





## Welcome

🏹 amaguchi University was originally founded in 1815 as a private school in Choshu and was later designated a national university in 1914 when it opened its doors to more than 10,000 students and 2,600 faculty and administrative staff. There are nine Undergraduate schools (Humanities, Education, Economics, Science, Medicine, Engineering, Agriculture, Veterinary Medicine and Global Science Studies) and eight Graduate schools across three campuses; Yoshida, Tokiwa and Kogushi. Over the span of three quarters of a century, the Engineering faculty has acquired an excellent reputation for their research and for providing a high level of quality education. The scale and facilities of our University ranks us among the biggest and best in the Chugoku region in Japan. In addition to the seven departments dedicated to fundamental engineering, we have another which focuses on the applied sciences. The Graduate School of Sciences and Technology for innovation has also offered excellent post graduate programs through its Masters and Doctorate courses since 2016. With the aid of the very latest in advanced engineering technology, it is the mission of the engineering faculty to continue to create, develop, and research new fields of Engineering.

In the last few years, our jointly conducted research programs, whether through collaboration with numerous companies or through governmental funding, have sponsored several educational programs that have been designed to foster creative talent. Our school motto is, "A Place of Wisdom: Discover It, Nourish It, and Realize It". It is the basis for everything that we do. Under this principle, it is the mission of the faculty to educate, research, and contribute to society, while providing the optimal environment to learn acclaimed Japanese style manufacturing.

This catalog outlines the research and education provided by this faculty. I hope the information within proves useful in your future endeavor to promote international change.

Dean 堤 宏守

Hiromori Tsutsumi, Prof., Doctor of Engineering

# Engineering (Faculty and Graduate School)

## Location

Tokiwa Campus - Ube City, Yamaguchi Prefecture (Faculty of Engineering, Graduate School of Sciences and Technology for Innovation, Graduate School of Innovation and Technology Management)

Located on a hill called Tokiwadai, the campus is near the Yamaguchi Ube Airport and Tokiwa Park, a recreation area for city residents.

## Faculty of Engineering (2018)

(7 Departments) Mechanical Engineering Civil and Environmental Engineering Applied Chemistry Electrical and Electronic Engineering Information Science and Engineering Architectural Design and Engineering Sustainable Environmental Engineering

## Graduate School of Sciences and Technology for Innovation (2018)

### Master's Program

(4 Engineering Departments) Mechanical Engineering Construction and Environmental Engineering Applied Chemistry Electrical, Electronic and Information Engineering

#### **Doctor's Program**

[4 Engineering Departments] Systems and Design Engineering **Environmental Engineering** Material Science and Engineering Life Science

## Numbers of Students and Staff

(as of May 1, 2017)

Total students:3,344

- Bachelor:2,388
- Master's course: 827
- PhD course: 129

Faculty and staff: 296

- Faculty: 165
- Staff: 131

## Academic Year

The University's academic year is divided into two semesters.

Semester 1:1st April-30th September

(Summer Break:beginning of August-End of September)

Semester 2:1st October-31th March

(Spring Break: Middle of February-End of March)

## Support

### Japanese Language Learning Support

The International Student Center provides international students with support that includes Japanese language and culture classes.

### **Tutoring System**

We offer specialized support services for international students through our International Office. This includes providing tutors for international students to help them enroll and settle in to their new academic life on the Tokiwa campus.

## **Exciting Lifestyle**

University is about more than just studying. Campus lifestyle also includes recreation, sporting and social activities.

There are also some enjoyable things to do after school. Tokiwa campus is located in Ube city, which has a shopping mall with exciting facilities such as a gym, a multiplex cinema, and pubs in the city center. Our campus is very close to Tokiwa Park. If you're looking for somewhere a little more peaceful than the town center, you can make your way down there.

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## Cover Story





Even now the students gather at the creative lounge and open deck of the welfare facility.

