Graduate School of Engineering

Tottori University

1. Graduate school code	－
2. Maximum number of participants	3 participants for every year
3. Fields of Study	【Engineering】 ☑Manufacturing Engineering ☑Civil Engineering ☑Electrical and Electronics Engineering ☑Mechanical Engineering ☑Chemical Engineering ☑Environmental Engineering ☑Geology and Mining Engineering ☑Other Engineering Fields 【Agriculture (including Fishery, Dairy and Livestock) 】 ☐Irrigation, Water and Soil Management ☐Crop Science ☐Biochemistry ☐Microbiology ☐Food Science ☐Livestock Science / Veterinary and Animal Medicine ☐Marine Fisheries Science ☐Forest Resources ☐Horticulture ☐Agricultural Engineering ☐Other Agricultural Fields ☐ICT ☐Science ☐Marine Science ☐Commerce ☐Economics / Business Administration ☐Medical Science ☐ Social Welfare ☐Tourism ☐Political Science / Public Administration ☐Others( )
4. Program and Degree	(1) Special Program for Foreign Students / Master's Degree in Engineering
5. Standard time table (Years needed for graduation)	☐ 1 year as a Master's Student ☐ 2 years as a Master's Student ☐ Starting as a Research Student up to 6 months, then 2 years as a Master's Student after passing the entrance exam ☑ 2 years as a Master's Student OR Starting as a Research Student up to 6 months, then 2 years as a Master's Student after passing the exam. (Depend on the capacity of the applicants)
6. Language of program	(1) Lecture: All lectures in English (2) Text: English but Japanese text will be used partially while English instructions are given orally. (3) Laboratory work: In conducting research, the supervisor generally instructs in English, including safety instructions. (4) Seminar: Seminars including Japanese students are generally in Japanese, but there are many occasions where foreign students can

	interact in seminars in English. (5) Thesis Guidance by academic supervisor is regularly conducted in English.
7. Desirable English level and Necessary Academic background	(1) TOEFL IBT:80, PBT:550 is required (2) At least 16 years of academic background or equivalent
8. Prior Inquiry From Applicants (Before Submission of Application Documents)	✔Must / Ideal / Not mandatory / Unnecessary / Not allowed E-mail Address for inquiries: To: en-kyoumu@adm.tottori-u.ac.jp cc: en-daigaku@adm.tottori-u.ac.jp
9. Website	(1) Graduate School of Engineering http://www.tottori-u.ac.jp/dd.aspx?menuid=3031 (2) Tottori University http://www.tottori-u.ac.jp/dd.aspx?menuid=2828

10.Professors and Associate Professors

The names and research subjects of the teaching staff for the special program are as follows. Prospective supervisors are marked with ◎.

Department of Mechanical and Aerospace Engineering

Name	Research Subjects
◎OBATA, Yoshihiro IWASA, Takashi	・Study on thermal stresses and related topics ・Study on tactile warmth between human body and materials ・Study on thermo property of woody materials ・Study on mechanical characteristic of flexible space structures ・Study on analysis method for membrane structures
◎CHEN, Zhongchun ONDA, Tetsuhiko	・Fabrication and characterization of thermoelectric materials ・Metal-matrix, ceramic-matrix and clad composites ・Coextrusion of ceramic composites for solid oxide fuel cells ・Martensitic transformation of zirconia and its application to transformation toughening of engineering ceramics ・Powder metallurgy, deformation processing and heat treatment
◎MIYACHIKA, Koitsu ONO, Yuichi	・Study on weight reduction and strengthening of power transmitting gears ・Study on residual stress and hardened layer due to heat treatment ・Study on machine condition monitoring and diagnosis by AE ・Study on transmission efficiency and tribology of traction drive ・Study on fatigue damage evaluation of metals ・Study on experimental stress analysis
◎SATO, Masahiko	・Machining accuracy and chatter stability in ball end milling of sculptured surface ・Precision machining of die ・Experimental and theoretical study of temperature in machining ・Machining of difficult-to-cut materials
◎KOIDE, Takao TAMURA, Atsutaka	・Study on vibration and noise of machines ・Development of abnormality detection method of machines ・Study on injury biomechanics ・Human body modeling and mechanical characterization of biological materials
◎NISHIDA, Shin-Ichiro	・Robots for hazardous environment

