TOKYO CITY UNIVERSITY

TCU GUIDE BOOK

Studying in a beautiful environment,
Creating a sustainable future

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Photo: Setagaya Campus

Message from the President

Tokyo City University for a sustainable mega-city

"Let our dreams grow wings" is the title of our school song. The first verse reads: "With a spirit toward the future, we will learn of the immortal soul. Radiating individuals' personality, we will try to gain deeper wisdom together with friends for tomorrow. Having the passions of youth in our hands, we will grow the wings of dreams, the wings of dreams."

This song was written to represent Tokyo City University when the university group was formed in April 2009. The university aims to foster personnel who will bear the country's future by inheriting the history of the Musashi Institute of Technology founded in 1929 and the tradition of Toyoko Gakuen Women's College established in 1938. The song was created to embrace the vision and spirit of the university. The university evolves as a place where every student, instructor, and graduate cherishes and realizes their ambitions.

We are now advancing reforms based on our medium-and long-term plan, Action Plan 2030. The plan clarifies the ideals of the university for the 90th anniversary of its founding in 2019 and

on the 100th in 2029 and shows how to implement reforms in all aspects of education, research, management, and the campus. The targets of the plan are to become a prominent university with a strong presence in Tokyo, a cosmopolitan city, and to rank within the top 300 of the world's best universities.

Universities are education and research institutions responsible for encouraging students to dream and to develop the abilities to fulfill those dreams. The scale of educational effects should be how well the students have improved their abilities between entering the school and graduating. From such a viewpoint, we intend to be recognized as the best value university.

Tokyo City University is promoting the development of human resources with the practical ability to play active roles in the world. From 2015, for new students, we will start TAP (Tokyo City University Australia Program) in Perth, Australia. The purpose of the new program is to cultivate students as real international personnel through an original curriculum designed in collaboration with Edith Cowan University in Perth. In the program, 200 students will stay in Perth for five months. Besides the program, we will prepare a variety of programs for developing global human resources, such as international internships and study of foreign languages abroad. If you hope to be an international person, Tokyo City University is the perfect place.

The university is located in an extremely good environment very close to the center of Tokyo, a cosmopolitan city. Let's visualize your dreams and make them come true on this campus. Let our dreams grow wings, think globally, and act locally!

Chitoshi Miki
President of Tokyo City University

History

1929 Founded as Musashi Senior Engineering School.

1949 Under the Educational Reform Law, the school was renamed Musashi Institute of Technology.

1955 The name of the educational corporation was changed to GotoIkueikai Educational Foundation after incorporating Toyoko Gakuen.

1960 The Atomic Energy Research Laboratory was founded.

1966 The Graduate School of Engineering was established and offered master's program.

1968 The Graduate School of Engineering was established and offered doctoral program.

1979 The Information Processing Center was founded.

1992 The Hydrogen Energy Research Center was established.

1997 The Faculty of Environmental and Information Studies was established.

1998 Became the first university in Japan (Faculty of Environmental and Information Studies) to acquire certification under the ISO 14001 Environment Management System.

1999 The Advanced Research Center for Energy and the Environment was established.

2001 The Graduate School of Environmental and Information Studies was established and offered a master's program.

Photo: Yokohama Campus

2004 Advanced Research Laboratories was founded.

2005 A doctoral program in Environmental and Information Studies was established.

2007 The Faculty of Knowledge Engineering was established.

2009 Renamed Tokyo City University.
The Faculty of Urban Life Studies was established.
The Faculty of Human Life Sciences was established.

2013 The Faculty of Environmental Studies was established.
The Faculty of Informatics was established.

Organization

Graduate School

- Graduate School of Engineering
- Graduate School of Environmental and Information Studies

Undergraduate School

Faculty of Engineering

- Mechanical Engineering
- Mechanical Systems Engineering
- Nuclear Safety Engineering
- Medical Engineering
- Electrical and Electronic Engineering
- Chemistry and Energy Engineering
- Architecture
- Urban and Civil Engineering

Faculty of Knowledge Engineering

- Computer Science
- Information and Communication Engineering
- Industrial and Management Systems Engineering
- Natural Sciences

Faculty of Environmental Studies

- Restoration Ecology and Built Environment
- Environmental Management

Faculty of Informatics

- Sociology and Media Studies
- Information Systems

Faculty of Urban Life Studies

- Urban Life Studies

Faculty of Human Life Sciences

- Child Studies

Faculty of Liberal Arts and Sciences

Research Centers

- Advanced Research Laboratories (Todoroki Campus)
- Atomic Energy Research Laboratory (Ozenji Campus)

Facilities

- Libraries
- Information Technology Center
- Instrumental Analysis Center (Setagaya Campus)

Graduate School of

Engineering

"Satisfying social requirements as an engineer" is the philosophy of the Graduate School of Engineering. The problems facing modern society are becoming more complicated and complex, and they cannot be easily solved by a simple approach from one single discipline. Wide-ranging expertise and general knowledge, a wider vision, and ingenuity are wanted for engineers today. Furthermore, collaboration with other specialists beyond the borders of disciplines is essential. The School provides students with opportunities to sophisticate their knowledge, practical skills, and expertise that are required to become an engineer who can satisfy social requirements.

M Master's Program D Doctoral Program

Mechanical Engineering

COURSES

Fluid Mechanics
(Fluid Engineering) M D

Fluid dynamic problems are analyzed and applications of fluid on machinery are investigated. Especially, fluid visualization techniques are featured for analysis, micro /nano fluidic devices are developed and research on jet flows engineering are addressed.

Internal Combustion Engines
(Internal Combustion Engines) M D

Various phenomena including lubrication and combustion are studied in order to improve performance of Internal Combustion Engines and to reduce toxic exhaust gas. By developing original measurement methods, engines are tested and various phenomena are investigated along with theoretical analysis.

Elastic analysis and Strength of Materials
(Solid Mechanics) M D

In order to develop advanced hybrid materials and structural materials that are used in aircraft and automobile structures, basic research is conducted concerning static and dynamic mechanical properties and fatigue characteristics.

Machine Dynamics
(Machine Dynamics) M D

As an example of "shock and response" about automobile mechanical structure and the human body, in this course, the collision safety performance is studied in order to protect passenger and pedestrian. Application of modeling and control system designed by modern control theory for the improvement of vehicle dynamics is also studied.

Materials Engineering
(Materials Engineering) M D

Development and analysis of new functional and structural materials, such as boride based hard materials, thermoelectric materials, and surface modified materials with nano-structures. Another focus is the characteristics of fatigue strength for steels and new evaluation method of adhesion for hard thin films.

Precision Machining
(Surface Engineering and Machining) M D

Developments of surface finishing methods taking into consideration for environmental preservation and safer recycling methods of waste materials. Studies on advanced machining methods for precise grinding, polishing and shot-peening and their applications, such as dental materials.

Mechanical Systems Engineering

COURSES

Control Information Systems
(Control System Engineering) M D

High performance mechanical systems are developed by analysis and computers. High power, force, velocity, and position are controlled for oil hydraulic servo systems. New advanced computer-based control methods for ground vehicles, unmanned aerial vehicles, and spacecraft are explored.

Strength Design Systems
(Materials Engineering and Solid Mechanics) M D

Materials and structural strength directly related to the safety of the machinery in use are studied. Experiments and analytical simulations are examined from the point of view of fracture mechanics. X-ray diffraction is sued to measure and evaluate the strength of materials and machine elements. Advanced X-ray stress analysis is also developed.

Measurement System
(Electronic Measurement) M D

Measurement is the first step in engineering. Electronic measurement enables computer automated measurement, data processing, and image processing. Applied laser optical measurement and pulse ultrasonic measurement are studied.

Robotics
(Advanced Robotics) (Mechanical Design) M D

Control methods for robots supporting human activities in everyday-life as well as in micro-gravity environments are being developed and implemented. Both theoretical and practical research is performed, aiming to improve motion and force capabilities of humanoid robots, orbital space robots and domestic robots.

Thermo-Fluid Systems Engineering
(Thermo-Fluid Systems Engineering) M D

Heat, energy and mass transfer in thermal and fluid engineering fields are investigated on turbine, aircraft engine, electric and electronic machinery, and automobile engine with experiment and numerical analysis. Recent research theme deals with the technology based on bio-thermo and fluid dynamics.

Space Systems Engineering
(Spacecraft Structure) (Propulsion System) M D

Aiming at the creation of a new technological application field and the innovative spacecraft systems, we are studying large and/or ultra-light deployable space structures. We are developing a novel non-combustion propulsion system to construct a small launch system as well.

Electrical and Electronic Engineering

COURSES

Quantum Nano device

M D

Technological innovation of materials and devices is indispensable for the sophisticated processing techniques which are necessary for manufacturing devices, for up-to-date material evaluation, and for improved measurement techniques. Students will study these state-of-the-art fundamental techniques using advanced experimental facilities. Students will also learn about computational electronics techniques such as first-principles method, device simulation, and system-level design description language for up-to-date materials, devices, and systems. Regarding aspects of our research, we have been actively engaged in the development of ultra-high-speed devices with low power consumption and of devices having integrated photo-electronics using silicon and germanium.

Electric Machinery

M D

Based on information processing techniques, we have addressed applications of system control including devices to control these systems. Electrical devices such as motors are widely used in various general and commercial applications in industry. Moreover, their range of usage continues to expand. Students will learn about such devices from the perspective of a comprehensive understanding of equipment by grasping the equipment as a system, including a driving system and a load, to develop repeated design, trial manufacture, and experiments for equipment of various kinds. Regarding our research, we have been evaluating techniques associated with linear motors and actuators, magnetic levitation and suspension, and applications of bulk oxide superconductors.

Electric Discharge

M D

Students will learn about high-voltage, large-current techniques that are indispensable for processes related to the generation and transfer of electrical power, and learn about fundamental technologies and systems related to electric power systems including material properties and measurement techniques necessary for those techniques.

Plasma Application

M D

An example of the effective use of electrical energy, students will learn about applications of plasma and electrical power social systems and solutions for their problems, with emphasis on environment improvement techniques that are necessary for social systems related to electrical power. As our research efforts, we have undertaken the development and simulation of efficient devices for plasma generation, for treatment of air pollutants (NOx and others) using discharge chemical reactions, and for development of electrostatic precipitators.

Biomedical Engineering

COURSES

Biomechanics and Measurement Engineering

M D

Various technological subjects on clinical treatments, life supports, and welfare services are investigated. Based on mechanical and electronic technologies, a surgical robot, remote surgical system, artificial organs, life-supported machines, energy transform systems are developed. Moreover, acoustic signal processing, auditory characteristics, and precise electrical measurements are investigated.

Bioelectronics Engineering

M D

This field supports medical care by unobtrusively monitoring the state of patients during their daily lives and providing concrete numeric values for stress and fatigue that were difficult to express in numbers. Research subjects in this area encompass health monitoring, ubiquitous health care, electrophysiological functions, and biometric authentication.

Bio-Virtual Engineering

M D

This field supports sensing technologies down to the molecular level from sensation receptors such as those used for smell and taste to establish interface structures between living organisms and equipment. Research subjects in this area include biosensors (taste, odor, DNA, and antigen-antibody et al.) and biocompatibility improvement of life-body implantation type bio-nano sensor based on carbon nanotube.

Bio-Cognitive Engineering

This field transplants the higher order functional processing of the human brain, such as that used for diagnosis by medical imaging, to artificial algorithms and analyses complex systems such as living organism homeostasis. Research subjects in this area include medical image processing, neural networks, automatic diagnosis, and chaos analysis of living organisms.

Graduate School of **Engineering** M Master's Program D Doctoral Program

Information Engineering

COURSES

Control System Engineering
(Automatic Control) M D

Aiming at the development of automatic system control technologies for use in robot engineering and transport systems.
*Robotics, classical and modern control theory, system analysis and system engineering.

Computer Engineering
(Computer Architecture) M

Aiming at the advancement of high performance computer systems.
*Computer architecture, microprocessors, hardware description language and system LSI design.

Computer Software Engineering
(Computer Software) M D

Aiming at the development of advanced computer software including embedded software.
*Operating systems, distributed computing, real-time processing and software engineering.

Visions and Graphics
(Visions and Graphics) M D

Aiming at the development in image processing and computer graphics.
*Image processing, computer vision, computer graphics, visual computing, virtual reality, and augmented reality.

Intelligent Infomation Technology
(Intelligent Information Technology) M

Aiming at the advancement of media computing targeting natural language, speech and other human media.
*Intelligent information processing from digital signal processing to artificial intelligence.

Communication Systems
(Communication Systems) (Mobile Systems) M D

Aiming at the development of communication systems, including transmission technology, wireless resource control and channel control are closely studied. The effects of electromagnetic waves from mobile systems on the human body, medical devices, and wireless LAN are research themes. In addition, small antennas for mobile devices are another research subject.
*Mobile systems, wireless LAN, and sensor networks.

Integrated Systems
(Integrated Systems) M D

Aiming at the development of high performance system LSIs in information technology, the key technologies are information communication and electronic circuits.
*Electronic circuit, system LSI, and signal processing.

Architecture

COURSES

Planning in Architecture
(Prof.Katsumata) M D

Basic and practical planning with designing as a final goal. Covers architectural planning to urban planning.

Architectural Design
(Prof. Horiba , Prof Tezuka) M

Basic concepts that are decisive in architectural planning and design, studied from the philosophical, sociological, and psychological point of view.

Planning of Housing and Urban Environment
(Prof.Amano) M D

1. Educational research focused on planning theory and method of housing and living environment.
2. Study of basic issues concerning comprehensive system as part of planning of housing and living environment.