Yamaguchi was a great place to study engineering. I am a senior studying Mechancial Reliability Engineering. Yamaguchi University has a lot of great research facilities that really help us study. Although I wasn't sure how I would be treated in Japan, everyone at the University, the teachers and the faculty, made me feel welcome. If I had any problems, the foreign exchange center was always available to help when problems arose. I was even surprised to find a Muslim prayer room and Halal food available on campus. There's still so much more

> Amirul Ridzuan Bin Jamsari from MALAYSIA

...... Excellent teachers and facilities for your research

Dormitory for

International students

and mixed with

Japanese students!

chose Yamaguchi because I was interested in Environmental Studies, and New Energy. Being Arabian, I was worried about adapting to culture so different from my own. It was difficult at first, but now I think my time here was a great gift because I not only studied science I learned about culture. In some ways, Arab culture and Japanese culture have some similarities, but I was surprised to see how the Japanese are able to maintain their culture in our modern day fast paced society. It's not

something you can teach, you just have to come here and know it. Shahira Said Ahmed Mohamed Aly

from EGYPT

My name is João. I am a Phd student studying Life Science at the Ube campus. I feel really lucky to have joined an amazing group of students, and had the opportunity to meet some wonderful tutors. Your tutor helps you adjust to your new life in Japan for the first few months. I am taking Japanese classes at the University and enjoy speaking with my new Japanese friends. They are always eager to help me even when they are busy.

Simões Cardoso João Carlos from PORTUGAL

Welcome to Yamaguchi University ! .......



am so glad to have had the opportunity to study at Yamaguchi University. I came here for a double-degree Master program, and went on to complete my Doctorate. It was the amazing staff and the state -of-the-art facilities that made me decide to continue studying here. I studied at the Space Utilization laboratory which, I later learned, has a partnership with JAXA! (the Japan Aeronautics Exploration Agency) When I wasn't studying, I really enjoyed my time with my host family, and friends. Japan is a very safe country with an interesting culture. It was very good. I really enjoyed my time here.

Ni Made Pertiwi Jaya from

Great place to study!



am a gradudate student from Korea, and I majored in Mechanical Engineering at Yamaguchi University. When I was a college student in Korea, I participated in a program called SPIED and CEDC. These programs were conducted in conjunction with other universities in China and Korea. That is what brought me to Yamaguchi. We took so much pride in our research, and I felt that brought us together. I also like that Yamaguchi University offers Globalization courses and conferences. I enjoy participating in them since I am able to meet people from around the world, gaining insight and knowledge to help me in my career

Jeong Jongyeob from KOREA



## Research Fields

Applied Thermal Engineering Engine System Fluid Engineering **Energy Control** Instrument and Information Engineering Mechanical Systems Control Micro Mechatronics Materials Reliability Strength of Materials Micro Biomechanical Engineering Clinical Biomedical Engineering Medical Mechanical Engineering



## Mechanical Engineering

Mechanical Engineering (ME) is the mother of modern living. Although ME already has a solid basis and a broad spectrum of application, ME continues to extend its developments to benefit the world.

As things tend to be highly integrated and sophisticated in this modern era, future mechanical engineers should have not only a broad understanding of the fundamentals of ME but also the ability to integrate them when necessary to find solutions to real-world problems. The objective of our undergraduate program is to instruct our students on the principles and theories of ME, some of which can be applied to find a solution to the problem in other engineering fields.

Practices of theories and techniques are intrinsic in learning ME. We offer two target-driven courses ("Aerospace Engineering" and "Bioengineering and Robotics") for undergraduates. Setting the specific target of study will help our students understand the way how theories and academic knowledges are applied to the real-world products. Each course consists of a number of lectures, exercises and the laboratory experiments which are

all indispensable to be a current mechanical engineer. All students engage in two target-specific manufacturing classes where they work in small groups and learn how to collaborate with the others.

There is also an opportunity mainly for Bioengineering and Robotics course students to collaborate with foreign students. We organize two-week summer school which is literally known as SPIED - an abbreviation of the "Summer Program for Innovative Engineering Design", with the great help of our partner universities in China and Korea.