SAKURAMA, Kazunori	・Advanced Teleoperation ・Vison based control system ・Development of advanced air-vehicle ・Distributed control of power network ・Formation control of multiple robots
◎OHSAWA, Katsuyuki ODA, Tetsuya	・Research on liquid fuel atomization and spray combustion ・Developments of spray measurement technique ・Research on engine noise, vibration and lubrication ・Engine combustion analysis and emission reduction ・Thermodynamics and energy conversion
◎KAWAZOE, Hiromitsu MATSUNO, Takashi	・Aerodynamic analysis of a delta wing and a flight vehicle in unsteady motion and an object in flow field ・Research on supersonic/hypersonic flow by experiments with a shock/arc plasma tunnels ・Study on material surface change by surface wave plasma ・Active flow control using plasma actuators ・Research of flow field by numerical simulations
◎FUJIMURA, Kaoru	・Nonlinear phenomena-modeling and weakly nonlinear analysis ・Stability, bifurcation, and pattern formation in fluid motions
◎ISHII, Akira	・Atomic and electronic structure nano scale surface structures ・Mathematical model for socio dynamics
HOSHI, Takeo	・Ultra-large-scale electronic structure theory and nano-structure process ・Algorithm design for large-freedom physical simulations (ex. krylov subspace theory, parallel computation, optimality-guaranteed algorithms)
FURUKAWA, Masaru	・Wave phenomena in magnetized plasmas ・Theory of singular perturbation
◎GOTO, Tomonobu	・Motion of microorganisms and mass transfer from/into them ・Mechanism of aeroacoustic sound generation and its control
◎FUKUI, Shigehisa MATSUOKA, Hiroshige	・Research on molecular gas/liquid-film lubrication ・Research on computational tribology ・Research on dynamics of information storage systems
HARA, Yutaka	・Research and development of advanced technology of wind turbine ・Research on time varying
◎KOTANI, Takao	・Methodological development of the first-principles electronic-structure calculations, especially, to include electronic correlations. ・Reliable prediction of the fundamental physical properties for materials such as transition-metal compounds. ・First principles study on atomic structure of materials. ・In particular, surface structures and phase transition of structures.

Department of Information and Electronics

Name	Research Subjects
◎KITAMURA, Akira TAKEMORI, Fumiaki	・Advanced control of large scale process ・Optimum scheduling of manufacturing process ・Intelligent manufacturing by semantic Web ・Data oriented modeling and learning ・Control design of human power assist system ・Intelligent control for mobile robot
◎YOKOTA, Takayoshi ARII, Shiro	・Geographical information processing ・Optimization of transport systems ・Modeling and control of moving objects ・Stereo robot vision ・Optimum trajectory for flexible manipulator ・Integrated design of mechanism and control system for flexible multi-body system
◎SUGAHARA, Kazunori	・Embedded systems ・Computer networks