Architecture Structures
(Prof. Hamamoto , Prof. Nishimura , Assoc.Prof. Ohmura) M D

Research on building structures in general, with special emphasis on pre-cast reinforced concrete structures, as well as analysis of reliability against earthquake, wind, and waves.

Building Materials and Construction Methods
(Prof. Ohashi , Prof. Omi , Assoc.Prof. Sato) M D

Various issues concerning architectural production systems are investigated, such as traditional organizational structure, process, management concepts and techniques for building construction. New innovative methodology for the future is also studied.

Architectural Environment and Services
(Prof. Kondo , Prof. Iwashita , Prof. Kobayashi) M D

Research on how to set a goal and plan an architectural environment and facilities, techniques for analyzing function and performance, as well as design technology.

Civil Engineering

COURSES

Disaster Mitigation and Reduction Engineering

M D

Seismic disaster prevention technologies for infrastructures and lifeline network systems; seismic risk assessment and retrofitting investments for lifeline systems; new structural design technologies for plant structures based on stochastic damage detection methods.

Structural and Safety Engineering

M D

Material and structural behavior of concrete and steel; maintenance management of steel and concrete structures: concrete deterioration due to freezing, melting, fatigue and fire; fatigue and rust of steel; earthquake proof structures.

Geotechnical and Geo-environmental Engineering

M D

Damage in soil structures by environmental effects; development of countermeasures, including micro-bubbles and water repellant sands against liquefaction; development of pile foundation systems, soil investigation methods and interpretation including a new Swedish weight sounding test; development of ground improvement methods.

Water Environment Engineering

M D

Water environment including coastal areas, rivers, urban water supply, sewage works and atmospheric environment in urban areas. Topics are divided into two categories; (1) coastal and atmospheric environment engineering lab. (2) urban water supply and sewage works engineering lab.

Infrastructure Planning and Management in Civil Engineering

M D

Planning Group;
National spatial policy and infrastructure planning, policies for mega trends on planning system concerning with infrastructure, comprehensive land use planning system under the approaching era marked by declining population, participation of various stakeholders in the urban and regional planning process, and creation of sustainable areas.

Management Group;
Construction management, policies and missions of civil engineers, information and communication technologies applied in civil engineering, asset management of existing infrastructures based on reliability theory, and economic impact from a natural disaster and its recovery process.

Systems Information Engineering

COURSES

Mathematical Analysis for Information Engineering

(Information Analysis)

M D

Recently mathematical finance has developed according to developing of stochastic analysis and computer simulation of several economical phenomena. We are interested in not only mathematical finance but also lots of other fields such as some problems in engineering, economics, biology and so on. We treat stochastic analysis, time series analysis, fuzzy theory for modeling, and computer simulation.

Industrial & Management Systems Engineering

M D

This research field will cover various enterprise activities, such as planning, design, production, finance and administration to create value-added products, services and innovative systems with reduced cost in the efficient way. Our subjects include the foundations of management techniques related to statistical analysis, marketing analysis, quality engineering, logistics, production system design, project management and information systems.

Human Media Engineering

(Interactive Systems Design)

M D

Human-centered design, based on human characteristics of perception, cognition and behavior, is crucial to building safe society and develop usable products and reliable complex systems. Main interests of Human Media Engineering laboratories are to design usable interactive media and systems. Our research fields include cognitive engineering, ergonomics, artificial intelligence, and developing novel human interfaces in the future society.

Networks Information Engineering

(Computer Networks)

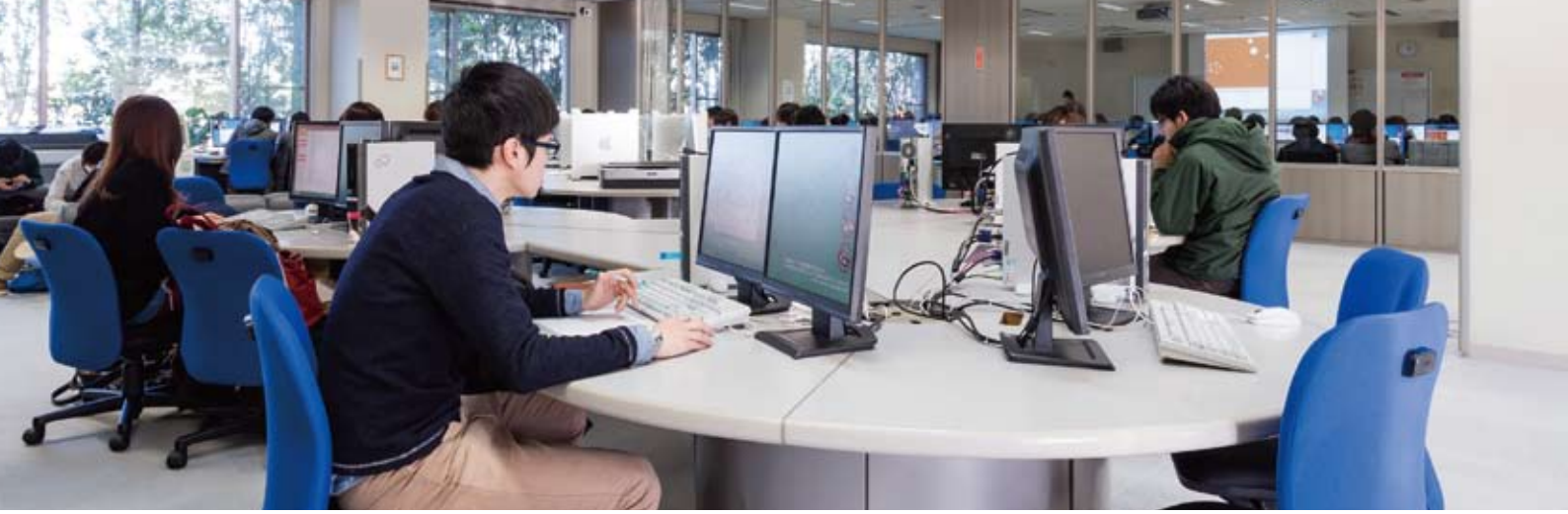
M D

Our research subjects are as follows: control algorithms for traffic, routing, QoS of communication networks, and mobile software agents for network control. Our objective networks are ordinary telecommunication networks, internet, mobile access networks including cellar networks, wireless LAN, wireless mesh networks, MANET, and sensor networks. RFID, GPS and other various application fields are also interesting areas.

Vision Systems Engineering

M D

The research at our lab is very interdisciplinary: we are interested in 3D displays, computer vision, mobile robotics, computer graphics, geometric modeling, simulation, visualization, machine learning, digital archive, motion capture, and human-computer interaction. We are involved in cross disciplinary collaborations with numerous local companies.



Graduate School of **Engineering** M Master's Program D Doctoral Program

Chemistry and Energy Engineering

COURSES

Energy Systems M D

Keywords of the research field are as follows: fuel cell systems, hydrogen fuel cell systems, hydrogen production systems, carbon technology. catalysts and catalysis, novel use of energy resources, sustainability of chemical process.

Design and Analysis of Materials for Energy M D

Keywords of the research field are as follows: design and preparation of nano-materials and sophisticated materials for energy, materials and chemical processes for hydrogen production, CO_2 reduction, and environmental decontamination, photocatalytic material, characterization of materials, compositional and structural analyses of materials, development of new analytical methods.

Energy Materials Chemistry M D

Keywords of the research field are as follows: organic materials for energy, self-assembled materials for energy, organized thin films, energy conversion materials, materials for dye-sensitized solar cell, composite proton conductors, novel type photo-catalysts, environmental materials, functional materials, high-temperature materials.

Polymer Chemistry and Biochemistry M D

Keywords of the research field are as follows: design and synthesis of novel functional polymers, liquid-crystalline materials for optoelectronic applications, nano-structured thin films for anhydrous proton conductors, energy materials based on biomimetic molecules, enzyme technology for biomass utilization, functionalized biomembranes based on self-assembly techniques.

Cooperative Major in Nuclear Energy

COURSES

Nuclear Energy M D

Based on a computer simulation of the neutron behavior in the various types of nuclear reactors, new concepts of reactor cores and related fuel-cycle scenarios are studied. Emphases are placed on the sustainability of the energy supply, the non-nuclear-proliferation, and the innovative next generation safety systems will be studied, as well as standard thermal-hydraulics such as LOCA studies. Applied nuclear physics, radiation therapy and the fusion systems are also under study.

Applied Radiation Technology M D

Various radiation detectors and detection systems are developed using the alpha- and the gamma-radiations and the neutrons from nuclear reactors, accelerators, and radio isotopes. These are applied for a wide range of technologies from material analysis to imaging. Solutions of the radiative-waste problem are also envisaged.

Nuclear Safety M D

In this course, based on seismic engineering and the technique of the probabilistic risk assessment, research of plant behavior of severe accident following the external events, such as earthquakes and extreme natural events, the safety measures for the severe accident and the crisis management including disaster prevention will be studied. Moreover, nuclear safety regulations and policies will be studied as well.

Graduate School of

Environmental and Information Studies

"Satisfying social requirements" is the philosophy of this Graduate School. The problems facing modern society are becoming more complicated and complex and cannot be easily solved by a simple approach from one single discipline. Wide-ranging expertise and general knowledge, a wider vision, and ingenuity are required. Furthermore, collaboration with other specialists beyond the borders of disciplines is essential. The School provides students with opportunities to sophisticate their knowledge, practical skills, and expertise, as well as international perspectives, essential to determining resolutions to the problems of our society.

M Master's Program D Doctoral Program

Environmental and Information Studies

Introduction of Fields of Study M D

The Course consists of the master's and doctoral programs. The master's program provides research and education in four fields of study: Environmental Management, Communication Environment, Information Systems, and Regional/Urban Environment. The outlines are as follows:

Environmental Management Field

In this field, the Course provides education and research opportunities on environmental policies to address global environmental problems, production/consumption style compatible with ecological and environmental conservation, management for sustainable business and society, and methodology for putting them into practice such as evaluation and development.

Communication Environment Field

In this field, the Course provides education and research opportunities on methods and designs that facilitate communications using mass media, internet and others, and improve consensus formation in modern society, mainly from a social scientific perspective, such as sociology, psychology, and cognitive science.

Information Systems Field

In this field, the Course provides education and research opportunities, from the viewpoint of engineering, on secure and comfortable information and communication technology designed to match various needs of users.

Regional/Urban Environment Field

In this field, the Course provides education and research opportunities with a focus on the conservation and restoration of ecosystems including human beings, at buildings, cities, regions and natural environments, from the viewpoints of ecology, landscape architecture, architectural environment studies, and urban engineering.

The doctoral program consists of two fields: environment and information. The program further deepens and develops sophisticated research from an interdisciplinary point of view with the goal of developing human resources who can demonstrate competency as researchers, educators, or leaders in these two fields.

Urban Life Studies

Introduction of Field of Study M

Urban Life Studies Field

Urban Life Studies is an interdisciplinary course built based on a new perspective with the aim of creating a new life and work style in an ever-changing urban environment within the context of increased urbanization, a low birth rate and an aging population, environmental problems, and informatization. The subjects of research and study are 1) urban culture as a source of attraction, 2) cities as the stage for such culture, 3) houses as resting places for the people within the culture, and 4) infrastructures and transport to sustain the urban life. In the curriculum, weight is attached to commercial science and business administration studies. The methodologies of comprehensive social science are pursued, while employing the methodologies of engineering and the arts (technology, design, and formative arts) based on those for society (ordinary people, markets, etc.). The Urban Life Studies Course of the Graduate School is a place for more sophisticated studies and research and develops the outcome from the undergraduate course much further.
Classes and research guidance are offered at the Todoroki Campus. The Course is composed of the Introduction, Urban Administration and Economy, Urban Management, Urban Design, and Infrastructure Management with the goal of becoming a place for comprehensive science, as well as education and research. The purposes are to design and develop the space, products, and services of a new era in response to the needs of ordinary people and to manage the business for sustainable operation. The goal is to produce human resources who can work with specialists in each field; determine the needs of ordinary people; draw up a plot or plan based on needs; promote, manage, and operate projects; and excel at planning and execution.

Educational Goals and Outcomes

For education and research in this field, efforts based on interdisciplinary, cross-border comprehensive approaches, and understanding are indispensable. The Urban Life Studies Course provides research guidance and classes that help students become motivated and to acquire the knowledge, skills, and way of thinking to handle newly emerging situations. From the first year, students have many and various opportunities for presentations and a poster session in English, an interim presentation of the master's thesis, and the final presentation of the thesis. These occasions help students acquire skills to convey their knowledge to the society.

Faculty of
Engineering

The Faculty of Engineering, having a longer than 80-year history, has produced a great number of excellent engineers supporting the economic growth of Japan since its establishment. Today, we have eight departments, which meet the needs of the age, from manufacturing to the global environment, healthcare, space development, etc. We are globally on a high level in many research areas. In all the departments, we value theory and practice and foster human resources with high-level expertise and practical skills.

Department of
Mechanical Engineering

Mechanical engineering is an essential and fundamental field for all the industries because it plays a key role in developing all kinds of tangible products and their interfaces. Students in our department are to acquire a wide range of skills through lectures and practical training. The graduate program is arranged with the following six laboratories.

Fields of Research

Engine Reseach
In order to improve gasoline and diesel engine performance for output, thermal efficiency and low exhaust emissions, advanced sensing systems and analyzing methods are applied to develop the engines of the future.