Approximately 70 percent of ME undergraduates proceed their studies in our two year graduate program where they can earn the degree of the Master of Engineering.Many graduates are actively working in the leading firms in Japan which include the airlines, the car manufacturers, the robotics vendors and the bioengineering companies.

Our program is fully accredited by the Japan Accreditation Board for Engineering Education (JABEE). Graduates are recognized by other signatory countries of the Washington Accord as having met the academic requirements for entry to the practice of engineering. Learning with us gives you an opportunity to build a solid career in your country.





Many traditional events to experience! \*\*\*\*\*\*\*\*\*\*\*\*\*\*



## esearch Fields

Geotechnical Engineering Geo-environmental Engineering Structural Design Engineering Structural and Construction Engineering Structural Foundation Engineering Construction Materials Engineering Urban Development and Planning Infrastructure Planning and Design Hydraulics and Environmental Engineering Disaster Risk Management



# Civil and Environmental Engineering

We need infrastructure for the safety and comfort of our society. This includes safe shelters, means of transporation, airports, harbours, coastal protection, electrical supplies, dams, water supplies, water and waste water treatment, and solid waste management. At the same time, maintaining facilities and protecting the environment are also regarded as important in our modern way of life. The Civil Engineering profession is responsible for designing, building, operating and maintaining physical infrastructure and protecting the natural environment that together support human civilization in an economically and environmentally sustainable manner.

The Department of Civil and Environmental Engineering provides a curriculum consisting of construction methods and management techniques to satisfy the needs of our safe society. As a result, our students obtain a wider and more enduring view of various aspects to contribute to our peaceful and safe life. Furthermore, we have established the "East Asia International Course" to educate students to be international civil engineers equipped with professional leadership.

The educational program of the Department of Civil and Environmental Engineering has been recognized to be of international level by the Japan Accreditation Board for Engineering Education (JABEE). With this recognition, our graduates can acquire the qualification of associate engineer (gijutsu shiho) upon application. The Department of Civil and Environmental Engineering encourages innovative teaching practices to meet the academic and professional needs of its students.

The East Asia International Course (EAIC) is a great way to get students thinking globally. The course's intellectual focus is discovery and innovation to understand the world, invent and lead with creative design to sustain life and society in our ever-changing global environment. In a globalized world, where national economies and politics are so interdependent, it is necessary to equip university graduates with the skills they need to live and to work confidently for long periods in different countries. In EAIC, students undergo international civil engineering education such as Engineering Communication for Civil Engineers and

**Exercises in International Construction** Engineering, which are conducted in English. The main objectives of these courses are to increase their English communication skills as Civil Engineers in four areas:listening, speaking, writing and reading. The other goal is to educate students on the Civil Engineering technologies used to achieve a sustainable global environment, with a focus on the other countries both in East Asia and beyond.





Applied Fine Chemistry

- Electrochemistry
- Polymer Chemistry
- Molecular Reaction Chemistry
- Catalytic Materials
- Organic Chemistry
- Materials Chemistry
- Inorganic Solid State Chemistry
- Crystal Engineering
- Organic Molecular Materials

Molecular Bio-related Chemistry

- Bioorganic Synthesis
- Bioorganic Reaction
- Functional Polymer Chemistry
- Bioprocess Engineering
- Genomic Bioengineering



# Applied Chemistry

Chemistry is possibly the most central of the natural sciences. Supporting all aspects of today's daily life by producing materials, medicine, cosmetics, food, etc, which is a field indispensable for holding our society together.

To satisfy students' wide interest in chemistry, the Applied Chemistry department covers physical chemistry, organic chemistry, polymer sciences, biochemistry, inorganic chemistry, and chemical engineering. The department also provides educational and research opportunities which help develop the knowledge, tools and methods required to examine materials in various research fields, to develop new materials and production processes, and to solve operational problems with chemistry research.