TAKAHASHI, Kenichi	・Network and information security ・Agent system
◎KAWAMURA, Takao	・Distributed systems ・Social information systems
◎MURATA, Masaki MURAKAMI, Jinichi TOKUHISA, Masato	・Natural language processing ・Information retrieval, information extraction ・Machine translation ・Affective/sentiment analysis ・Speech recognition ・Speech synthesis ・Machine learning
◎TANAKA, Mieko	・Econophysics, Financial time series, Multiagent system, Information analysis for noninvasive diagnosis
SHIMIZU, Tadaaki	・Digital speech signal processing ・Signal processing using neural networks
◎KIMURA, Syuhei	・Evolutionary computation system ・Bioinformatics
◎IWAI, Yoshio	・Computational Interraction ・Pattern Recognition ・Human Media Processing
◎LI, Shigang	・Robot vision ・Intelligent transportation system & autonomous mobile robot ・Integration of the visual and auditory senses
◎NAKANISHI, Isao	・Digital signal processing ・Speech signal processing ・Biometrics authentication system
◎ITOH, Yoshio	・Adaptive signal processing ・Digital signal processing ・Digital communication system
◎KONDO, Katsuya	・Computer vision ・Bioimage analysis and medical engineering ・Development of smart measurement control system
◎YOSHITOME, Takeshi	・System LSI design for video encoding ・3D video compression technique
ISHIDA, Masaru	・Synthesis of Active filter ・Synthesis of Immittance function ・Microwave Circuit Design
◎KISHIDA, Satoru	・Oxide electronics including high-Tc superconductors and resistive-RAM ・Surface analysis for fabrication of devices ・Micro-Electrical-Mechanical-Systems ・Applications of neural networks for security and individual identification
◎NISHIMURA, Ryo	・Development and assessment of electric energy systems ・Smart-grids system with distributed power sources and electric storages ・Renewable energy （PV power generation） ・Electrostatics and high voltage technology
◎OHKI, Makoto	・Application of evolutionary computation, genetic algorithm ・Development of image processing hardware and software ・Application of neural network ・Combinatorial problems such as scheduling problems, production Control problems and management problems
◎ICHINO, Kunio	・Crystal growth of wide band gap semiconductors for optical devices ・Study on high-efficiency solar cells ・Study on high-efficiency ultraviolet/visible light-emitting devices
◎OHMI, Koutoku	・Research on electroluminescent displays ・Research on phosphors for plasma display applications ・Research on phosphors for white LED applications
KINOSHITA, Kentaro	・Research on functional oxides (especially for memory devices) ・Research on miniaturization technique for circuits and electronic devices ・Design of materials and device structures using first-principle analysis
KITAGAWA, Masahiko	・Advanced molecular and biological electronic materials and thin films ・Organic electroluminescence and reliability

	・Organic solar cells and systems ・Advanced light appliance for environmental solutions
ABE, Tomoki	・Development of optical detectors and modulators of wide gap semiconductors (blue-ultraviolet PIN-APD detectors, blue optical modulators) ・Application of micro-defect control technology in wide gap semiconductor devices ・Exciton physics and its control in widegap semiconductor crystals and devices
◎LEE Sang-Seok	・MEMS devices for bio/chemical/medical applications ・Micro/nano technologies for aerospace applications ・Design and application of metamaterial ・RFMEMS and PowerMEMS devices

Department of Chemistry and Biotechnology

Name	Research Subjects
◎KATADA, Naonobu	・Control of pore-opening size of zeolite by chemical vapor deposition ・Measurement of solid acidity of zeolite and its application to catalytic reaction ・Creation of molecular-recognition site on metal oxides using a template molecule ・Structure of Pd loaded on zeolite and its application to environmental catalysis ・Characterization of active centers in heterogeneous catalysts with X-ray absorption spectroscopy ・Synthesis and catalysis of Nb-W nano fiber oxides
◎ NANJO, Masato	・Application of ionic ,liquids to electrochemical devices ・Development of functional electronic materials using organosilicon compounds.
◎SAKAGUCHI, Hiroki USUI, Hiroyuki	・Synthesis of lithium storage intermetallic compounds and their properties as anode materials in lithium batteries ・Development of all solid-state secondary batteries ・Design, preparation and characterization of new type of high density hydrogen storage materials
◎MATSUURA, Kazunori	・Creation and application of artificial virus structures ・Construction of nanostructures by self-organization of biomolecules ・Creation of artificial bio-systems
◎KOBAYASHI, Kazuhiro	・Synthesis of heterocyclic compounds ・Synthesis of biologically active compounds
◎SAIMOTO, Hiroyuki IFUKU, Shinsuke	・Synthesis and reaction of polyols ・Synthesis and utilization of chiral compounds ・Efficient utilization of untapped resources ・Development of bionanofiber materials ・Preparation of functional materials from biomacromolecules
◎ITOH, Toshiyuki NOKAMI, Toshiki FUKAYA, Yukinobu	・Development of enzymatic reaction in an ionic liquid solvent system ・Development of iron salts-catalyzed reaction ・Synthesis of partly fluorinated analogues of biologically active molecules ・Chemical glycosylation for oligosaccharide synthesis ・Organic materials for energy storage devices. ・Creation and application of functional ionic liquids ・Development of polar ionic liquids for energy-efficient biorefinery
◎TAMURA, Jun-ichi	・Synthesis of bioactive oligosaccharides ・Isolation and characterization of bioactive glycans from natural sources
MORIMOTO, Minoru	・Utilization of biopolymers ・Analysis of bio-related compounds
◎OHSHIRO, Takashi SUZUKI, Hirokazu	・Discovery and application of novel functions of microorganisms and marine algae ・Application and development of the functions of microorganisms and marine algae to the practical production of useful substances and the solutions of environmental problems ・Fundamental studies: enzymology, molecular genetics, and protein engineering of enzymes involved in the metabolisms of physiologically active substances and new generation carbon sources in microorganisms