Machine Dynamics
The behavior of vehicle occupants in traffic accidents, which is one of the most important social issues in the world, is researched. Computer aided analysis (CAE) by using multibody and FEM, and experimental analysis by using small scale models is examined for the protection of vehicle occupants.

Fluid Engineering
Experimental research on new topics of flow visualization and micro-nano fluidics are performed, including heat and mass transfer, biomechanical flows, rotating flows, chemical reacting flows and micro-nano flows.

Strength of Materials
The strength and fracture of materials are experimentally and analytically studied for the design of automobiles, airplanes and so on. Furthermore, the reliability of airplane structure is estimated.

Engineering Material
We perform experimental research on the development and evaluation of new functional materials made by powder metallurgy, evaluation of characteristics of fatigue strength in metallic materials and physical properties of polymer materials.

Surface Engineering and Machining
Our laboratory deals with the following research: (1) Development of a new trivalent chromium plating process, (2) Study of ecological machining and, (3) Study of dental materials science and technology.

Department of
Mechanical Systems Engineering

The field of mechanical engineering is constantly developing, enabling industry to launch ever more sophisticated products. This progress has been made possible by the integration of various disciplines, especially electrical and electronic engineering. Modern mechanical engineers, therefore, are likely to be involved in complex systems projects requiring familiarity with these three major areas. The Department aims at educating engineers who can combine a thorough knowledge of mechanical, electrical and electronic engineering with extensive experience in these studies.

Fields of Research

Thermo-Fluid Systems
Issues concerned with heat and fluid are studied by means of experiments and simulations. Subjects of interest and expertise embrace heat loss in internal combustion engines, fans, the aerodynamics of bluff bodies and blood flow in cardiovascular systems.

Advanced Control Systems
Highly sophisticated control methods are pursued. Not only theoretical but also practical studies are conducted. Applications include control of power shovels, obstacle avoidance of robotic vehicles and attitude control of spacecraft.

Strength Design Systems
Accurate stress measurement in materials and analysis of structural strength are major concerns. In particular, using X-rays, the laboratory is engaged in the development of advanced stress measurement techniques and fatigue failure assessment.

Robotic Life Support
Control methods for robots supporting human activities in various environments are being developed and implemented. Both theoretical and practical research is performed, aiming to improve motion capabilities of humanoid robots and orbital space robots, as well as robots for domestic use.

Measurement and Electric Machine Control
The methodology in electric and optical measurement is studied with applications to electrical charge issues. Development of a bearingless maglev motor is another topic in the laboratory.

Space Systems Engineering
Research interests lie in applications linked to human activities in space, such as the design and control of various deployable space structures, water/liquid nitrogen rocket engines and evaluation of spacecraft charging.



Department of
Nuclear Safety Engineering

Nuclear energy has made a great contribution to the world supply of energy since the last century and is expected to be one of the most important energy resources in the 21st century. The framework of the world nuclear industry is changing drastically on a global scale preparing for the coming era of advanced technology for utilizing nuclear energy as a clean, sustainable and reliable source of energy. Japan will play a critical role in this world-wide restructuring in peaceful uses of atomic energy. Safety is a key issue for advanced technology to be fully accepted by the public. We educate experts of plant design, operation, quality control, safety analysis, transportation and handling of radioactive materials and safeguarding as well as plant management and administration. It is also our important mission to train skilled engineers with national qualifications for operation of reactors and handling of radioactive materials.

Fields of Research

Nuclear Reactor Engineering Course

This course is the backbone of Nuclear Engineering along with thermal-hydraulics, fuel-material, fuel cycle and safety engineering. We also provide students with opportunities to learn on site at experimental or zero-power reactors.

Nuclear Fuel Cycle Engineering Course

Students will learn the nuclear fuel cycle systematically and thoroughly from the frontend to backend along with chemical background.

Nuclear Mechanical Engineering Course

Based on their knowledge of dynamic and static mechanics, students will learn seismic safety engineering and reactor decommissioning important to enhance safety of nuclear facilities.

Nuclear Safety Engineering Course

Students will learn thermal hydraulic behaviors of reactor coolant and safety engineering of light water reactors, risk assessment methods and their application with consideration of external events including system reliability analysis and severe accident simulations.

Application of Radioactivity Course

Students will start with the handling of radioactive materials and will learn about their extensive applications, and also conduct research using the particle accelerator installed in Atomic Energy Research Laboratory.

Our Special Features

TCU has operated a TRIGA-II type nuclear reactor since 1963, resulting in many excellent scientific, educational and medical achievements. Though the reactor is now out of operation, the operation experience and the reactor-related fine facilities are still available at our Atomic Energy Research Laboratory.

Department of
Medical Engineering

Medical engineering is an interdisciplinary field that conducts research and education concerned with a wide range of problems that are directly related to human beings and medicine using engineering methods. In this department, we study methods for solving these problems using technologies and knowledge from the electrical and mechanical engineering disciplines. Towards that end, in addition to engineering, we also study fundamental medical knowledge from areas such as physiology, internal medicine, and surgery, starting from the basics. With this knowledge and technology, we acquire basic skills that will be of use both for healthy people and for those who have some disease or medical condition.

Fields of Research

Mechanics Engineering

This field consists of technologies that adopt mechanical methods, such as those used in intraperitoneal surgery and home care medicine to solve a wide range of problems in clinical and home care medicine. Research subjects in this area include surgical robots, remote operating surgical systems, artificial organs, and medical apparatus for the elderly and disabled.

Bioelectronics Engineering

This field supports medical care by unobtrusively monitoring the state of patients during their daily lives and providing concrete numeric values for stress and fatigue that were difficult to express in numbers. Research subjects in this area encompass health monitoring, ubiquitous health care, electrophysiological functions, and biometric authentication.

Bio-Virtual Engineering

This field utilizes sensing technologies down to the molecular level from sensation receptors such as those used for smell and touch to establish interface structures between living organisms and equipment. Research subjects in this area include biosensors (taste, smell, DNA sequences), real 3D audio systems, virtual reality spaces, and artificial sensory organs.

Bio-Cognitive Engineering

This field transplants the higher order functional processing of the human brain, such as that used for diagnosis by medical imaging, to artificial algorithms and analyses complex systems such as living organism homeostasis. Research subjects in this area include medical image processing, neural networks, automatic diagnosis, and chaos analysis of living organisms.

Department of
Electrical and Electronic Engineering

Electrical and electronic engineering are wide-ranging technologies and they play important roles in almost all the areas of human life and industries. Hardware from large-scale application to nano-technologies, software including information technologies, and surrounding boundary regions are all included in the area. The department provides the basic and indispensable knowledge and skills of electrical and electronic engineers, e.g. electric circuits, electromagnetism, measurement and instrumentation, reinforced by intensive exercises and experiments. Successive lectures include three fields, which are advanced nanoelectronics, system electronics, and electric power and energy. Students can select one of them, or possibly all of them, by their own preferences. Graduate research in one of the laboratories listed below complete their education. Highly professional knowledge and skills along with technological communication and discussion capabilities are obtained by these activities, and engineers with broad horizons are educated.

Fields of Research

Advanced Nanoelectronics Engineering

-Nanoelectronics Lab.
-Photonics Lab.
(Organic photonics group, Circuit design group)

This field consists of advanced research on silicon-germanium based optoelectronic devices, advanced characterizations of semiconductor surface and interface, atomistic material/process/device simulation, and novel design methodology of SoC.

System Electronics Engineering

-Electric Machinery Lab.
(Motor Drive Group, Electro-Magnetic Group and Systems control Group) :

This field consists of sensorless control of brushless-DC motors and high-speed movement control of surface motors, short-stroke resonating linear oscillatory actuators and vibration and attitude control of electromagnetically-suspended objects.

Electric Power and Energy Engineering

-Electric Power System Lab.
-Gaseous Electronics Lab.
-Plasma Application Lab. :

This field covers stable AC/DC power system design and operation including smart power system and renewable energy technologies, low and atmospheric pressure discharge, dielectric breakdown, welding arc, circuit breaker, thermal plasma and non-thermal plasma processing for a wide range of environmental applications.



Department of
Chemistry and Energy Engineering

We acquire fundamental knowledge of energy based on chemistry and an ability to fully tackle energy generation, conversion, storage, and utilization with consideration of the environment and resource problems. From materials development to device development and system design, we require the ability to seek out various problems from a chemical perspective and propose a means of solution. For the development of technologies related to sustainable and clean energy, our department cultivates top-level engineers and researchers with a basic knowledge of physical chemistry, expertise in chemistry and energy, and also an excellent ability to seek out and solve problems.

Outline of Department and Fields of Research

For the development of technology related to clean and sustainable energy, our department will cultivate top-level engineers and researchers with a basic knowledge of physical chemistry, expertise in chemistry and energy, and an excellent ability to seek out and solve problems.

Energy Materials Chemistry

In this field, materials useful for generating and utilizing energy will be developed by making full use of chemical knowledge and technology.
[Keywords] energy organic materials, energy self-assembled materials, organized thin films, energy conversion materials, materials for dye-sensitized solar cell, composite proton conductors, novel type photo-catalysts, design and synthesis of novel functional polymers, liquid-crystalline materials for optoelectronic applications, nano-structured thin films for anhydrous proton conductors, energy materials based on biomimetic molecules, enzyme technology for biomass utilization.

Energy Conversion Engineering

This field investigates the principles and applications of chemical energy into electricity.
[Keywords] preparation and characterization of nano-materials for energy, photocatalytic material, thin films for electrical and/or thermal conductors, CO2 reduction and environmental decontamination, waste utilization, development of new analytical methods.

Energy System Engineering

This field investigates energy-system engineering through the development and testing of hand-made compact cars utilizing fuel cells that emit only water as a waste product.
[Keywords] fuel cell systems, hydrogen fuel cell systems, hydrogen storage, carbon technology, catalysts and catalysis, novel use of energy resources, sustainability of chemical process.

Study Content

Knowledge related to clean and sustainable energy is acquired from a foundation of chemistry, including inorganic chemistry, electrochemistry, surface chemistry, organic chemistry, polymer chemistry, solid state chemistry, biochemistry, chemical physics and energy systems, and from the wide-ranging study of substances, materials, devices and systems from basics to practical applications.

Department of
Architecture

Architecture is a unique field that integrates elements of both engineering and art. Those who would master architecture must have both a basic knowledge covering many fields and creativity. With these unique aspects of architecture, students in this curriculum will be acquainted with the various kinds of specialized knowledge.

Third and fourth year students are divided into four groups and participate in seminars and graduate research: 1. architectural planning/design, 2. building structure, 3. building materials/construction methods, and 4. building environment/facilities.

In recent years, there has been expansion in fields covered by architecture, such as regional planning, project management, facility management, etc. This curriculum gives the basic skills to students, as well as creative thinking that will allow them to flexibly respond to these conditions.

Fields of Research

Architectural planning / design

Architectural design emphasis on human behavior, Building systems and urban facilities complex building planning/design, Improvement of living environment, Theater and hall planning/design, Community planning/development.

Building system and structure

Health monitoring, Damage detection, Module-linked large floating structures, Seismically isolated structure, Brace structure with energy absorbing capacity, Non-liner oil damper, High rise building structure analysis, FEM analysis.

Building materials / construction methods

Quality evaluation of concrete, Nondestructive test for reinforced concrete, Evaluation of building materials, Wooden structure, Seismic diagnosis, Building Construction/Renovation, Building system design.

Building environment / facilities

Indoor thermal/air environment, Sick/healthy buildings, Perceived air quality, Interface Environment between Outdoors and Indoors, Interior/exterior lighting design.

Department of
Urban and Civil Engineering

Study fields in the department encompass urban, civil engineering planning and building infrastructures that aim at a safe and comfortable society. The mission of the department is to educate future engineers devoted to designing, constructing and maintaining infrastructures (e.g., roads, railroads, bridges and waterworks) towards a sustainable urban environment.

Students in their freshman year start learning basic subjects in engineering such as calculus and physics. Sophomores are introduced to topics in fundamental mechanics such as structural mechanics and hydraulics. They also take experimental subjects that nurture their enthusiasm and observation. Junior students learn more advanced topics including earthquake engineering, construction management and public economics.
The department provides fieldwork opportunities on the summer vacation. In the beginning of the second semester, most junior students join laboratories where they shall perform research towards their graduation thesis that continue in their senior year. The department offers a wide range of education and training activities towards an all around education with critical thinking, including experiments, exercises, seminars and field works of applied nature.

Program Outcomes and Accreditation

1. **Ability to apply mechanics in order to develop safe and sustainable design in an urban environment.**
2. **Ability to design a structure appropriately to meet the needs of clients.**
3. **Understanding of basic to state-of-the-art technologies and/or research in the fields of Urban Design, Urban Environment and Disaster Mitigation.**

As a unique feature of the department, our program is accredited by the Japan Accreditation Board for Engineering Education (JABEE). Graduates can be qualified as Associate Professional Engineers.
The graduates find their employment typically ranging from construction and consulting companies to governmental offices.

Fields of Research

The urban and civil engineers of today are seeking solutions to benefit both the society and individuals to reduce environmental pollution. Research laboratories in the department are dedicated to improving the human environment through the planning, design, construction, and life-long management of infrastructures and transportation systems.