To further expand the chemical knowledge applied in many fields closely related to chemistry, our graduate school allows students to expand their knowledge of advanced chemistry in fields such as material, environmental and medicinal sciences, and benefit from a broader perspective when using their chemical expertise in society.

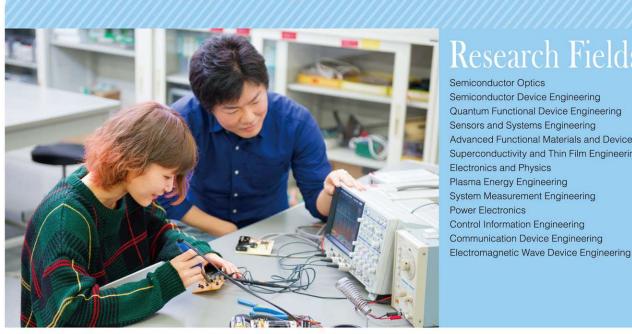
The department has three education sections, each of which includes four or five educational divisions, and every year accepts about 90 undergraduate students.











## Research Fields

Semiconductor Optics Semiconductor Device Engineering Quantum Functional Device Engineering Sensors and Systems Engineering Advanced Functional Materials and Devices Superconductivity and Thin Film Engineering Electronics and Physics Plasma Energy Engineering System Measurement Engineering Power Electronics Control Information Engineering Communication Device Engineering



# \*\* Electrical and Electronic Engineering

How do we live in modern societies without electricity? We cannot imagine a life without electricity. If we had no electrical energy, which we call "power" in Electrical and Electronic Engineering, we could not use mobile phones, computers or the internet. We could not get water and gas delivered to us without power. Thus, modern societies are maintained by Electrical and Electronic Engineering. Electrical and Electronic Engineering is categorized into three technological fields: Electronics, Control Systems Engineering and Power Engineering.

Magnetic materials, large scale integrated circuits (LSIs), semiconductor devices and dielectric materials are included in Electronics. A gallium-nitride (GaN) based light emitting diode (LED) is now one of the most famous electronic devices in the

This GaN LED is also included in the field of Electronics. Equally well known is robot technology, a field of Control Systems Engineering. Control Systems Engineering also covers sensing of mechanical and electric quantities. These sensors are used in our daily life in everything from medical equipment to factories and cars.

Information technologies (ITs), computers and mobile phones are also included in the control systems engineering in Electrical and Electronics Engineering. Power Engineering covers generation, transmission, and distribution with electronic converters using semicondoctors.

Electric machines, generators, motors and transformers, and transformers require power engineering. Synchronous AC generators are used to generate power in hydroelectric, fire and nuclear power plants. Electric vehicles (EVs) and the Nozomi bullet-trains are driven by AC motors, where inverters with insulated gate bipolar transistors (IGBTs) are used. Inverters with IGBTs are widely used in renewable energy generation systems, including photovoltaic (PV) generation systems and wind turbines.

Next generation engineers continue to research and pursue creative new technologies. In order to do this and be successful a basic understanding of Electrical engineering is indespensible. The mission of our department is to produce highly-qualified, well-rounded, and motivated graduates who possess a fundamental knowledge of electrical and electronic engineering and who can provide leadership and service to Yamaguchi, Japan, and the world. Thus, this department provides our students with well-balanced majors in three technological fields related to Electrical and Electronic Engineering.

Every year, many companies in every kind of industry extend job offers to graduates from our department. The electrical, electric utility, automobile, chemical, and construction industries are some of the many industries in which our graduates are now employed.





## Research Fields

Computer Engineering

- Computer Science
- Information and Communication Systems
- Computer Systems
- Software System Engineering
- Web Information Engineering Intelligence Engineering
- Knowledge Engineering
- Pattern Recognition
- Biological Information Systems Engineering
- **Neural Circuit Computation** Applied Systems Engineering
- Fundamental Systems Systems Design
- Systems Planning
- Disaster Prevention Systems
- Information Media Expression and
- Methodology
- Image Information Science
- Computer Vision



# Information Science and Engineering

The Department of Information Science and Engineering seeks to expand human and technical capabilities through information in a world where information is of central importance to personal, organizational, social, political, technical, and economic progress.Our Information Science and Engineeing department oversees the research and education of Information Communication Technology (ICT) related to computers including hardware, software, artificial intelligence and the internet.