	and marine algae
◎YANASE, Hideshi OKAMOTO, Kenji HARADA, Hisashi	・Metabolic engineering of a biofuel-producing microorganism ・Molecular architecture of a secretion apparatus on a cell-surface of gram-negative bacteria ・Design of a biocatalyst targeting an environmental pollutant ・Production of lignocellulose-degrading enzymes, ethanol and xylitol by basidiomycetes ・Biofiltration of volatile organic compounds ・Pathway engineering for the production of functional isoprenoids
◎KAWATA, Yasushi MIZOBATA, Tomohiro	・Structure and function of enzyme and protein ・Protein folding ・Protein stability and conformational change
◎KISE, Naoki SAKURAI, Toshihiko	・Enantioselective synthesis of physiologically active compounds ・Stereo selective synthesis using electron transfer reaction ・Organic synthesis of functional biomacromolecules ・Design and characterization of supramolecular biomaterials
◎NAGANO, Shingo HINO, Tomoya	・Integrative structural biology of natural products ・Structural biology of gas molecules and bioenergetics ・Structural biology of thermal sensation ・Structural biology of membrane proteins

Department of Management of Social Systems and Civil Engineering

Name	Research Subjects
◎TANIGUCHI, Tomoyo ONO, Yusuke	・Structural design of infra-, mechanical and offshore structures ・Earthquake-resistant performance of infra-, mechanical and building structures ・Maintenance of infra-,mechanical and offshore structures ・Earthquake response analysis of civil structures ・Simulation of earthquake disasters
◎KURODA, Tamotsu YOSHINO, Akira	・Self-compacting, high strength and multi-functional concrete ・Application of industrial waste products to concrete ・Durability assessment of concrete and concrete structures ・Repair and strengthening for concrete and concrete structures ・Prediction of deterioration and maintenance for concrete structures
NAKAMURA, Koichi	・Constitutive properties of saturated and unsaturated soils ・Prevention and reduction of ground disasters ・Dynamic properties of soils ・Slope disaster mitigation and monitoring
◎NISHIMURA, Tsuyoshi NARA, Yoshitaka	・Mechanics and numerical modeling of discontinuous rock mass ・Tunnel support/reinforcement mechanics based on the NATM concept ・Rock slope stability and landslide hazard protection ・Fracture mechanics of rock ・Elastic property of rock
◎HINOKIDANI, Osamu ◎YAJIMA, Hiroshi	・River hydraulics ・River engineering ・Hydro-meteorology ・River and lake environment
◎MATSUBARA, Yuhei ◎KUROIWA, Masamitsu	・Coastal geomophlogical change by waves and currents ・Development of environmental evaluation methods in coastal zone ・Wave force acting on fishery structures
◎KAGAWA, Takao SHIOZAKI, Ichiro	・Strong ground motion estimation ・Effects of fault rupture process and surface geology on earthquake ground motion ・Seismological and EM (electromagnetic) study on structure and dynamics of crust and upper mantle ・EM Applications on seismology and volcanology
ASAI, Hideko	・Architectural Planning ・Architectural Environment
◎TOKUNO, Koichi	・Quantitative quality evaluation for service-oriented systems