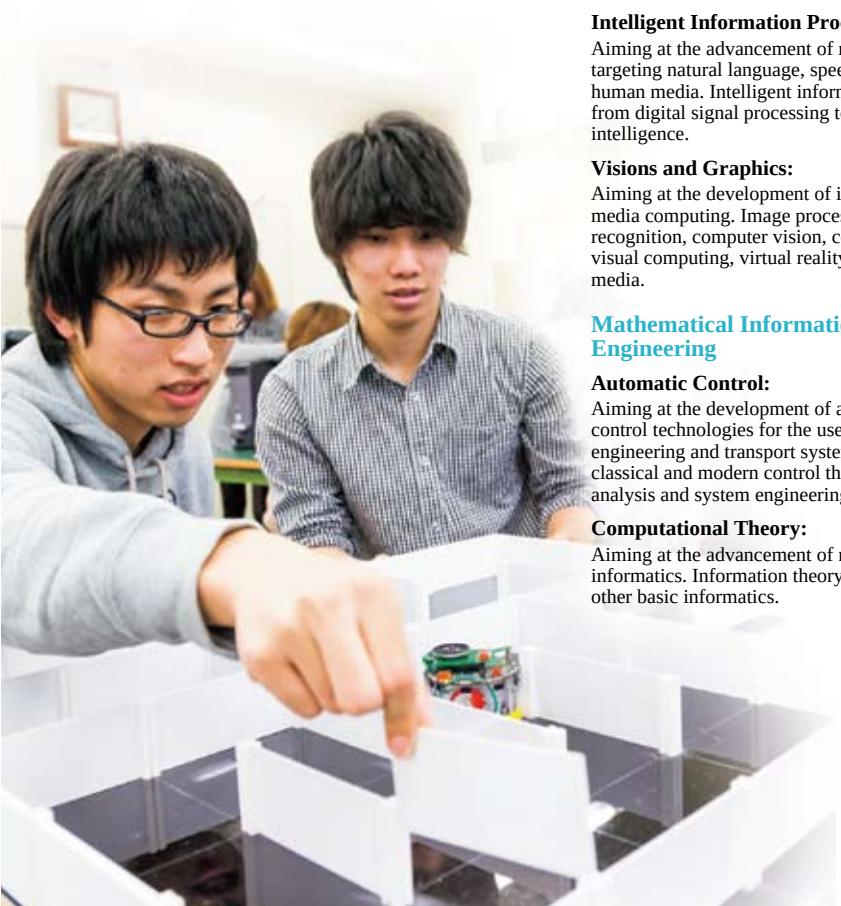
There are three major fields in the department where intensive research is performed

Disaster Prevention Engineering
Environmental Engineering
Urban Planning and Management

Faculty of

Knowledge Engineering

The Faculty of Knowledge Engineering fosters human resources who can make comprehensive use of high-level science technologies in the coming age of a knowledge-integrated society. We let students acquire practical skills in the use of cutting-edge and future-oriented information-engineering technologies for business or society and foster experts who can tackle a wide variety of problems in modern society. While inheriting the tradition of the university's engineering studies, we conduct new-type education and research in response to the times.



Department of

Computer Science

—Growing up engineers ready to play important roles in the IT world!—

Our aim is to educate engineers who are ready to work actively in the IT world, acquiring high ability in information engineering for the upcoming ubiquitous computing generation. Our department has three major research fields: **computer engineering, media engineering** and **mathematical information engineering**. All our students obtain basic knowledge and basic skills in all these fields. These three fields nurture highly educated engineers in information engineering, who have deep knowledge and problem-solving skills in their major fields. Our graduates are expected to have a wide range of abilities including not only basic mathematical informatics but also professional knowledge and technical skills of software, hardware and media engineering to lead the IT world.

Fields of Research

Computer Engineering

Computer Architecture:
Aiming at the advancement of high performance computer systems. Computer architecture, microprocessors, hardware description language and System LSI design.

Computer Software:
Aiming at the development of advanced computer systems. Operating system, programming language processing, object-oriented programming and software engineering.

Media Engineering

Intelligent Information Processing:
Aiming at the advancement of media computing targeting natural language, speech and other human media. Intelligent information processing from digital signal processing to artificial intelligence.

Visions and Graphics:
Aiming at the development of image-related media computing. Image processing, image recognition, computer vision, computer graphics, visual computing, virtual reality and interactive media.

Mathematical Information Engineering

Automatic Control:
Aiming at the development of automatic system control technologies for the use in robot engineering and transport systems. Robotics, classical and modern control theory, system analysis and system engineering.

Computational Theory:
Aiming at the advancement of mathematical informatics. Information theory, coding theory and other basic informatics.

Department of

Information and Communication Engineering

Mobile communication and internet communication are very common in our life. Technologies related to this field are rapidly developing toward a ubiquitous computing society so-to-speak. This department deals with research and education about the information communication systems that are essential to realize the ubiquitous society. In this department, we study electronics, communication and computers to obtain skills necessary for solving the problems in this field. From the studies, we aim to understand information communication engineering from devices to systems. Towards that end, we systematically acquire skills and knowledge on information and communication networks in both hardware and software.

Fields of Research

Computer Networks

The research objects extend to many topics of computer networks, from the internet to mobile networks, sensor networks, from the switching architecture to TCP/IP protocols. Adaptive communication algorithms and biologically-inspired technologies for mobile ad-hoc networks, wireless mesh networks and wireless sensor networks are the recent main research field.

Communication Systems

In Communication Systems Laboratories, high-efficient multiple access schemes, radio access techniques including Multiple-Input Multiple-Output (MIMO) channel techniques, and radio resource managements are investigated and evaluated for future cellular systems. Moreover, communication reliability in the wired network is evaluated theoretically and the methods to improve the network reliability are investigated.

Integrated Systems

In information technology including information communication, electronic circuits are a key technology. Development of high performance system LSI is the main research theme.

Wireless Systems

The effects of the electro-magnetic wave used in mobile systems on the human body, medical devices, and wireless LAN are research themes. Small antenna for mobile devices is another research subject.



Faculty of
Knowledge Engineering

Department of
Industrial and Management Systems Engineering

The Department of Industrial & Management Systems Engineering offers Bachelor of Engineering, Master of Engineering and Doctoral degrees. The department has fields of Management, Industrial System Engineering, Logistics, Human Media Design Engineering and Marketing Research. The original Department has achieved international prestige for its contribution to the interdisciplinary design and operation of complex systems of human beings, information, and machines.

Fields of Research

Business Management System

Study of Business Management Systems with an understanding of social responsibility and social environment is crucial to sustain companies in the global society. Talents who can utilize management resources (personnel, material, money, and information) reasonably and efficiently to achieve their purposes that management provides are promoted.

Marketing Modeling

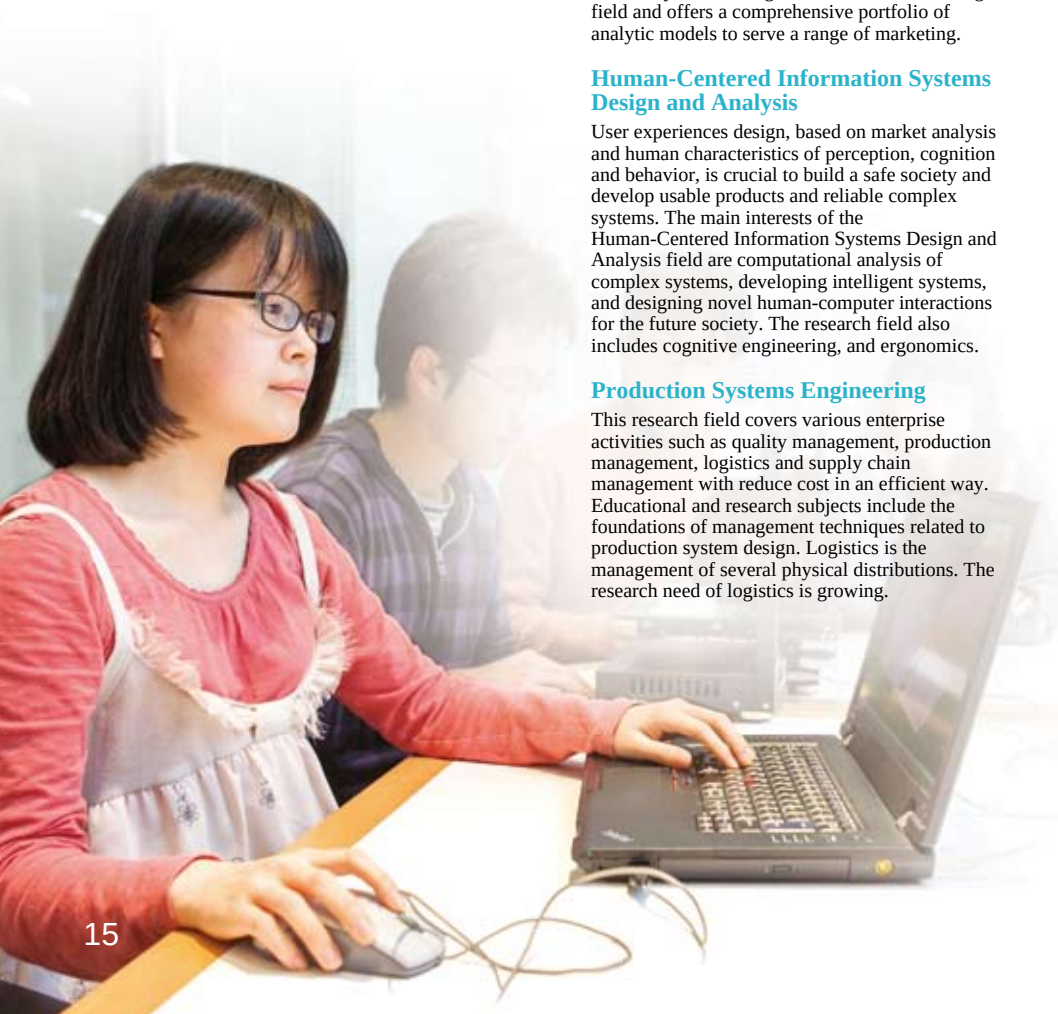
Activities of the enterprise, investigations of the organization body, analysis from a global aspect in a scientific manner, as well as, subjects necessary for establishment and a new business deployment are set up in this field of research. The research field includes marketing research and finance based on data mining technology. This field shows how analytic modeling research in the Marketing field and offers a comprehensive portfolio of analytic models to serve a range of marketing.

Human-Centered Information Systems Design and Analysis

User experiences design, based on market analysis and human characteristics of perception, cognition and behavior, is crucial to build a safe society and develop usable products and reliable complex systems. The main interests of the Human-Centered Information Systems Design and Analysis field are computational analysis of complex systems, developing intelligent systems, and designing novel human-computer interactions for the future society. The research field also includes cognitive engineering, and ergonomics.

Production Systems Engineering

This research field covers various enterprise activities such as quality management, production management, logistics and supply chain management with reduce cost in an efficient way. Educational and research subjects include the foundations of management techniques related to production system design. Logistics is the management of several physical distributions. The research need of logistics is growing.



Department of
Natural Sciences

The Department of Natural Sciences is the framework within which you can study a wide range of natural sciences categorized in chemistry, biology, geology and mathematics. The students are not expected to concentrate only on a category but are strongly encouraged to study various subjects across the categories. The graduates are expected to have a comprehensive understanding of natural sciences and technologies in the modern society.

Education Programs

In the first year, the students take introductory subjects in natural sciences, including laboratory works. In the second and third years, we offer a variety of advanced subjects such as quantum physics, statistical physics, computational chemistry, analytical chemistry, biochemistry, botany, zoology, microbiology, planet science, astronomy, and mathematical sciences. In the fourth year, the students have a chance to take part in one of our research projects in progress. The students can obtain the teaching certificates in science and/or mathematics as well as the curator certificate required for working in museum, zoo, and aquarium.

Fieldwork and Instrumental Analysis

The Department of Natural Sciences offers practical training programs in fieldwork and instrumental analysis. The fieldwork program covers botany, zoology, geology, astronomy, and geography and is carried out in various places in the world, including Scotland, Hawaii, Izu Oshima, and Yatsugatake. Incorporation with the fieldwork, we also offer intensive training programs on analytical instruments, such as XRF (X-ray Fluorescence spectrometer), HPLC (High Performance Liquid Chromatograph), and GC/MS (Gas Chromatograph Mass Spectrometer).

After the Department of Natural Sciences

The graduates are expected to work as teachers and curators in educational institutions as well as science journalists in various media. The graduates are also expected to work as analysts and consultants in public organizations and various industries. If you want to continue with research and go on to an academic position, you are expected to proceed to a graduate course in the Tokyo City University or elsewhere.

Faculty of

Environmental Studies

The 21st century is the era of the *environment*. There are wide-ranging issues in need of resolution from global to local scale problems, such as global warming, threats to biodiversity, energy crisis and water pollution, which affect the daily life of all people living on earth. The Faculty is committed to developing human resources with knowledge of the environment and ecosystems that are affected by rapidly changing economic activities, the ability to accomplish goals that are essential for problem solving, and who can contribute to solutions to environmental problems through practical education and research that go beyond the borders to the social and the natural sciences.

Department of

Restoration Ecology and Built Environment

The Department aims at educating people who would like to be the ones who can apply a wide variety of knowledge and intelligence to the restoration of ecosystems, cities, regions, and the global environment in the real world. Students will study various environmental problems from a scientific perspective and learn the policies and measures to solve those problems. In order to realize sustainable regions and build environments in harmony with nature, students will nourish the power of environment creation for immediate use in the real world after graduation by learning and acquiring methods of conserving, reclaiming/restoring, and creating a biological environment; technologies for processing and sharing environmental information; methods for analyzing and monitoring an environment; and technologies and methodologies that incorporate natural diversity into an artificial environment to create a comfortable environment.