ICT is essential in today's world. There is an increased need for highly skilled ICT Engineers. This has prompted an increased need for ICT engineers with high-level skills. Students are expected to obtain a broad knowledge and skill set concerning ICT, and to acquire basic social skills that include logical thinking and communication.

The graduates of this department will obtain the communicative, logical thinking skill sets and ICT knoledge which will help them play an active role on the front lines of both domestic and international ICT industries.

The department consists of the following 3 principal education and research fields. Our research covers a wide range of topics, from computer science to computer vision. This includes 16 laboratories, each of which conducts independent and collaborative studies with other fields and other universities/colleges.

- -Computer Engineering
- -Intelligence Engineering
- -Applied Systems Engineering

The department offers both hardware and software courses on creating ICT systems where after students obtain the fundamentals they move onto more specialized courses in order to hone their expertise. Every year the department admits about eighty students.











## Research Fields

Structural systems

- Structural Engineering
- Construction Engineering and **Building Materials**
- Architectural planning systems
- Architectural Planning
- City planning and Urban design
- Environmental systems
- Human Environment Engineering
- Building Equipment
- Design systems
- Architectural Design
- Perceptual Science and Basic Design



# Architectural Design and Engineering

The Department of Architectural Design and Engineering was established in 1996 for the study of architectural engineering based on the understanding of the richness and diversity of human sensibilities. Our environment must be safe, functional, comfortable, and beautiful.

The Department of Architectural Design and Engineering is composed of the following educational and research fields, which are provided to cultivate the technology and design engineering for imagining architecture that is safe, comfortable and environmentally friendly, and to train professionals who will play an active role in fields where these technologies can be utilized.

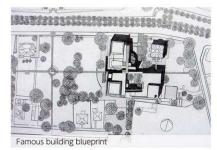
Structural systems - Structural systems and structural design methods for constructing safe buildings. Basic technologies, building materials and building techniques for construction.

Architectural planning systems - Methods of planning a functional and intelligent space for each building use. Urban planning, urban renewal planning and landscape planning.

Environmental systems - Theory for creating an environment in which people can live healthy and comfortably. Equipment engineering for creating comfortable architectural environments.

Design systems - Basic design technologies for creating a beautiful space. Technologies that turn concepts into a reality. Technologies for utilizing people's sensibilities and psychology in design.









## Research Fields

**Environmental Materials** 

- Quantum Chemistry
- Organic Synthesis
- Separation Membranes

**Environmental Processes** 

- Environmental Biochemical and Chemical Engineering
- Environmental and Chemical Engineering
- Green Chemical Process
- **Environmental Systems**
- Environmental Management and Sustainable Engineering
- Space Utilization Engineering



# Sustainable Environmental Engineering

The Department of Sustainable Environmental Engineering was founded in 2007 to promote research, and education in the area of environmentally sustainable technologies.

This Department is concerned with research and education concerning environmentally friendly technologies for sustainable development.

Sustainable development meets our present needs without compromising the ability of future generations to meet their own needs.

The Department provides a unique educational system where students are able to take part an interim program for their graduation thesis in their sophomore year (Bachelor's mid-term thesis). In this "Bachelor's mid-term thesis", students choose a research topic of interest to them and undertake independent research with supervision. Interactions with each supervision and other researchers help students not only improve communication skills such as presenting and discussing experimental results, but also identify where they need further improvement.

Students are trained on various important aspects of sustainable engineering. These include sustainable material design, practical environmental analysis, innovation of renewable energy, utilization of renewable resources, the protection of the air, water and soil environment, pollution protection and control techniques for monitoring natural and man-made environments, waste processing, recycling and various environmental topics.