KOYANAGI, Junji	・Applied probability ・Reliability and maintenance theory ・Queuing system
◎YAMADA, Shigeru	・Software quality/ reliability assessment modeling and its evaluation ・Development of practical software management tools ・Development and application of project management methodologies ・Availability and safety assessment methodologies for hardware/ software systems ・New methods for statistical quality control and their application in TQM (total quality management)
◎FUKUYAMA, Kei KUWANO, Masashi	・Institutional design and analyses of regional socio-economic systems ・Economic analyses of urban systems ・Public policy evaluation ・Activity – travel behavior analysis ・Infrastructure planning and management, transportation engineering, and urban planning ・Local disaster prevention planning ・Participatory risk communication
◎TANIMOTO, Keishi TSUCHIYA, Satoshi	・Methodologies for sustainable society planning ・Planning theory of local transport system ・Design and analysis of daily support services ・Disaster risk assessment and management for transportation system
◎MATSUMI, Yoshiharu OTA, Takao	・Soft- disaster prevention based on evacuation simulation ・Ocean-air coupled modeling ・Performance evaluation of coastal structures under damage progression ・Maintenance management model for infrastructure
MASUDA, Takanori	・Maintenance and management of water and waste water system ・Water quality control and management ・Current issues in global environmental protection

11. Features of Graduate School

Graduate School Programs

We recognize the importance of an advanced training in the field of engineering. There is a strong demand for engineering personnel who have acquired an advanced expertise in the field. In addition, the graduate education of engineering has become commonplace in the international arena. The need for advanced level qualifications for international cooperation and international joint business ventures has been widely recognized. The educational goals of our graduate course program are as follows.

Educational Goals of the Master's Degree Program

The aim of the Master Program is to develop advanced engineers and researchers who can carry out innovative research and development in their fields. We develop students a good educational foundation, a high-level technology and advanced research skills honed through academic research activities. Since education at this level is basically inseparable from the development of research skills, the program aims to instill in students an advanced level of knowledge and expertise as a continuation of the four year undergraduate program. Graduate students on the program therefore develop skills as researchers through carrying out actual research work and are taught to acquire the ability to harmonize knowledge and skills as a unified whole.

Educational targets of the Master Program

The ability to master from experience key methods for integrating studied knowledge, discovering new

problems and issues, and for taking an appropriate stance to effectively address these.

Student guidance for study and research takes place as part of the research laboratory system. This system provides students with individual counseling by two or more professors with the aim of developing advanced engineering experts and researchers involved in innovative research and development.

The program aims to provide students with a strong academic foundation, with solid research abilities honed through practical research and with an advanced technical education centering on the acquisition of topic assessment, analytical thinking and problem solving skills.

The program ultimately aims at developing research specialists capable of carrying out sustained research at an advanced level in a variety of academic fields who will continue their work to the PhD level.

12. Features and Curriculum of Program

Department of Mechanical and Aerospace Engineering

Possessing the human resources necessary for meeting a wide variety of needs in engineering fields, the Department of Mechanical and Aerospace Engineering nurtures high-level engineers and researchers who are able to develop technologies from an interdisciplinary perspective, rather than from a stereotyped viewpoint. They are not restricted to just mechanical engineering, but are also proficient in the fields of aerospace, material, electronic, information, and environmental engineering. Our division allows students to acquire high-levels of expertise and engage in original research; this enables them to develop so that they can aggressively assume leadership in solving problems. Specifically, students are trained to acquire the following:

(1) A broad, fundamental knowledge of mechanical engineering, and also advanced expertise in applied mathematics, mechanics, and physics, which provides a foundation for entering advanced interdisciplinary engineering fields such as space engineering

(2) A flexible way of thinking and insight to view problems macroscopically by considering the harmony between the natural environment and human society, and also leadership to solve problems systematically.