Educational Environment Fields

Ecological Environment Field

Society faces a wide variety of environmental problems from global-scale to local-scale issues, such as global warming, desertification, and the deterioration of biodiversity and ecosystems by land development. In the Ecological Environment field, students will study global-scale conservation, including the restoration of tropical rainforests and prevention of desertification, as well as the conservation and restoration of our immediate environment in a practical way by visiting various fields at home and abroad.

Urban Environment Field

In order to find solutions to urban problems, such as the heat island effect, localized torrential rain, air pollution, and energy use, it is necessary to understand how cities change and the essence of their structure. In the Urban Environment field, students will acquire not only basic knowledge, but also study applications and practices related to measurement, analysis, and design in the fields of urban activities and environment, living environment and land use, thermal environment and thermal comfort, and the architectural environments.

Department of

Environmental Management

Students will acquire appropriate knowledge and vision regarding a sustainable society and learn concrete policies to promote environment-conscious corporate and consumption activities, as well as planning in terms of environmentally friendly product and technology development. The Department promotes human exchanges with domestic/overseas companies and local governments to nourish human resources who can find and analyze issues specific to companies, local governments, and consumers and who can manage an organization to solve such issues. The Department also cultivates the management capability that helps employees work for solutions to environmental problems from an international perspective.

Educational Environment Fields

Sustainable Management Field

In modern society production and consumption activities are possible only when various and massive resources can be exploited and discarded. In the Sustainable Management Field, students will acquire specialist capabilities in sustainable management to increase environmental efficiency at each stage from excavation of resources to production, distribution, consumption, recycling, and disposal of materials and to promote the kind of production/consumption activities that may contribute to a sustainable society.

Environmental Policy Field

Environmental problems are social issues of modern society and are extremely complicated because politics, economy, culture, and international relationships are intricately interrelated. In the Environmental Policy field, students will study legislation for problem solving and the market economy, as well as the theory and methodology of environmental policies and their formation processes from a social-scientific point of view.

Faculty of

Informatics

To realize the beneficial coexistence of dramatically evolving information technologies and human beings/society, frontline researchers in the humanities and sciences and instructors with a proven track record in private companies provide education and carry out research that contributes to the real world. The ecological cyber campus is a source of pride. We make full use of technologies of the highest level in Japan to help students study.

Department of

Sociology and Media Studies

The goal of the Department is to nourish three capabilities: intelligence, with which students consider social issues in the broadest context / communication skills and management ability as a bridge between social groups and individuals.
Students will strengthen the skill with which to propose a new communication tool that changes how people associate with each other.

Educational /Research Fields

Community Design Fields

We conduct social information design, which means understanding information and the community from the viewpoint of society and ordinary people. Students will investigate the design of familiar information media, including posters, ads, games, TVs, and the Web. They learn about technologies and how information is expressed to produce new designs.

Human Communication Field

In an effort to resolve social issues from the perspective of communication, a variety of communication modes in today's world are researched and analyzed. Students will acquire the ability to propose new means of communication. They will also study today's diverse media communication modes, which are dramatically changing due to the reorganization of existing media and the development of new media.

Department of

Information Systems

The department cultivates professionals who can build an information system from the diverse needs and perspectives of users in order to ensure safe, comfortable use.
Students will learn programming skills, media processing, and web creation technologies, as well as research, analysis, and evaluation methods and technologies to realize advanced information systems, including ICT assessment, information security, and information management.

Educational /Research Fields

System Design Field

Students will acquire the ability to design and build information systems by studying many varieties of different digital technologies that support the information-based society of today, including communication technologies, such as the Internet and mobile phones, and learn how to process multimedia sounds and images.

ICT Assessment Field

Students will acquire the ability as a comprehensive producer who understands the element technology necessary to establish an information system, research and analyze user needs, design a system that considers the conditions for business profitability, reserve resources as the required personnel, control execution, and make assessments.

Faculty of

Urban Life Studies

The Faculty of Urban Life Studies aims to train capable persons who can contribute to creation, development or management of an urban life environment, where most people live and work in the 21st century. Based on such a faculty concept, a student may choose one of the four courses of 1) Urban Lifestyle, 2) Urban Management, 3) Urban Design and 4) Urban System, and learn and develop the required knowledge and skills through unique subjects, including Consumer Needs Analysis, Project Planning and Business Promotion, Management and Operation. Those subjects are delivered by outstanding faculty members, having rich prior hands-on business experience and know-how, and the students will enjoy the most relevant and practical learning opportunities.

Department of

Urban Life Studies

The Faculty of Urban Life Studies (FULS) was established as a creative faculty at Tokyo City University, in April 2009 in Todoroki, Setagaya Ward, Tokyo. FULS is a social-science based faculty that will endeavor to provide students with a variety of approaches that will enable them to focus on Urban Life Studies from the perspective of urban environment, planning and management. It will also focus on educating students about urban life and culture. Students will have a diverse array of opportunities to learn about cities in an integrated way.
Cities have become key sites in modern social life, and town planning, development, and management will play a vital role in an aging society. A city also needs to make adjustments when new culture, lifestyle and businesses are created. A great emphasis will be placed on students' underlying motivation for starting up a business related to space, goods and services in a city. The faculty aims to train students to begin their professional careers as creators or managers concerned with urban life and culture, as urban planners, or as municipal administrators, for the generating and practicing of ideas for the enjoyment of life and work in cities.
Coursework will encompass the social, economic and political aspects of urban life, urban landscapes, and cultural frameworks of a city or town. It will include not only advanced computer, information science and designing skills but also business administration, commercial studies, residential environment studies and sociology. The focus will be on cities as distinctive entities for creative planning and their function, as well as on the exploration of the future of urban businesses.
The faculty will offer students four main areas as their major study: urban lifestyle, urban management, urban design, and urban system.

1. Urban Lifestyle

1. Culture, Art, & Amusement 2. Product & Service 3. Marketing
4. Logistics 5. Finance & Accounting 6. Tourism 7. Human attract

2. Urban Management

1. Master plan 2. Real estate 3. Project management 4. Town・Area management
5. Property management & Operation 6. Community management

3. Urban Design

1. Urban design 2. Space & Architecture 3. Housing & Community design
4. Computer technology / Digital simulation 5. Community management

4. Urban System

1. Infrastructure 2. System 3. Public policy 4. Environment
5. Social welfare 6. Construction & Procurement

Faculty of

Human Life Sciences

Here, while deepening your understanding of children's personality development, child rearing and various meetings surrounding children (with adults, nature, culture, etc.), you acquire specialized knowledge and skills to promote children's healthy mental and physical growth. Additionally, students study pedology comprehensively through developing their social knowledge and practical skills of supporting people involved with children's growth and vitalizing child-rearing functions.

Department of

Child Studies

Welcome to Tokyo City University, Faculty of Human Life Sciences, Department of Child Studies. The Department of Child Studies provides students comprehensive academic coursework and fieldwork necessary to acquire a deep understanding of a child's growth and development. In successive academic terms, students will explore methodologies to assist children develop critical social skills and qualities, such as independency, intellectual curiosity, and social responsibilities. Classroom teaching methodologies will enable the successful student to stimulate interest among young children and their parents thus adding quality to the overall well-being of children in today's ever evolving dynamic society.

An Innovative and Challenging Professional Study Program in Early Childhood Education and Care

Nowadays, Early Childhood Education and Care professionals in Japan play important social roles in assisting families with young children. In the context of diminishing social solidarity, young parents have been increasingly isolated in the child-rearing process. In order to provide appropriate services in response to social needs, Early Childhood Education and Care professionals need to improve their capabilities beyond basic certification requirements. The Department of Child Studies at TCU prepares prospective Kindergarten and Preschool teachers to develop practical and specialized knowledge and skills in order to nurture a healthier environment for children at a time of great need and great challenge.

Professional Career Development

The Department of Child Studies offers students an invigorating and challenging curriculum. A leading edge curriculum consists of a wide range of interdisciplinary subjects including Child Culture, Communication, and Expression. These subjects are offered in addition to the core curriculum requirements for kindergarten and preschool teacher certification. TCU offers one of the most innovative and unique curriculums in regards to understanding a child's growth and development.

TCU offers a highly effective curriculum to meet the individual student's need. The curriculum is designed to enhance students' knowledge, skills and confidence in a progressive manner over successive terms, as seminars build upon and expand what students have already learned. Focusing on specific topics in successive terms, students will gradually develop their capability as prospective professionals.

In addition to the above, the Department of Child Studies at TCU offers unique and original outside the classroom experiences. The campus Theater Studio provides drama and dance workshops for students, as well as theatre for children. This would include child-rearing support at "PIPPI", which is a community based support center for families with young children. Students also will participate in the local Tokyo municipality neighborhood gardening initiative, as well as field excursions to natural settings. TCU also offers a study abroad program in cooperation with the University of Canterbury in New Zealand and University of Wollongong in Australia.

TCU Bachelor of Child Studies offers the students many career options. For example, successful completion of the program will enable the student to gain official Government of Japan kindergarten and preschool teacher certification. The Bachelor of Child Studies offers students a wide variety of professional career opportunities in early childhood education and care, including public and private child care institutions, national and local governments, child publications, toy manufacturers, children clothing design and manufacturing and international and domestic academic institutions. In addition, early childhood career professionals are critical in the new global economies such as NGO's, agencies of the United Nations, CARE and JICA.

Messages from International Students

Kasemsan Nawiang

Faculty of Engineering
Department of Electrical and Electronic Engineering

Japan; the country that I am living now, is one of the most amazing country that I am strongly recommend everybody to visit at least once in our lifetime. When I was young, I was very addicted to Japanese novels, games and cartoons and that is what makes me fascinated and curious to learn Japanese and led me choose to study Bachelor Degree in Japan.

In the first two year, I went to Pre-university course at Japanese Language School to practice language skills and gain all relevant knowledge to prepare for the university entrance examination and be ready for a university life. During the time that I studied in the language school, I started looking for the university with the Faculty of electric and electronic engineering and finally I decided to apply for the faculty of engineering at Tokyo City University, the long history university with high reputation in an engineering field. I am really enjoy studying here because there are a lot of experiments. At the beginning I was nervous because all the lessons are conducted in Japanese and I am a foreigner that honestly, it is really tough to study abroad in the country that everything are different from home, but now that I have already passed my first year in this university, I can say that studying here is not only teach me lessons in the class but also lessons of life with friendship and experience that I won't get it from anywhere else. Anytime I have any problems or any matters, I can always speak with professors and friends. Good relationship with people is one of the precious things that help me to get through the most difficult year, my first year in Tokyo University.

Lastly, I would like to invite everyone who interested to apply for Tokyo university, come to join and be part of us and you will believe me that this university is not only made for study, but for you to learn and gain experience that after you finished, you will be proud to speak loudly when anybody asks, where you graduated from.

Linling Jlang

Graduate School of Engineering
Civil Engineering (Master's program)

I'm hugely interested in civil engineering, so I chose it as my major when I decided to join Tokyo University as suggested by the teachers and senior students in the language school earlier. Tokyo University, which is known as Musashi Institute of Technology formerly, has a history of over 80 years and produces a lot of excellent students with outstanding studies, thus huge distributions to Japanese national industries. Driven by new era demands and equipped with advanced facilities and experts in different fields, the University keeps updating its education and researches. Effected by such good environment, I have been the first in my department from my freshmen to junior year and got the awards with other excellent fellows. Besides the class, our college life is also lighted by all kinds of cultural events. The employment rate is very high since plenty of companies come in graduate season for the recruitment.

As a senior, I join Construction Safety Research Laboratory, focusing on the cyclic utilization of concrete. I learn that construction safety has always been a hot topic in China, which makes me study the construction material to learn more relevant technology. As a construction material, concrete is the most widely used in the civil engineering. Topics, like design and produce the light and high strength concrete per predicted performance, develop new process and equipment with advanced techniques, widely utilize scrapped raw material, etc. needs to be studied. However, China is in great demand of thetalents in concrete study.

Featured Research

JICA Research Project

Prof. **Zhongchao Shi**

Faculty of Environmental Studies
Department of Restoration Ecology and Built Environment

Prof. Zhongchao Shi and Dr. Masahisa Sato of Tokyo City University are conducting a JICA(Japan International Cooperation Agency) research project with Wuhan University, China. The title of the project is the Environmental Education (EE) Package, Teaching/Learning Materials, Development and Environmental Personnel Training in the Water Supply Area for the Purpose of Water Conservation along Mid-route of "South-to-North Water Diversion Project" in China. The objective of this project is to increase environmental awareness and create mutual understanding through the collaborative development of a water conservation environmental education package and implementation of practical environmental education for local residents. The main activities and expected outcomes are the collaborative development of Environmental Education Package, Teaching/Learning Materials and the Practical Environmental Education programs utilizing the developed EE Materials above.

Collaborative development of EE Materials

Practical EE program for local residents

A research project for the development of a global scale environmental life cycle impact assessment method

Prof. **Norihiro Itsubo**

Faculty of Environmental Studies
Department of Environmental Management

Since the 1990s, a variety of research studies relating to the LCIA (life cycle impact assessment) method have been carried out. LCIA methods contributed to evaluate environmental impacts of product life cycle and to promote the application of LCIA internationally. In Japan the Japanese LCIA method, LIME (life cycle impact assessment method based on endpoint modeling) has become popular, leading companies, such as Toshiba and TEPCO use this to improve their environmental performance. Nevertheless, most of the existing LCIA methods have a limitation of geographical range in their assessment. In order to solve this problem, Tokyo City University has begun to expand the scope of assessment from the regional scale to global scale with the financial support by Cabinet office, Japan.

