STUDENT HANDBOOK

FY2020

Educational Policy of Graduate School of Engineering and Science

1. Purposes of Education and Research

【Master's Program】

The aim of the Master's Program is to train engineers and researchers, who not only have the wisdom and knowledge in their field of specialization, but who are also able to react to the changes in society and use this proactivity as an asset to contribute to the community. Demanded from these professionals is the ability to recognize and solve multiple problems, a skill backed up by a high level of expertise. To foster these skills the Master's Program develops education and research to which an international and broad mindset as well as flexible thinking are essential.

＜Electrical Engineering and Computer Science Course＞

Today, it is impossible to construct advanced and rich social systems without using the technologies in electrical, electronic, and communications engineering, and computer science. In order to respond to the social demand for such technologies as an industrial foundation, the Electrical Engineering and Computer Science Course aims to nurture outstanding engineers and researchers with the following points set as its main educational goals: 1. Acquisition of a high level of specialized knowledge and the development of applied skills; 2. Discovery of problems and the development as well as training of problem-solving skills; 3. Development of presentation and communication skills; 4. Development of cooperativeness and nurturing a sense of ethics.

In order to accomplish the goals described above, the areas taught in this course extensively cover subjects in electrical engineering and computer science, enabling the course structure to deal with most of the issues and problems in that area. In addition, the course has been developed to be responsive to innovative and original themes, future development of which is expected.

Actually, this course has been formed by uniting different electronic-related departments and faculties to realize the graduate level education, which goes far beyond the basic framework of faculties and departments. Furthermore, this course is divided into eight specialized fields - namely, (1) Materials and Devices, (2) Circuit and Control, (3) Power and Energy, (4) Communication, (5) Information, (6) Informational Science, (7) Robotics and Mechatronics, and (8) Bioengineering – and has an extensive number, over 50, of teaching staff who form the education and research system to accommodate students requests.

＜Materials Science and Engineering Course＞

Materials have always played an important role in human society. In order to respond to social needs, the Materials Science and Engineering Course aims to nurture technological engineers and researchers who have the capabilities to: grasp the essence of problems; invent research methods to solve problems; and make use of specialized knowledge for actual development. The main research themes in this course are to build academic knowledge based on new scientific perspective on all the material creations, which is beyond the conventional material classification by scientifically understanding

materials as well as actively using quantum mechanics and electronic theory, namely the creation of new materials and the investigation of new physical properties. In addition, to achieve this objective, this course will provide education and conduct research through the three-course system, which links the undergraduate school with the graduate school - that is, advanced materials science represented by superconducting material, material creation study using the ultimate environment representing the space environment, and nanotechnology/materials and molecular devices materials science, which will be one of the four top-priority fields within the 21st century Japan.

＜Applied Chemistry Course＞

Development of science and technology has been brought about not only prosperity of material civilization but also serious environmental problems such as global warming, environmental pollutions. In chemical industry, materials of high function and environment-friendly in the processes of production, usage, disposal, technology enabling the removal of contaminants and the recovery of rare resource have been required to be developed. In addition, the development of technology for the production and usage of renewable energy alternative to fossil fuel has become significant. The Applied Chemistry Course aims to foster researchers and engineers having not only extensive chemistry knowledge and skills, but also a broad culture and flexible and appropriate problem-solving skill, and to provide them to the international society as deserving human resources.

＜Mechanical Engineering Course＞

Mechanical Engineering is a field of engineering, which is the foundation for building a society that can maintain human life and the global environment surrounding it forever, through “manufacturing.” The Mechanical Engineering Course has set a goal, which is to develop the ability to make a judgment in relation to the social needs regarding the environment, safety, security, and convenience to realize such a society, by flexibly applying a variety of specialized knowledge as well as based on complex examinations drawn by seeing things from a global perspective and considering various effects. Furthermore, the Course also aims that its students will acquire the determination to open up new fields and develop practical abilities.

The Mechanical Engineering Course offers a research guidance course divided into nine sections. In each section, a wide range of research education is practiced, ranging from research concerning micro technology in fundamental field to the field of macro technology regarding complex applied technology and system technology. In addition, the fields covered in this course include those based on mechanical engineering in which the earth itself is the subject of research (such as material and structural mechanics, fluid, heat and energy), the human- and earth-friendly engineering field (such as robotics, automotive engineering, new energy systems, and welfare engineering), and system technology regarding complex manufacturing (such as bio-related engineering, medical engineering, design engineering). Allowing students to study these research areas, this course has set a major goal that it will nurture global and competent engineers who can contribute to the society, who have not only specialized knowledge but also an ability to identify problems by themselves based on engineering ethics, and who have an ability to practice engineering towards solving the problems. Through the

problem-solving process of concrete themes, the course offers an educational program in which students can acquire foundation skills, which will enable them to always challenge new issues.