Applicants are expected to appreciate this policy and to be highly motivated. They are required to possess academic attainments in mathematics and physics employed in engineering as well as linguistic ability.

Department of Mechanical and Aerospace Engineering consists of two fields. The subjects of education, research and development of each field are as follows.

（Subject）

Advanced Elastic Mechanics
Computational Mechanics
Advanced Materials Science
Combustion Engineering
Fluid Mechanics (Creeping Flows)
Advanced Gas Dynamics
Applied Aerodynamics
Supersonic and Hypersonic Aerodynamics
Renewable Energy
Nanotribology
Advanced lectures in computational algorithm
Advanced Lectures on Solid State Physics
Special Seminar on Mechanical and Aerospace Engineering Ⅰ
Special Seminar on Mechanical and Aerospace Engineering Ⅱ
Special Seminar on Mechanical and Aerospace Engineering Ⅲ
Special Seminar on Mechanical and Aerospace Engineering Ⅳ
Special Research on Mechanical amd Aerospace Engineering

Advanced Mechanical Vibrations
Mechanical System Dynamics
Heat Transfer
Advanced Mechanical Behaviors of Materials
Advanced Machine Design
Fracture Mechanics
Advanced Machining Technology
Manufacturing Systems Engineering
Modern Control System Theory
Control Systems Design
Seminar in Fluid Dynamics Ⅰ
Seminar in Fluid Dynamics Ⅱ
Advanced Experiments and Exercises in Mechanical Engineering
Advanced Exercises in Mechanical Engineering
Strategic Management
Marketing
Applied Mathematics Ⅰ
Applied Mathematics Ⅱ
Symmetry in Mathematics Ⅰ
Symmetry in Mathematics Ⅱ
Mathematical Physics Ⅰ
Mathematical Physics Ⅱ
Weakly Nonlinear Analysis
Stability of Fluid Motions
Physics for Complex Systems
Applied Mathematics and Frontier of Engineering
Elementary Plasma Physics
Special Seminar in Applied Mathematics and Physics Ⅰ
Special Seminar in Applied Mathematics and Physics Ⅱ
Special Project in Applied Mathematics and Physics
Internship
Long-term internship
Science in Industries
International cooperative research

Mechanical Engineering

Solid Mechanics, Materials Science and Engineering, Reliability and Design Engineering, Precision and Production Engineering, Mechanical Dynamics and Mechatronics, Control and Robotics, Thermal Energy Engineering, Fluid Engineering

Applied Mathematics and Physics

Fluid dynamics, Condensed matter physics, Non-linear dynamics, Nanomechanics, Biomechanics, Thermodynamics

Department of Information and Electronics

In this department, there are two fields which aim to produce engineers and researchers, as listed below.

（Subject）
Intelligent System&Control
Advanced Analog Electronic Circuit Theory

Advanced Speech Processing
Prediction and Decision Makings
Advanced Computational Interaction
Advanced Lecture of Control Theory
Data Analysis
Mechatronics
Computer Interface Design
Advanced Bioinformatics
Advanced Digital Signal Processing
Image Processing Engineering
Circuits and Systems Engineering
Theory and application of electrostatics
Quantum Mechanics
Solid State Physics
Semiconductor Device Engineering
Topics on Information and Electronic Engineering Ⅰ
Topics on Information and Electronic Engineering Ⅱ
Topics on Information and Electronic Engineering Ⅲ
Special Research in Information and Electronics
Production Planning and Management
Software Architecture
Advanced Knowledge Base of Languages
Probablistic Information Processing
Advanced Pattern Recognition
Advanced Programming
Information Network
Soft Computing
Advanced Natural Language Processing
Artificial Intelligence
Advanced Theory of Evolutionary Systems
Localization and Map Data Processing
Advanced Experiments and Exercises in Information Science and Engineering Ⅰ
Advanced Experiments and Exercises in Information Science and Engineering Ⅱ
Advanced Laboratory and Exercises in Electrical and Electronic Engineering Ⅰ
Advanced Laboratory and Exercises in Electrical and Electronic Engineering Ⅱ
Advanced Digital and Analog Communication Systems
Intelligent and Electronic Information Processing
Advanced System Analysis Engineering
Design methodology for system LSIs
Advanced Topics on MEMS
Neural Networks Ⅰ
Advanced Solid State Electronics
Oxide Electronics
Physics of Magnetism
Internship
Long-term internship
Science in Industries
International cooperative research