The new LCIA method can be divided into two steps. The former step can be developed by the knowledge of natural science. The figure shows the simulation result of the change of SO_2 concentration in the case of an additional increase in sulfur dioxide emissions from China. This result would be used for the estimation of increase of human health damage. The latter step can be developed by the application of technique in social science. In order to consider the differences in the environmental thoughts of nations, we carried out the questionnaire for 19 countries. We visit each of respondents and explain the current status of environmental impacts in the world and ask a questionnaire to them. The result would be analyzed to obtain national weighting factors.

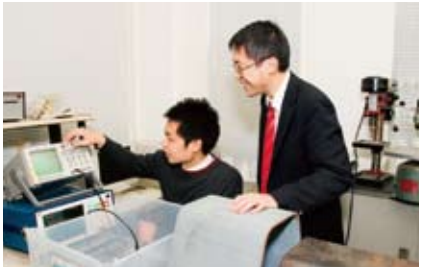
The tentative results were reported in the international seminar supported by UNEP (United Nations of Environmental Program) and Cabinet office and highly appreciated by the authorities in this research field.

Research on the maintenance, management, field measurement, and design of structures

Assoc.Prof. **Hiromi Shirahata**

Faculty of Engineering
Department of Urban and Civil Engineering

Most people expect that the aging public infrastructure of roads, bridges, and railways built during the high-growth period of the 1960s will require major renovations in the coming years due to deterioration. In response to such a social context, the Structural Safety Laboratory led by Associate Professor Shirahata pursues ways to maintain and manage structures safely. In quake-prone Japan, the repair or reinforcement of structures against tremors is an important issue. In the laboratory, structure damage levels are being tested with non-destructive inspection techniques. “While steel and stainless are essential materials that make up an urban city, there is not much research on these materials in the field of urban engineering,” said Associate Professor Shirahata. “Corrosion and welding defects on members may lead to major risks. The purpose of our research is to avoid risks and increase safety.” In the laboratory, a device for continuous microtremor measurements is currently under development. In an effort to secure a power source for the measurement, solar cells and piezoelectric elements have been used. Moreover, research has been conducted on the avoidance of damage to structures, whose forms are damage prone, by developing a computer analysis model. There is no end to the research to protect cities and ensure the safety of people living there.



Silicon Germanium Quantum Nano-Devices Toward High Performance Optoelectronic Integrated Circuits

Assoc.Prof. **Kentarou Sawano**

Faculty of Engineering
Department of Electrical and Electronic Engineering

Today, our life is surrounded by many electronic products, e.g., computers, smartphones and TVs. Inside all these products, silicon (Si) large scale integrated circuits (LSI) play the most crucial roles. Today’s highly advanced electronics has been established by continual developments of the Si LSI based on miniaturization (scaling) of physical sizes of metal-oxide-semiconductor field-effect-transistors (MOSFETs), the most elementary devises in the LSI. However, serious problems have been imposed recently, such as the scaling limit and immense power consumption due to very dense electric interconnections. To overcome these problems, we introduce a germanium (Ge) as a novel material into a Si platform and create Si/Ge hetero-structures, aiming to realize high-performance Si/Ge channel devices, where highly enhanced carrier mobility can be attained (channel engineering). In addition, we are developing Si/Ge-based optical devices, especially light emitters, toward realization of optoelectronic integrated circuits (OEICs) on the Si platform, where electric interconnections are partly replaced by optical ones and the power consumption can be drastically reduced. With our sophisticated crystal growth technologies, we can create high-quality Si/Ge nano-structures, such as quantum wells and quantum dots, to confine carriers (electrons and holes) within nano-meter regions and bring drastic enhancements of carrier mobility and light emission efficiencies thanks to quantum effects. Based on the nano-structures, we are developing cutting-edge strained-Ge channel complementary-MOS (CMOS) circuits, photonic crystal micro-cavities, optical waveguides, light emitting diodes (LEDs) with Ge quantum dots etc. toward next generation OEICs, and we are hoping to contribute to the sustainable growth of electronics in the future.

Featured Faculty Members

Prof. **Takaharu Tezuka**

Faculty of Engineering
Department of Architecture

My main role is demonstrating and teaching the practice of an architect in the real world. In the design studios, we assign to the students a project similar to that of one of our current projects. Therefore the project is not only about designing the shape of a building, but is also about the relationship between our current social context and architecture. We encourage students to understand the reasons why architects are needed in a civil society and a better future. In the theory class, we teach the difference between architecture and building, exploring the philosophical side of architecture. Sometimes we provide the students with a small but real project, so that they can experience real architectural practice, from the first negotiations to the completion of the structure. There are already some projects completed by our students. We have also run international workshops. In the year 2013, an international studio was held in the historic city of Groznjan in Croatia, collaborating with well-known local architects, and eight of our students joined a class which included students from countries such as France, Poland and Croatia.

As a practicing professor, I design a wide range of buildings, from small houses to public structures, schools, museums, churches, hospitals and so on. Fuji Kindergarten is the most well-published and broadcast of our projects. It was selected by the OECD and UNESCO as the best school building built in the last 50 years in the world. Our Asahi Kindergarten, completed last year, was selected for the Good Design Gold Prize by the Minister of Trade, Industry and Economy for its excellent contribution to the reconstruction efforts following the Great Tsunami of 2011. There are some special visitor days in which our projects are only open to our students.

Prof. **Masanori Shukuya**

Faculty of Environmental Studies
Department of Restoration Ecology and Built Environment

Prof. Masanori Shukuya has been involved in the research on sustainable environmental systems and the associated education aiming at both professional and non-professional people. His primary focus is on how the thermal and luminous indoor environment should be conditioned in order to maximize human well-being with the lowest fossil-fuel input as possible and how such environment should be designed so that a variety of natural potentials to be found in the immediate outdoor environment is utilized effectively. His unique approach to these research problems is the use of “EXERGY” concept, which is of vital importance for a better understanding of so-called energy and environmental problems.
He has been actively involved in international cooperation, such as IEA/ECBS-Annexes 37 and 49 (http://www.annex49.info) for the development of low-exergy heating and cooling systems for future buildings. In the course of collaboration over the last ten years, he has supervised quite a few young researchers abroad for their research work.
He has recently published a book entitled “Exergy-theory and applications in the built environment (http://www.springer.com)” that compiled most of his research findings together with some unique pedagogical principle in particular for beginners coming into the field of exergy research and also built-environmental research.

Prof. **Noriko Otani**

Faculty of Informatics
Department of Information Systems

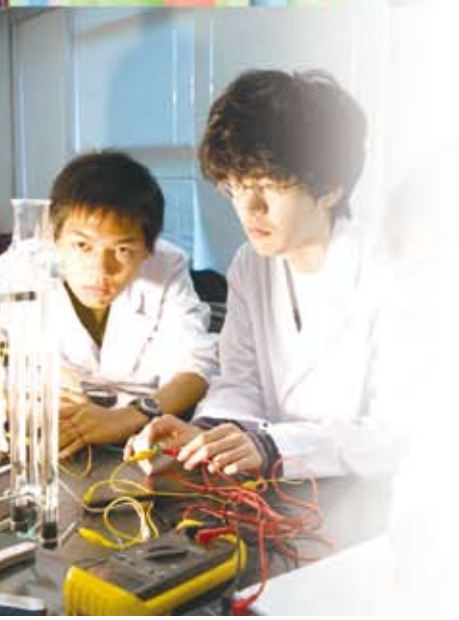
Professor Noriko Otani conducts research on artificial intelligence from a variety of different perspectives, where computers optimally and efficiently implement intellectual activities that human beings have only managed, such as making inferences or learning, and process an enormous amount of information that human beings are not capable of managing, to solve problems. In particular, Professor Otani focuses on the approach of genetic algorithms that simulate the evolutionary process of living creatures. Otani says that a simple method may take several centuries to find the optimum solution for a problem that has a huge number of candidate solutions. Genetic algorithms, however, can find a suboptimal solution in a short time. One of her research projects is the development of the most environmentally friendly delivery route selection system for home delivery services. In collaboration with a professor in the Faculty of Environmental Studies, who is familiar with logistics and energy efficiency, she is trying to develop a delivery system that reduces CO_2 emissions to the minimum and delivers packages in a short time. Otani said that for software development, it is important not only to have information processing skills and expertise, but also to accurately assess user needs and actively harness expertise in other fields. She is promoting an educational program called the Otani Laboratory Project, where students are encouraged to acquire the practical skills required of systems engineers while taking the initiative in designing and building on-campus systems. Through these activities, she was granted the Outstanding Educator Award by the University. The researcher on artificial intelligence is also an expert in developing human resources.

Prof. **Takeshi Osada**

Faculty of Liberal Arts and Science
College of Natural Sciences

Professor Takeshi Osada said, “It has been elucidated that the macrocosm, including our Earth, was created by the rapid expansion of a fireball called the Big Bang that occurred about 13.7 billion years ago.” Professor Osada works hard every day in an effort to elucidate the mysteries of the early universe from a theoretical perspective. In Europe and the United States, experiments are being conducted to reproduce the conditions of the early universe by smashing two atomic nuclei head-on in a large-scale accelerator. Osada says that when atomic nuclei smash head-on at almost the speed of light, an enormous amount of energy is released, and after the release, high-temperature, high-density matter made of particles expand all at once. In recent years, people have come to think that the matter produced behaves not like gas but like some kind of liquid. In the past, extremely simplified models have been used for research. Since a more precise theory, which eliminates inappropriate simplification, has not been established, Professor Osada aims to establish such a theory before other researchers in the world. Every day, he goes to bed at 9:00 p.m. and wakes up at 3:00 a.m. to work on the theory, do some calculations, and write a paper for several hours before heading to work. Osada said with a smile that he often hits upon an innovative idea on the train or while walking. He carries his paper with him all the time to check a new idea against the paper and recalculate the next day. Such unflagging research by Professor Osada may open the door to the mysteries of the universe someday.

Graduates of Tokyo City University



Noriyoshi Ogawa

Managing Director, Hotel Okura Co.,Ltd.
Chairman, Hotel Okura Tokyo Co.,Ltd.
General Manager, Hotel East 21 Tokyo

Appreciating the TCU founding Spirit-"Liberty, Justice and Autonomy," I used to enjoy my student life at the quiet and beautiful campus.
I think that four years at TCU was meaningful for me. So, I could make my way in the hotel industry, which had nothing to do with my major and was outside my field at that time.
I believe that the life at a university is to foster one's ability to find out problems and solve them.

March 1970 Graduated from
Faculty of Engineering,
Musashi Institute of Technology
(Bachelor of Engineering)

Kenichi Hattori

Westerman Hattori Daniels & Adrian, LLP
US Attorney, Managing Partner, J.D.

I, as the first Japanese US patent attorney, run a patent law firm with about 100 employees, including attorneys, near the White House.
Among about 500,000 applications filed for patents in the United States each year, approximately 15% are filed by Japanese companies, demonstrating the excellence of Japan's manufacturing technology. Since my work as an attorney involves helping these companies apply for patents, I know that Japanese engineers with sophisticated knowledge of engineering technology are essential for the success of these companies.
I sincerely hope that young people, who have developed professional expertise and ability at Tokyo City University, will play a leading role in the world in the future.

March 1966 Graduated from
Faculty of Engineering,
Musashi Institute of Technology
(Bachelor of Engineering)

Tetsuya Ebata

President and CEO, All About, Inc.

Japan’s unique and stable economic system, including its seniority system, served as the foundation for high-speed growth but was forced to shift because of the acceleration of globalization. Consequently, behavior and the determination of each individual in society has become a critical factor in making a difference. However, I think that this dramatic change constitutes an exceptional opportunity for young people to run up to the top on their own merits. The time has come for Japanese young people, particularly those who have acquired engineering expertise at Tokyo City University, to achieve their goals in a short time.

March 1987 Graduated from
Faculty of Engineering,
Musashi Institute of Technology
(Bachelor of Engineering)

Koichi Sato

Executive Vice President (International Business Headquarters), SECOM CO., LTD.

As a TCU graduate, I obtained an opportunity to enter a security service company and participate its study abroad program. Learning new values, I got greatly inspired at Georgia Institute of Technology in the United States in my 20s. This valuable experience provided me many lessons that I found useful in my work. However, if I had had such an experience when I was a university student, it would have opened the door to many more possibilities. Why don’t you grab the immense possibilities by studying at Tokyo City University? We look forward to meeting passionate young people who enjoy challenges.

March 1976 Graduated from
Faculty of Engineering,
Musashi Institute of Technology
(Bachelor of Engineering)

Yusuke Ishimura

Assistant professor, Edith Cowan University (Australia)
Doctor of Philosophy, McGill University (Canada)

"Think globally, act locally" This is a phrase I learned when I was a student at TCU. After living outside Japan for a long time, I now understand the meaning of the phrase. The 21st century is a time when we need to have global perspectives. If you are trapped in old, ordinary, and traditional views, you will not be able to survive this era. It is important to have flexible, unique, and new ideas. I believe that young generations with these new perspectives will change and shake the world. Don't be satisfied with your current positions and places. Try to see and experience the outside world. As alumni of TCU, I hope that you will be part of a new generation of innovative and globally connected leaders.

