis for geotechnical engineering
- Traffic Safety Planning
- AI and Data Science for Civil Engineering
- Quantum Computer and Machine Learning
- Others (Detailed list of course are available on the program's website at: http://intl.civil.saitama-u.ac.jp/list-of-courses)

Overview of Saitama University

Saitama University, located in the serene suburb of Saitama City, is a distinguished national institution in Japan. It is known for its academic excellence and thriving research activities. Located just 30 kilometres north of metropolitan Tokyo, the university benefits from easy access to the heart of the capital, a mere hour's journey away. This proximity allows students to easily explore Tokyo's cultural, educational, and professional experiences.

Saitama University is deeply committed to internationalization, facilitating global engagement through exchange programs, research collaborations, and partnerships with universities worldwide. The university offers a number of English-language programs, catering to the diverse needs of international students. Its faculties span the Liberal Arts, Education, Economics, Science, and Engineering, fostering an interdisciplinary approach to both education and research. Complementing these faculties are three graduate schools, the Graduate School of Humanities and Social Science, the Graduate School of Education, and the Graduate School of Science and Engineering. As of May 2023, the university had 8,328 full-time students. Among them were 6,759 undergraduates and 1,569 graduate students.

The university also stands out for its impressive research centres and institutes. The modern campus is equipped with state-of-the-art facilities, including a well-stocked main library with access to materials from libraries across Japan and internationally. The university offers numerous sports facilities, including a spacious athletic field, gymnasiums, and dedicated halls for Judo, Karate, Kendo, and Aikido.

Accommodation for International Students

To foster international exchange, the Saitama University International House provides accommodation and facilities for international researchers and students. As of 2023, there will be a total of 199 rooms available, including single, couple, and family rooms. This contribution to international exchange aligns with the university's commitment to excellence in research and education, making Saitama University a prominent institution in Japan's academic landscape.

Research Groups

The International Graduate Program on Civil and Environmental Engineering has several research groups that focus on specific areas of study. These include, but not limited to, geo-technology for disaster prevention, earthquake engineering, structures and mechanics, concrete structures, strengthening of civil infrastructure, planning of transportation infrastructure, environmental engineering, and ecological engineering. Prospective students interested in research are urged to contact relevant faculty members before applying. Specific details of research groups are as follows.

- Geotechnical and Geosphere Research Group
- Earthquake Disaster Prevention & Mitigation Group
- Structural Engineering, Mechanics and Materials Group
- Hydraulic and Environmental Engineering Group
- Transportation & Planning Group

Geotechnical and Geosphere Research Group

Geotechnical and Geosphere Research Group consists of three subgroups, “Geotechnical engineering for disaster mitigation” , “Geoenvironmental engineering” , and “Geosphere system engineering” .

“Geotechnical engineering for disaster mitigation” covers research topics related to soil liquefaction, slope stability, ground reinforcement and improvement techniques. Various kinds of laboratory testing, filed-scale investigation and numerical modeling are used to understand soil mechanical properties and behaviors.

“Geoenvironmental engineering” covers research topics related to environmental risk assessment at contaminated ground, development of site-specific appropriate techniques for pollution control, measurements and models for water, gas, solute, heat transport in soil, and characterization of soil structure and pore networking.

“Geosphere system engineering” covers research topics related to the geological disposal of radioactive waste and the evaluation of the rock properties and their behaviors for construction and maintenance of rock structures. Research on weathering process and its restoration technique for archaeological sites and civil engineering heritages have been also investigated on the basis of the knowledge of geology.

Ken Kawamoto
Professor
Geoenv. Eng.; Solid Waste Management

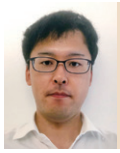
Masahiko Osada
Professor
Rock Mechanics, Applied Geology

Taro Uchimura
Professor
Geotechnical Eng; Geotechnical Earthquake Eng.

Chiaki Oguchi
Assoc. Professor
Material Sciences; Rock Weathering/ Geomorphology

Yota Togashi
Assoc. Professor
Rock Mechanics; Tunnel Engineering

Kengo Nakamura
Assist. Professor
Risk assessment; Mass transfer phenomenon



Haruka Tomobe
Assist. Professor
Soil mechanics, Plant biomechanics, Numerical simulation

Earthquake Disaster Prevention & Mitigation Group

The Earthquake Disaster Prevention & Mitigation Group is actively working on a range of research topics within the realms of earthquake engineering and the engineering applications of earth science. The research covers a wide range of topics, i.e., encompassing seismic behavior of geomaterials, exploration of seismology and seismic wave propagation, and the assessment of site and propagation path effects on strong ground motion. The group analyzes variations in ground motion, studies dynamic failure mechanisms, and explores granular material mechanics.

Additionally, the group analyzes the deformation of the surface soil layer resulting from earthquake faults, explores the seismic excitation

and structural response dynamics, and investigates the complex interaction between ground and structures during seismic events. The innovative engineering solutions include researching base isolation systems to shield structures from ground motion, ensuring the resilience of critical infrastructure through lifeline systems, and applying reliability theory principles in earthquake engineering.