Information and Knowledge Engineering

We aim to produce IT engineers and researchers who have the ability to create advanced information-oriented society of the future and bring them to practice. Especially, we focus on producing human resources with the balanced knowledge of both hardware and software through the education of advanced computer, its application to intelligent system etc. We have the research and educational program from the basic to the application covering various computer related fields such as construction of intelligent system, advancement of computer system and computer aimed technology.

Electrical and Electronic Engineering

We cover a wide range of technologies such as highly efficient device, advanced communication technology, software and hardware, and aim to produce world class engineers. In detail, our aims can be pointed out as,

- better technical knowledge of electric and electronics
- basic intellectual and ethical ability
- ability to discover difficult problems and their solution
- spirit to serve the international society

We accept those students who are interested in electric and electronics fields.

Department of Chemistry and Biotechnology

The goal of the Department of Chemistry and Biotechnology is to educate engineers and researchers that are competent in the fields of industrial chemistry and biotechnology. To this end, this department provides students with a highly specialized curriculum at the graduate level. The department is composed of two fields, Applied Chemistry Field and Biotechnology Field.

（Subject）

Green Chemistry
Advanced Design of Heterogeneous Catalyst
Advanced Structural Chemistry
Applied Synthetic Organic Chemistry
Advanced Organic Materials Design
Advanced Inorganic Materials Chemistry
Advanced Solid-state Physical Chemistry
Advanced Lecture in Application of Bioresource
Advanced Course on Microbial Biotechnology
Advances of Enzyme Technology
Mechanism and Function of Biomolecules
Advanced Bioorganic Chemistry
Advanced Biological Chemistry
Advanced Biophysical chemistry
Advanced Structural Biology
Applied Chemistry Ⅰ
Applied Chemistry Ⅱ
Current Topics in Biotechnology Ⅰ
Current Topics in Biotechnology Ⅱ
Special Research in Chemistry and Biotechnology
Advanced Surface Chemistry
Advanced Organometallic Chemistry
Advanced Synthetic Chemistry

Homogeneous Catalysis by Metal Complexes
Advanced Organic Materials Chemistry
Materials Science Based on the Organic Chemistry
Inorganic Element Chemistry
Advanced Experiments and Exercises in Synthetic Chemistry Ⅰ
Advanced Experiments and Exercises in Synthetic Chemistry Ⅱ
Advanced Experiments and Exercises in Synthetic Chemistry Ⅲ
Advanced Experiments and Exercises in Synthetic Chemistry Ⅳ
Advanced Microbial Physiology
Supramolecular Chemistry
Advanced Genetic Engineering
Advanced Protein Engineering
Biocatalyst Function and Development
Bioseparation Engineering
Advanced Experiments and Exercises in Biotechnology Ⅰ
Advanced Experiments and Exercises in Biotechnology Ⅱ
Advanced Experiments and Exercises in Biotechnology Ⅲ
Advanced Experiments and Exercises in Biotechnology Ⅳ
Internship
Long-term internship
Science in Industries
International cooperative research

Applied Chemistry

We have classes that teach basic concepts in organic, inorganic, and physical chemistries, followed by advanced classes for organic and inorganic materials chemistry, organic and inorganic synthetic chemistry, catalyst chemistry, and electrochemistry. In addition, we place an emphasis on hands-on training under laboratory conditions in addition to classroom teaching to experience and analyze various chemical processes.

Biotechnology

Our goal is to provide students with knowledge that would allow them to seek new ways to combine nature and human society in harmonious ways, through the discovery of novel reactive mechanisms and useful compounds at the interface of biology (the study of living organisms and living systems) and engineering (the application of scientific principles to industry). Specifically, this field provides classes to apply the various mechanisms in bacterial or various cellular metabolism and replication to the production of various compounds and polymers, as well as to the removal of harmful chemicals from the environment. The student who enters these fields is assigned to a laboratory, and he/she will undergo basic training to become an engineer or a researcher through performing cutting-edge research.