March 2002 Graduated from
Faculty of Environmental and Information Studies, Musashi Institute of Technology
(Bachelor of Environmental and Information Studies)

Research Centers

Advanced Research Laboratories

Todoroki

Advanced Research Laboratories (ARL) is TCU's research base, which opened in 2004 with cutting-edge experiment devices. ARL consists of the following four research centers, Exploratory Research Laboratories, Incubation Laboratory, etc., and not only conducts research activities within the university but also actively promotes collaborative research with corporations, other universities and research institutes and tries to promptly share the findings with society. In addition, it is also a major feature that undergraduate and graduate students actively participate in projects.

Research Center for Nanoelectronics

This research center is mainly dedicated to the research and education for silicon-based electronics and photonics with the aid of nano-technology at the cutting edge. Joint research projects with other universities and institutions has been conducted to promote a wide variety of research activities in these fields; ultra-high speed silicon hetero-structure electronic devices, current-injected silicon-based light-emitting devices, and advanced simulations aiming at optimal design for these electronic and photonic devices. All the research findings were published in international scientific journals and also released on the Internet.

Research Topics

- Research on Silicon Based Electronic Devices with an Uniaxial Strain Rather Than Conventional Planar Strain To Obtain Higher Carrier Mobility.
- Research on Silicon Based Photonic Devices Based on Ge Quantum Dots and Optical Nano-cavity to Enhance Light Emitting Efficiency.
- Research on High Efficient Silicon Nanowire/ Nanowall Solar Cells.
- Research on Advanced Analyses for Materials and Devices Including Both Experimental Approach (Ultra-high-resolution XPS) and Theoretical Approaches (A First-principles Calculation, Monte Carlo , and FDTD).

Research Center for Renewal Engineering of Civil Infrastructure (RECI)

There is a great concern about the deterioration of civil infrastructures such as roadway, railway, water supply, sewage, port facilities, energy supply, and communication in the near future. The Research Center aims at developing the renewal engineering technology that ensures safety for the next 100 years. At present, four main topics are being investigated.
Most of the projects are supported by the national grant such as the Japan Society for the Promotion of Science and the Ministry of Land, Infrastructure, Transport and Tourism.

Atomic Energy Research Laboratory

Ozenji

This facility was founded to conduct basic research in nuclear power. A small reactor for research started operation in January 1968 and had been used for research for the enhancement of the safety of reactors, cancer treatment using neutrons, super-microelement analysis, etc. In 1975, it became a shared facility among public and private universities nationwide, receiving support from the government, and had been used by many researchers and students. The reactor stopped operation in 1989, and all the fuel was carried out after its abolishment was decided in 2003. In 2008, the Department of Nuclear Safety Engineering was established based on past experience and achievements and has been using the important facility and equipment to foster nuclear engineers.

Setagaya = Setagaya Campus Yokohama = Yokohama Campus Todoroki = Todoroki Campus Ozenji = Ozenji Campus

Other Facilities

Libraries

Setagaya Yokohama Todoroki

Libraries are established in each of the three campuses. The Setagaya Campus Library has about 260,000 books, mainly a wide variety of engineering books, including rare architecture-related books; The Yokohama has about 110,000 books/documents mainly on the environment and information; and The Todoroki has about 170,000 books, including those on urban issues, child education, and literature. All three libraries are fully equipped with advanced IT systems and efficiently used not only by our students and faculty members but also by researchers inside and outside Japan. Additionally, it is also one of our features that we reflect the needs of learners, for example by conducting the Book Selecting Tour with students.

Hanging Garden

This is literally a garden floating in the air in the central part from the 3rd to 4th floors. The structure incorporating the natural environment allows you to feel the seasonal changes although it is established indoors.

Library of Rare Books

A space on the 4th floor houses rare books, mainly from personal collections. Historical books placed on the walls and in glass cases magically float illuminated by indirect lights.

Information Technology Center SC

Setagaya

The Information Technology Center is responsible for the series of information education from basic information education to summaries of findings. It should be noted that it provides you with the environment to freely use a computer, and even highly professional software used in the area of engineering such as Ansys, Matlab, and AutoCAD. It also offers an environment for parallel calculation utilizing more than 100 computers, meeting the needs of research requiring high-speed calculations. In addition, it plays a role as a hub of the in-university network providing access to the Internet. Aiming at enhancing your skills in information technology, we deliver seminars on image processing, software development, server OS, etc., as well.

Instrumental Analysis Center

Setagaya

Instruments for analysis are necessary for the development of industrial materials and the evaluation of its properties. The center has 13 high-performance instruments such as high resolution analytical electron microscope, scanning electron microscope, electron probe micro analyzer, X-ray photoelectron spectroscopy and X-ray diffractometer. These instruments are used for studies by graduate and undergraduate students, the faculty and other researchers. In addition, the staff is improving our skill to have leading-edge analysis techniques.

Information Technology Center YC

Yokohama

The center is a hub for research and education concerning information networks, media, and computers. It has cutting-edge facilities including the Media Hall where you can create multimedia content using professional equipment, the Visual Media Room equipped with virtual studios and an editing room, and the Presentation Lab with a multimedia platform.

Mini-presentation Lab

A next-generation meeting room provides a high-level multimedia environment. Each desk has a computer, and you can show information on a computer screen, VTR, CATV, DVD, etc., on the high-intensity projector and the plasma display.

Media Hall

It provides you with professional equipment to produce multimedia works. It also can be used as a free space, acting as a precious place for brainstorming among students.

Child-rearing Support Center

Todoroki

Child-rearing Support Center is a glassed-sided bright and spacious facility. At this site, students learn childcare and child-rearing support through direct conversations with parents and communication with children.

Life at TCU



Tokyo City University Group's Sports Ground

The Sports Ground was inaugurated in June 2010 as a place for various educational and school-life activities, to improve the health and fitness of the students and pupils of the educational institutions from kindergarten to university that form the Tokyo City University Group. Located centrally between the various schools, it has a total area of 26,901 m^2. We are working to create a safe and reliable school by providing various facilities that embody the concept of displaying the overall strength of the whole group.

Cafeteria

A rare electromagnetic kitchen system has been introduced. A menu high in nutrition and low in price provides the energy for students. On the wall of this cafeteria, which has a seating capacity of about 1,000 and an open atmosphere, students have drawn a circumference ratio (that's engineering students for you). In Café Sora, which is designed to take advantage of as much outside light as possible and has a near-future-type interior design, homemade bread fresh from the oven is served and is becoming more popular. The cafeteria and café serve as places to relax not only for the faculty and students, but also for local residents.

Yatsugatake Mountain Villa

The Yatsugatake Mountain Villa is located on the Kiyosato Plateau in Yamanashi Prefecture, in a beautiful natural setting among the mountains. It's an all-season accommodation facility that can be used by the teaching staff and students of the Tokyo City University Group for study, club outings and training. It has fifteen Japanese rooms with a lounge, cafeteria, bathroom, observation room and gymnasium. There are some renowned tourist spots in the surrounding area including the Kiyosato no Mori museum of art and the music box museum and it's a good environment to learn about a variety of things.



Student Life Assistance

Japanese Language Program

A Japanese course is offered free of charge for international students. It is a no credit course, but international students can learn essential Japanese language for daily life in Japan.

Student Life Support

A university is a place where each student develops an interest and expertise and links them to a future plan. To this end, the University has established a detailed support system for academics and life in Japan. The total backup system comprises classroom teachers, academic supervisors, and other staff to ensure a safe, secure, and enriching four-year university experience for all students.

Career Development

The University provides a career portfolio file to each new student with the aim of developing independence. In the file, each student accumulates records of university life and sets, reviews, and resets objectives every six months. The University also incorporates career education into the curriculum to help enhance each student's awareness of the career path from the first year and then offers support to promote career development. The University also focuses on the internship program and has produced great results.

A Day in the Life of Aoyagi

Architecture Building, First Building, and other new buildings have made already comfortable campus even better.
I am so proud of this campus.

Mika Aoyagi

Faculty of Engineering
Department of Architecture

I selected this university because I am interested in modern architecture, and there are many well-known professors at the university. In the second year, I have many subjects, but my days have been very fulfilling as I develop a solid base in architecture. The Architecture Building, where lectures are given in an atrium, is modern and well worth seeing. I spend my spare time with friends in the Architecture Building. The First Building is also an environmentally friendly cutting-edge building. The campus has much greenery and beautiful libraries. I am so proud of the campus.

9:00am First class

On Monday, I study design all day long. In the first period, we are issued the content and conditions of our task in groups of about 20 in a large atrium room. Since we get a different task each week, we are always busy completing each task. I draw my ideas for a task in this esquisse notebook.

10:45am Second class

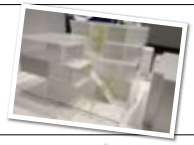
Design class again. Each student develops a specific plan and modifies after discussions with the teacher. Sometimes we must go out to see the site for ourselves. The other day, I went to Daikanyama. I take photos of the site and interesting buildings with my smartphone for use as reference materials.

12:15pm Lunch

For lunch, I bring a lunch and eat with friends in the Architecture Building while discussing the task. When I do not bring a lunch, I go to the cafeteria.
My recommendation is karaage-don (a bowl of rice topped with fried chicken) with your choice of sauce. It is only ¥300!

1:15pm Third and fourth classes

Design class in the afternoon is a lecture for all students in the department. In the class, we also receive comments on the tasks that have been submitted. Every week, five to six lecturers share practical knowledge in each specialized field. For a housing complex in Daikanyama, I made a plan and created a model.



4:30pm After school

I work on my task on the days when I don't work part-time. Sometimes, I work with group members and create a model. Since it is fun, I enjoy it. When we work late, we go out to dinner together. A mechanical pencil for drawing, a triangle scale, and a cutter are all tools that we need for the creation of a model.

Messages from Students

Mao Iida

Faculty of Knowledge Engineering
Department of Computer Science

Upon entering Tokyo City University, I joined the TCU Wind Orchestra. The TCU Wind Orchestra performs every year at the university entrance ceremony, student festival and other official events. We also play outside the university, including local events in Oyamadai. The orchestra holds an ensemble competition within the group as well as an annual concert. Last year we celebrated our 50th annual concert with a special programme, and were able to perform for many listeners.

As the university orchestra is run by the students, it's important to be able to act independently and prepare yourself for each event. Everyone in the orchestra has different levels of experience and belongs to different campuses, but by sharing our opinions and ways of thinking, we can create one sound, one concert. The sense of fulfillment is different from high school-- joining the orchestra changed my life. I've learned to take the initiative, and to work in a team, and made so many friends. I hope many other students can also have a fulfilling university experience.

Junichi Hashizume

Faculty of Engineering
Department of Chemistry and Energy Engineering

I entered the Department of Chemistry and Energy Engineering because I wanted to study environmentally-friendly methods of generating power using various methods of production and chemical power. I have been able to study the various fields necessary in producing energy, such as physics, chemistry and electricity, and have learned a lot.

Third-year students are assigned to a research laboratory in the second semester. Since I entered Tokyo City University, I had wanted to make a fuel cell battery that can generate electricity without producing carbon dioxide, which is harmful to the environment. Tokyo City University has specialists in fuel cell batteries, and I was able to join that research laboratory.

Many other laboratories also research how to protect and improve the environment. The teachers are knowledgeable about many topics, and the lectures are very interesting. I have been able to learn what I need for my future career. It is easy to talk to the teachers outside lectures, and I have been able to learn about the joys of producing energy and how we will make energy in the future. After I graduate, I want to use what I have learned at Tokyo City University and teach many people about energy engineering and help make a better environment.

Scholarship

Tokyo City University offers a variety of scholarship programs to support international students so that they can commit to their studies without financial concerns. Please read the application guidelines carefully as the application period and requirements vary from program to program.

Scholarship Type	Name/ Organization of Scholarship		Application Requirements				Conditions for Scholarship		Application Period
			Undergraduate/ Graduate	Year (at the time of granting)	Nationality/Region	Age	Amount (10,000 yen)	Benefit Period	
TCU	1	Sano Toshiaki Kokusaikoryu	Graduate	All years	Asia	No restrictions	Up to half of the tuition	1 year	Jun.
Government (MEXT/JASSO)	1	Japanese Government (MEXT) Scholarship	Graduate	All years	Nationalities other than Taiwan	Under 35 years of age	M:14.4 per month D:14.5	Shortest period for the completion of the course	Oct.
	2	JASSO Honors scholarship (Gakushu-Shoreihi)	Undergraduate	All years	Any nationality	No restrictions	4.8 per month	1 year	Apr.
			Graduate				6.5 per month		
	3	JASSO Honors scholarship (Gakushu-Shoreihi) (extra)	Undergraduate	All years	Any nationality	No restrictions	4.8 per month	6 months	Sep.
Scholarship Foundations	1	Sagawa Scholarship Foundation	Undergraduate	3	Southeast Asian Nations	Under 27 years of age	10.0 per month	2 years	Jan.
			Graduate	M1・D4		Under 35 years of age			
	2	Docomo International Student Scholarship	Graduate	M1	Asia	No restrictions	12.0 per month	2 years	Feb.
	3	The Korean Scholarship Foundation	Undergraduate	Sophomores and upperclassmen	South Korean/North Korean (including international students from these countries)	Under 30 years of age	2.5 per month	1 year	Apr.
			Graduate	All years		Under 40 years of age	M:4.0 per month D:7.0		
	4	Kora Kinen Ryugakusei Shogakukikin	Undergraduate	Freshmen	Any nationality	No restrictions	5.0 per month	Up to 4 years	Apr.
	5	Kobayashi Ikueikai	Undergraduate	Freshmen	Any nationality	No restrictions	2.5 per month	Shortest period for the completion of the course	Jun.
	6	Shinanoikueikai	Undergraduate	All years	Any nationality	No restrictions	30.0 per year	1 year (only once)	Jun.
	7	Rotary Yoneyama Memorial Foundation	Undergraduate	Juniors & Seniors	Any nationality	Under 45 years of age	10.0 per month	Up to 2 years	Sep.
			Graduate	M1・2/D4・5			14.0 per month		
	8	Heiwa Nakajima Foundation	Undergraduate	All years	Any nationality	No restrictions	10.0 per month	1 year	Sep.
			Graduate				10.0 per month		
	9	Hasegawa International Scholarship Foundation	Undergraduate	Juniors	Any nationality	No restrictions	8.0 per month	2 years	Oct.
	10	JGC-S Scholarship Foundation	Undergraduate	All years	Any nationality	No restrictions	25.0 per year	1 year (only once)	Nov.
			Graduate				25.0 per year		
	11	Kyoritsu International Foundation	Undergraduate	Freshmen to Juniors	Asian nations	No restrictions	6.0 per month	1 year	Nov.
			Graduate	M1/D3・D4			10.0 per month	2 years	
	12	The Moritani Scholarship Foundation	Undergraduate	All years	Any nationality	No restrictions	10.0 per month	Shortest period for the completion of the course	Apr.
			Graduate						
	13	Sato Yo International Scholarship Foundation	Undergraduate	Sophomores to Seniors	Asian nations (with some specified requirements)	No restrictions	12.0 per month	2 years	Jun.
			Graduate	M2			18.0 per month		
	14	Atsumi International Scholarship Foundation	Graduate	D5	Any nationality	No restrictions	20.0 per month	1 year	Jul.
	15	Tokyu Foundation for Foreign Students	Graduate	All years	Nations in the Asia-Pacific Region	M: 29 years old, D: Under 34 years of age	16.0 per month	Up to 2 years	Oct.