Masato Saitoh
Professor
Earthquake Eng; Seismic Design of Structures

Hidenori Mogi
Assoc. Professor
Earthquake Eng.; Earthquake Ground Motion

Hisashi Taniyama
Assoc. Professor
Earthquake Eng.; Seismology

Chandra S Goit
Assist. Professor
Earthquake Eng.; Soil-structure Interaction

Usama Zafar
Assist. Professor
Earthquake Eng.; Soil-structure Interaction

Structural Engineering, Mechanics and Materials Group

The Structural Engineering, Mechanics and Materials Group conducts research and development on planning, design, performance evaluation, and maintenance of civil engineering structures, such as steel, reinforced concrete, prestressed concrete, and composite structures. Particularly, studies on mechanical and physicochemical behavior of construction materials and development of new structural types, new construction methods, and new materials are being carried out in this group. The research topics in structural mechanics include understanding the mechanical behavior of new structural system, the relationship of microstructure with mechanical characteristics and fracture phenomena in structural materials.

The research areas in structural dynamics cover understanding and mitigation of dynamic responses of structures to earthquake, wind or traffic, vibration-based structural health monitoring, and additionally human responses to vibration and noise.

The concrete and rubber materials are mainly studied, aiming to quantitatively evaluate the long-term behavior based on chemical reaction, microstructure, and time-dependent behavior of material characteristics related with temperature. Furthermore, application of new materials, such as fiber reinforced polymers, in civil engineering structures are investigated.

As described above, the Structural Engineering, Mechanics and Materials Group works on safety and durability of civil engineering structures by conducting comprehensive research and developments in wide academic field.

Yoshiaki Okui
Professor
Bridge Engineering
(Retiring in March 2026)

Yasunao Matsumoto
Professor
Structural Dynamics; Human Response to Vibration and Noise

Takeshi Maki
Professor
Concrete Eng.

Shingo Asamoto
Assoc. Professor
Concrete Eng.

Ji Dang
Assoc. Professor
Structural Mechanics and Dynamics

Yao Luan
Assist. Professor
Concrete Eng.

Hydraulic and Environmental Engineering Group

The Hydraulic and Environmental Engineering group are divided into two groups, Hydraulic and Environmental Engineering (HEE) Lab. and Applied Ecological Engineering (AEE) Lab.

Research areas in HEE are environmental hydraulics, disaster risk reduction, and mitigation methods; understanding natural phenomena in coastal area and river watersheds and thereby developing methodologies that minimize damage. Studies in HEE on the coastal region are divided into two topics. They are: 1. proposing an Eco-DRR method using forest and/or lagoon, and optimal hybrid defense systems comprising of sea embankment and coastal forest on tsunami reduction, and 2. clarifying the secondary disaster due to driftwoods and its mitigation method by trapping debris. Similarly, studies on river hydraulics in HEE are divided into four topics. They are: 1. in the middle stream region: management method of river channel and vegetation, growth dynamics of river vegetation under flood disturbances, 2. in upstream region: sediment budget around dams and characteristics of river channels downstream of a dam, 3. on embankment failure due to over-topping flow: experimental and numerical

studies on the mechanism and prevention, and 4. on flood inundation: location of potential flood inundation, risk and evacuation timing for different precipitation patterns.

The research areas in Environmental Engineering (AEE Lab.) are development of technology for the natural water quality conservation, wastewater treatment, and environmental response and control of the living organisms in freshwater ecosystem, etc. Staffs are the main members of Interdisciplinary education program for applied science and technology in global environment for Master study.

Norio Tanaka
Professor
River Eng.;
River Environmental Eng.

Takeshi Fujino
Professor
Environmental Eng.;
Environmental Studies

Kenichiro Kobayashi
Professor
Hydrology, Environmental Hydraulic Engineering, Hydroinformatics

Junji Yagisawa
Assoc. Professor
River Eng.

SMDH Jayasanka
Assist. Professor
Water and Environmental Studies

Yoshiya Igarashi
Assist. Professor
Environmental and Hydraulic Eng.

Transportation & Planning Group

Transportation & planning group conducts research on urban and traffic planning to achieve better life in city. Life in city is composed of 3 elements: Inhabiting, Working and Relaxing. Travel behavior ties each element and is often called the 4th element of life in city. The group focuses on the importance of relationship between life and transportation behavior in city.

Our main research themes are traffic calming transport community development, regional transportation planning, tourism management, traffic demand management (TDM), traffic demand Omotenasi (TDO), traffic psychology and behavior, consensus building, and transportation network analysis. Also, urban and regional open space topics considering landscape design and conservation of green space are included.

Masahiko Kikuchi
Professor
Urban Planning

Kiyotaka Fukahori
Assoc. Professor
Landscape Engineering

Aya Kojima
Assoc. Professor
Transportation Planning

Atsushi Sugama
Assist. Professor
Transportation Planning

Campus views

Program website

Foreign Student Office (FSO)

International Graduate Program on Civil and Environmental Engineering
Department of Civil and Environmental Engineering, Saitama University
255 Shimo-okubo, Sakura-ku, Saitama-shi, Saitama 338-8570 Japan
Phone/Fax : +81-48-858-3555 E-mail: fso@sun.civil.saitama-u.ac.jp
Web: https://intl.civil.saitama-u.ac.jp/ Facebook: https://www.facebook.com/SUnivFSO

Saitama University

Printed in 2025.4