We welcome students who possess a demonstrable grasp of scientific principles and techniques at the university level, and who are interested in becoming an active engineer or researcher in fields related to chemical industry, nanotechnology, biotechnology, and bioscience.

Department of Management of Social Systems and Civil Engineering

Objective of the Department of Management of Social Systems and Civil Engineering is to train engineers who not only create abundant society through wide-ranging practices of improvements to the infrastructure, creation and activation of safety local community, but also pursue soft and hard wares methodology to create comfortable and active society by the education of highly-professional knowledge/technology and researches.

（Subject）
Engineering of Disaster Prevention
Advanced Transportation Planning
Advanced Reliability Design of Structures
Advanced Information Systems
Advanced Course of Stochastic Systems
Advanced Engineering Systems Analysis
Environmental System Engineering
Structural Engineering
Advanced Theory of Geospheric Structure and Dynamics
Solid Earth Sciences
Advanced Coastal Engineering
Environmental Management of Coastal Area
Strategic Management
Marketing
Advanced Risk Management
Special Topics Ⅰ in Management of Social Systems and Civil Engineering
Special Topics Ⅱ in Management of Social Systems and Civil Engineering
Special Topics Ⅲ in Management of Social Systems and Civil Engineering
Special Topics Ⅳ in Management of Social Systems and Civil Engineering
Special Research in Management of Social Systems and Civil Engineering
Advanced Structural Dynamics
Advanced Structural Materials
Properties of Concrete
Advanced Theory of Construction Engineering
Advanced Rock Mechanics
Mechanical and Physical Properties of Rock
Advanced Geotechnical
Advanced Hydraulic Engineering
Advanced Coastal Hydraulics
Colloquium Ⅰ in Civil Engineering
Colloquium Ⅱ in Civil Engineering
Advanced Laboratory and Exercises in Civil Engineering
System Quality Management
Advanced Operation Research
Regional Economics
Regional Management Engineering
Disaster Prevention System
Environmental Management Engineering
Colloquium Ⅰ in Social Management Engineering
Colloquium Ⅱ in Social Management Engineering
Advanced Laboratory and Exercises Ⅰ in Management of Social Systems
Advanced Laboratory and Exercises Ⅱ in Management of Social Systems
Internship
Long-term internship
Science in Industries
International cooperative research

Civil Engineering

This field cultivates skillful engineers who have knowledge of plan, design, construction and management of social infrastructures. To achieve the objective, this field seeks motivated, wide perspective and problem-solving oriented persons who are eager to learn the construction technology which supports manufacturing activities, who are interested in creating space for human living, and who consider harmony with the nature.

Social Management Engineering

This field aims at training engineers who can contribute to realization of better society through planning and design of systems on urban, traffic, environment, disaster prevention, management, production, and telecommunication. Objective of the training is to provide students with the ability for solving problems with an engineering approach comprising humanities and social science, and learning systematic consideration to solve problems in the modern society. The field seeks students who have a passion to realize comfortable life and abundant society, who have idea looking things analytically and also who have strong will to overcome difficulties with figuring out.

13. Internship program

Internship program will be arranged by JICA.

14. Academic schedule

For the students qualified for entering the special program from October

(1) Entrance Ceremony: October

(2) Semesters:

First Semester: October – March

Second Semester: April – September

(3) Long-term vacations:

Summer Vacation: August – September

Spring Vacation: March

(4) Major Events:

University Festival (Fuumon-sai): October

For the students qualified as research students to start the special program from April

(1) Entrance Examination: December

(2) Entrance Ceremony: April

(3) Semesters:

First Semester: April – September

Second Semester: October – March

(4) Long-term vacations:

Summer Vacation: August – September

Spring Vacation: March

(5) Major Events:

University Festival (Fuumon-sai): October