Location

- Setagaya Campus
  12-minute walk from Oyamadai Station (Tokyu Oimachi Line)
- Yokohama Campus
  5-minute walk from Nakagawa Station (Yokohama Municipal Subway [Blue Line])
- Todoroki Campus
  10-minute walk from Todoroki Station (Tokyu Oimachi Line)

Shibuya

The area attracts information and culture. With large retail buildings, movie theaters, clubs, and music venues, Shibuya is a cultural and global fashion trendsetter at the forefront of youth culture. A huge number of people come and go through the “scramble” crossing in front of the station—one of the scenes that symbolize modern Japan. Now, extensive redevelopment is underway around the station and the area is magically transforming itself.

Yokohama

Since opening in 1859, the port town has flourished as the gateway to Western culture. Yokohama is still heavily tinged with a distinctive, exotic atmosphere. In addition to popular tourist sites and the historic buildings of Motomachi, Chinatown, and Yamashita Park, the Yokohama Red Brick Warehouse has become a city landmark. The beautiful ocean view of the harbor at night is one of the attractions of the city.

About the Tokyo City University Group

Gotoh Educational Corporation has striven to create a unique private educational institution, providing consistent, high-quality education from kindergarten through university, with the aim of fostering people with a deeply humanistic outlook who can adapt to international society. The corporation offers comprehensive educational content taught by superior education and research staff, in a richly endowed educational environment. Our graduates have consistently attained strong academic achievements and success in their subsequent academic or business careers.
On April 1, 2009, the Musashi Institute of Technology made a new start as Tokyo City University with 16 courses organized in five undergraduate schools. This was achieved by adding two new humanities undergraduate schools, Urban Life Studies and Human Life Sciences to its existing faculties of Engineering, Knowledge Engineering, and Environment and Information Studies. A total of eight schools including three senior high schools, two junior high schools, one elementary school and one kindergarten took the name Tokyo City University to form the Tokyo City University Group in order to forge closer ties between the separate institutions.
The mission of the Tokyo City University Group is not only to provide knowledge and skills but also to promote sensibility and character, fostering talented people who are welcome around the world.
The mission of the Tokyo City University Group is not only to provide knowledge and skills but also to promote sensibility and character, fostering talented people who are welcome around the world.
What is shared by all schools is the challenging spirit of steady evolution towards the future.

The philosophy and objectives of the Tokyo City University Group

1. Educational philosophy

Foster people with a sound spirit, deep learning, and a focus on the future.

2. Educational objectives

Foster talented people with a sound spirit, deep learning, and an international perspective, who can use information skillfully in an international context.

3. Group vision

The Tokyo City University Group will face the future in a spirit of challenge, opening up unknown worlds.

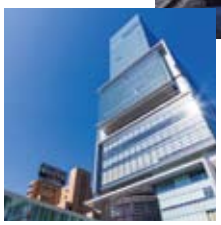
About the Tokyu Group

The Tokyu Group began as Meguro-Kamata Electric Railway Company in 1922.As of March 2012, the group comprises 255 companies and eight other incorporated bodies, headed by the Tokyu Corporation. The cornerstone of the group's business is urban development underpinned by transportation services. For many years its business portfolio has spanned the fields of real estate, lifestyle services, hotels and resorts, business support services and many other activities deeply embedded in the daily lives of its customers.

The group has adopted the slogan "Towards a Beautiful Age - The Tokyu Group" to articulate its mission of creating beautiful living environments attuned to a variety of individual values. Its member companies work together under the principle of corporate autonomy, advancing a synergistic process of "collaborative creation" and building a Tokyu brand that is both trusted and loved.

A proactive approach is also taken to grassroots community service, though work such as the operation of educational institutions and foundations, and the activities of Tokyu Associations nationwide.

Gotoh Educational Corporation plays a role in the social action of the Tokyu Group through its educational activities.



TOKYO CITY UNIVERSITY

http://www.tcu.ac.jp

Setagaya Campus

Graduate School of Engineering
Faculty of Engineering
Faculty of Knowledge Engineering

1-28-1 Tamazutsumi, Setagaya-ku, Tokyo 158-8557 Japan
Tel: +81-3-5707-0104 Fax: +81-3-5707-2222

Yokohama Campus

Graduate School of Environmental and Information Studies
Faculty of Informatics
Faculty of Environmental Studies

3-3-1 Ushikubo-nishi, Tsuzuki-ku, Yokohama, Kanagawa 224-8551 Japan
Tel: +81-45-910-0104 Fax: +81-45-910-2600

Todoroki Campus

Faculty of Urban Life Studies
Faculty of Human Life Sciences

8-9-18 Todoroki, Setagaya-ku, Tokyo 158-8586 Japan
Tel: +81-3-5760-0104 Fax: +81-3-3702-5576

TCU DATA FILES 2016

(As of May 1, 2016)

Staff

	Faculty of Engineering	Faculty of Knowledge Engineering	Faculty of Environmental Studies	Faculty of Informatics	Faculty of Urban Life Studies	Faculty of Human Life Sciences	Faculty of Liberal Arts and Sciences	Advanced Research Laboratories	International Center	Total
President / Vice President	4									4
Professors	51	21	11	15	10	6	12	4	1	131
Associate Professors	31	10	6	5	4	7	14	0	0	77
Full-time Lecturers	20	13	2	1	1	2	11	1	1	52
(Part-time Lecturers)	61	21	14	16	25	12	172	0	0	321
Research Associates	2	0	0	0	0	0	1	1	0	4
Assistants	2	1	0	0	0	0	3	0	0	6
Research Assistants	8	2	3	0	0	0	0	0	0	13
Technical Staff	18	5	0	0	0	0	1	0	0	24
Secretary general	1									1
Administrative Staff	92		29		21		-	-	-	142
Total of full-time Staff	281*1		72		51		42	6	2	454

*1: including the President / Vice President / Secretary general *: including specially-appointed teachers (Professors/Associate Professors/Lecturers)

(As of May 1, 2016)

Undergraduate Students

	1st grade	2nd grade	3rd grade	4th grade	Total
Faculty of Engineering					
Mechanical Engineering	104(5)	146(6)	105(6)	129(8)	484(25)
Mechanical System Engineering	91(8)	121(4)	105(10)	106(11)	423(33)
Nuclear Safety Engineering	30(2)	43(7)	37(3)	37(2)	147(14)
Biomedical Engineering			1(0)	4(0)	5(0)
Medical Engineering	56(11)	71(17)	62(18)	54(12)	243(58)
Electrical and Electronic Engineering	91(4)	117(8)	128(8)	126(6)	462(26)
Environment Energy Engineering	72(17)	78(19)	103(15)	58(3)	311(54)
Architecture	104(41)	124(39)	113(35)	139(35)	480(150)
Urban and Civil Engineering	87(8)	124(20)	101(8)	91(5)	403(41)
Subtotal	635(96)	824(120)	755(103)	744(82)	2958(401)
Faculty of Knowledge Engineering					
Computer Science	97(11)	108(19)	109(12)	108(16)	422(58)
Information Network Engineering			5(0)	14(1)	19(1)
Information and Communication Engineering	61(7)	75(6)	71(9)	65(6)	272(28)
Industrial & Management System Engineering	76(9)	80(13)	105(10)	101(11)	362(43)
Natural Sciences	26(10)	32(9)	35(14)	38(18)	131(51)
Subtotal	260(37)	295(47)	325(45)	326(52)	1206(181)
Faculty of Environmental and Information Studies					
Environmental and Information Studies				43(4)	43(4)
Information Ecology Studies				40(2)	40(2)
Subtotal				83(6)	83(6)
Faculty of Environmental Studies					
Restoration Ecology and Built Environment	89(16)	103(21)	93(19)	107(30)	392(86)
Environmental Management	71(8)	71(17)	68(18)	139(26)	349(69)
Subtotal	160(24)	174(38)	161(37)	246(56)	741(155)
Faculty of Informatics					
Sociology and Media Studies	99(46)	104(42)	91(33)	101(41)	395(162)
Information Systems	101(19)	115(24)	99(19)	121(32)	436(94)
Subtotal	200(65)	219(66)	190(52)	222(73)	831(256)
Faculty of Urban Life Studies					
Urban Life Studies	169(67)	175(76)	166(63)	205(93)	715(299)
Faculty of Human Life Sciences					
Child Studies	104(91)	103(93)	97(82)	112(102)	416(368)
Total	1528(380)	1790(440)	1694(382)	1938(464)	6950(1666)

* The number of women is shown in parentheses and included in the total

(As of May 1, 2016)

Graduate Students

	Master's programs		Doctoral Programs			Total
	1st grade	2nd grade	3rd grade	4th grade	5th grade	
Graduate School of Engineering						
Mechanical Engineering	27(2)	28(0)	1		1	57(2)
Mechanical System Engineering	38(0)	29(3)	1	1	1	70(3)
Electrical and Electronic Engineering	46(2)	26(1)	2	1	1	76(3)
Biomedical Engineering	18(5)	24(4)	1			43(9)
Information Engineering	41(1)	28(2)	3		1	73(3)
Architecture	19(3)	29(5)		1(1)	2(1)	51(10)
Civil Engineering	34(3)	18(7)	7			59(10)
Systems Information Engineering	15(1)	21(3)				36(4)
Chemistry and Energy Engineering	12(2)	20(2)	1			33(4)
Cooperative Major in Nuclear Energy	15(1)	16(1)				31(2)
Subtotal	265(20)	239(28)	16	3(1)	6(1)	529(50)
Graduate School of Environmental and Information Studies						
Graduate School of Engineering	13(5)	18(6)	1	2(1)	1	35(12)
Urban Life Studies	3(1)	5(0)				8(1)
Subtotal	16(6)	23(6)	1	2(1)	1	43(13)
Total	281(26)	262(34)	17	5(2)	7(1)	572

* The number of women is shown in parentheses and included in the total

(As of May 1, 2016)

International Students

	Graduate School of Engineering	Graduate School of Environmental and Information Studies	Faculty of Engineering	Faculty of Knowledge Engineering	Faculty of Environmental and Information Studies	Faculty of Environmental Studies	Faculty of Informatics	Faculty of Urban Life Studies	Faculty of Human Life Sciences	Total
Indonesia	-	-	1	-	-	-	1	-	-	2
Kazakhstan	-	-	1(1)	-	-	-	-	-	-	1(1)
Saudi Arabia	-	-	3	1	-	-	-	-	-	4
Belarus	-	-	-	1	-	-	-	-	-	1
Malaysia	-	-	2(1)	-	-	-	-	1(1)	-	3(2)
Mongol	-	-	1(1)	-	-	-	-	-	-	1(1)
Thailand	-	-	2	-	-	-	-	-	-	2
Nepal	1	1	-	-	-	2	-	-	-	4
Vietnam	1	-	1	-	-	-	1	-	-	3
Korea	-	-	1	-	-	-	-	-	-	1
Taiwan	-	-	1	-	-	-	-	-	-	1
China	10(5)	5(4)	11(4)	1	1	3(1)	1	7(4)	-	39(19)
Total	12(5)	6(4)	24(7)	3	1	5(1)	3(1)	8(5)	-	62(23)

* The number of women is shown in parentheses and included in the total

Alumni Number of graduated students in 2016

		Total
Faculty of Engineering		
Faculty of Engineering		699(71)
Faculty of Knowledge Engineering		246(33)
Faculty of Environmental and Information Studies		434(110)
Faculty of Urban Life Studies		156(81)
Faculty of Human Life Sciences		109(87)
Faculty of Knowledge Engineering		
Graduate School of Engineering	Master's program	265(24)
	Doctoral program	3(0)
Graduate School of Environmental and Information Studies	Master's program	7(2)
	Doctoral program	1(0)

(As of May 1, 2016)

* The number of women is shown in parentheses and included in the total