## Research Fields

Complex Analysis Differential Equations Nonassociative Algebra Fluid Mechanics Condensed Matter Physics Computational Physics NeuroELT and CLIL

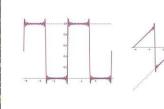
# Applied Science

There is no doubt that mathematics, physics and English skills are essential for studying engineering. The academic staff of the Department of Applied Science teach mathematics, physics and English as fundamentals of engineering to all students in the Faculty of Engineering.

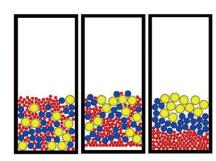
Although the Department does not have a fixed number of students, all members of the academic staff have the opportunity to supervise undergraduate seniors and graduate students from various departments. As shown above, the research activities of the Department cover a wide variety of mathematics and physics fields.



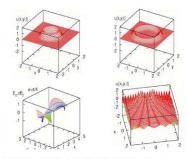
Planar electromagnetic cloak of invisibility



Figures used in Applied Analysis lectures



Computer simulation of size segregation in granular materials



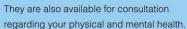
Figures used in Applied Physics lectures

## Services



The Engineering library has a plethora of books and journals, magazines and newspapers, as well as DVDs, CDs, CD-books and videos etc. There is also a place where students can bring their personal computer and connect to the

Yamaguchi University provides a comprehensive health service to help students with medical or personal problems. At the University Health Service Center doctors and nurses provide emergency medical care and regular medical examinations.



At Tokiwa campus, students will find a range of venues for eating, drinking, meeting friends, and shopping at the University's Co-op shops. The main cafeteria offers a large varied menu, and can provide Halal meals for our Muslim



Students who plan to stay in Japan for more than one year have to join the National Health Insurance Program and cannot withdraw of their own accord. In return for insurance benefits, students pay insurance premiums. When receiving medical treatment, however, they will only be required to pay 30% of the total medical

The cost of the health insurance varies depending upon their earnings and their place of residence. For singles with no income, it is approximately ¥20,000 for one year. This insurance will also cover family members, at a cost of about ¥10,000 per family member. The fee is paid in 10 installments from June to March of the following year.

The alumni association "Tokiwa-Kogyokai" also supports a part of the insurance premiums for self-financed international students.



The Tokiwa Campus has a gymnasium and a tennis court. This is where many students come to feel refreshed after a long day of studying. There are also BBQ facilities available for students to enjoy with their



## Student clubs and societies

Students can make new friends, try different activities and participate in social events by choosing to join one of more than fifty clubs and socities on campus. Students who join a club or society often enjoy their life on campus, and leave our campus with a wide variety of interests. The university also hosts dinner parties, traditional Japanese events, and outings where international students have the opportunity to get mingle with their Japanese peers, and other fellow international students. These activities provide plenty of opportunities to meet other students from Japan and around the world.



## Tuition Fee

School expenses are as follows (as of 2017.4.1). The tuition fees may be revised.

#### Degree-seeking students

	Authorization Fee	Admission Fee	Tuition per Semester	Tuition per Year
Undergraduate Students	¥17,000	¥282,000	¥267,900	¥535,800
Graduate Students	¥30,000	¥282,000	¥267,900	¥535,800

## Non-Degree seeking students

	Authorization Fee	Admission Fee	Tuition
Research, Academic Students	¥9,800	¥84,600	Per Month ¥29,700
Auditors	¥9,800	¥28,200	Per Unit ¥14,800

# Scholarships (

#### There are a number of scholarships.

Scholarships	Monthly amounts	Eligible Applicants	Number of Scholarships	Length of Period	
Japanese Government	¥143,000 - ¥145,000	Graduate students	Several	Until graduation/ completion of the	
(Monbukagakusho) Scholarship	¥117,000	Undergraduates (in the final year)	Several	undergraduate/ graduate studies	
Monbukagakusho Honors Scholarship for Privately Financed International Students	¥48,000	Graduate students, research students	Several	12months / 6months	
	¥48,000	Undergraduates	Several		
School Scholarship for Privately Financed International Students	¥45,000	Graduate students	About 10	12months	
	¥45,000	Undergraduates	About 10	IZMORUS	

Other scholarships are also available.

Visit Japan Student Services Organization (JASSO)

Website for Further Information



# Accommodation

## **On-Campus Residential Facility**

University accommodation gives you an experience you won't find anywhere else. University accommodation is the best value for your money. Internet service is available.





#### **International House**

The Ube International House on the Tokiwa Campus provides residential accommodation for international students and researchers. Admission takes place in April and October, while the application process takes place in January and July.

The maximum length of stay is six months, extendable if the room

is vacant. All rooms are self catering. However, utilities such as Electricity, Water and Gas are not included in the rent.

Ube International House	Block	Type of Room	Number of Rooms	Monthly Rent	Deposit (Non-refundable)
	Single	Single room	33	¥11,200	¥25,000
		Couple	6	¥17,900	¥35,000
	Family	Family room	8	¥26,800	¥45,000



### **Student Dormitory**

A student dormitory was built in 2015 on the Tokiwa Campus. We have residents from all around the world, thus allowing us to create a culturally rich environment. This cross-cultural dormitory provides a variety of events/activities in which residents can take part.

Student Dormitory	Block		Number of Rooms	Monthly Rent	Deposit (Non-refundable)
	Single	Single room	59	¥26,300	¥20,000

## Off Campus Housing

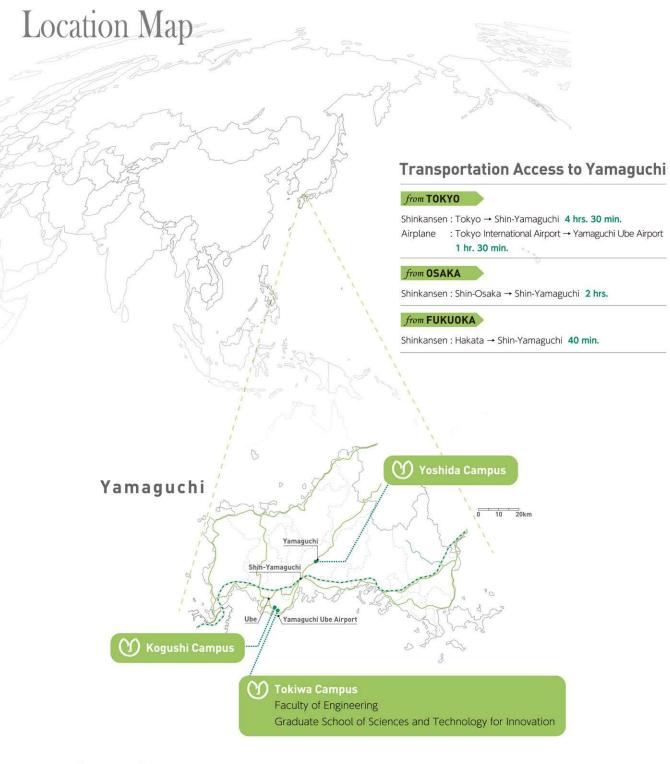
Finding housing off campus that can fit your needs is a challenge. If you desire to live off campus, the University staff will be happy to assist finding and renting a suitable place for new students by helping them get in contact with a reputable real estate agent. This is a great opportunity for students to explore off-campus living choices in a fun, stress-free environment.

Most agents will require payment of deposits, key money, and handling fees in advance.

Area	Facilities	Monthly rent
Approx. 10m	Partially-shared bath and toilet	¥12,000 - ¥35,000
Approx. 10m	Separate bath, toilet, & kitchen	¥25,000 - ¥40,000
11~13m²	Separate bath, toilet, & kitchen	¥35,000 - ¥50,000









#### Contact

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## Visit Our Website for Further Information

http://www.eng.yamaguchi-u.ac.jp/middle.htm