＜Architecture and Civil Engineering Course＞

On the Architecture and Civil Engineering Course, education is provided and research is conducted with the aim that students on this course will learn about the technologies and systems for maintaining a good quality environment by building and managing living spaces and social infrastructure on the national land as well as in cities and towns. This course is structured based on the total of five departments, which are the Department of Civil Engineering, the Department of Architecture, the Department of Architecture and Building Engineering from the College of Engineering, the Department of Architecture and Environment System from the College of Systems Engineering and Science, and the Architecture and Urban Design Course in the Department of Engineering and Design from the College of Engineering and Design. The educational goal of the course is to nurture graduate students who will make use of their creativity and who are strongly conscious about the relationship between technology and society amid the on-going significant changes in the environment required by society.

Education and research division in this course is comprised of two groups – One is the “Design and planning group,” which consists of architectural planning, architectural design, architectural history, and city planning, and the other is the “Engineering group,” which consists of architectural environment and equipment, architectural structure, production engineering, social infrastructure facilities, and regional and environmental planning. Every year, this course actively conducts the expansion of lectures, responding to the advancement of specialized fields and conducts exercises beyond the framework of each laboratory in which graduate students and teaching staff engage in collaborative tasks (e.g. design workshops and planning workshops) as well as exchange projects with other universities including partner schools overseas, including France, Russia, Italy, and Korea). The career path for the students who have completed this course has gradually been expanding in recent years to new fields such as the environment-based think tank, NPO, which operates as a civic activity, and the establishment of community businesses, in addition to the field, which center around construction including architectural design offices, construction business, research institutes of technology, consultants, developers, and civil servants.

＜Systems Engineering and Science Course＞

Problems in modern society do not fall only into a single specialized field. Under the prospects for the future, methods to solve these problems are formed comprehensively by linking them with various technologies and scientific elements, whilst placing harmony to limit the environmental problems and resource problems, and with traditional culture and values at its base.

The System Engineering and Science Course aims to nurture researchers and engineers who have an ability to identify cross-disciplinary problems involving multiple disciplines and who have comprehensive problem-solving skills. In order to achieve this goal, students will establish the issues facing modern society in a flexible manner based on science and technology, culture and values, society and the environment, and the ethics for engineers as their basis, they will use specialized knowledge, which will become the core of their own research, as well as the background knowledge beyond disciplinary frameworks and system thinking acquired through completing, 1. Compulsory subjects; 2.

Research guidance; 3. Elective subjects; 4. Common subjects.

＜Global Course of Engineering and Science＞

The aim of Global Course of Engineering and Science is to foster engineers and researches, who have the knowledge and education in the field of specialization and also ability to recognize and solve multiple problems. To be more specific, the Global Course of Engineering and Science aims with the following 4 points set as its main educational goals, and to nurture global engineers and researchers who have the capabilities to solve the global-level problems in cooperation with foreign engineers and researchers. Therefore, the career path for the students who will have completed this course will be expected to work at the global section in Japanese affiliated companies or foreign affiliated companies, work as the local technical engineers overseas, or as the researchers who be able to work with foreign researchers.

1. Development of communication skills to be able to understand different cultures in the international situation.
2. Acquisition of discovery problems and skills of solving them.
3. Well-understanding the advantage of one's own country and the development to have action with global perspective.
4. Acquisition of understanding the social and economic worth of developing technologies and ability to create.

【Doctor's Program】

The Doctor's Program aims to increase researcher's potential and targets Master's Program graduates and engineers actively battling current issues. The purpose of the Doctor's Program is to foster engineers and researchers who hold abundant academic knowledge. The field of one's expertise is deepened from an interdisciplinary point of view, and a comprehensive outlook that covers both soft and hard engineering aims to the acquisition of skills that make it possible to create harmony in a system as a whole. Furthermore, in order to foster PhD holders able to act in the manufacturing industry the Doctor's Program cultivates sigma type experts, who possess and are able to combine versatile engineering skills, technology management skills and metanational abilities.

The education and research of the Doctor's Program, whose essence lies in the training of experts as mentioned above, also holds the essential role of research promotion, which is a mission of the university.

＜Regional Environment Systems Course＞

In limited areas such as urban cities, the social and cultural activities of human beings are likely to negatively affect the living environment in the area. For sustainable community development, harmony between the activation of community activities and conservation of the living environment is inevitable.

In addition, to realize this, there is a necessity to work on the issues spreading across a range of fields including electrical engineering and computer science, materials science, chemistry, mechanical engineering, architecture and civil engineering.

Doctoral candidates in the Regional Environment System Course will deepen research in their own specialized field. At the same time, it is also aimed that they will contribute to forming the foundation of a better society, culture and life in the regional environment by having an insight into the influence and effect of technology on society and nature, and through exchanging information among researchers from different specialized fields. The educational goal of this course is to nurture talents who have a broad view regarding the regional environment and can achieve this aim, by making use of their highly specialized knowledge.

＜Functional Control Systems Course＞

Japan in the 20th century placed an emphasis on efficiency and convenience, and strived towards manufacturing things, seeking to increase profitability. As a result, this approach put Japan in a situation where it faced contradictions such as the destruction of environment. Currently, Japan possesses technologies, which lead the world in such fields as automobiles, robotics, electronics and telecommunications, whilst resolving such contradictions. These technologies are becoming increasingly more complex. In order to contribute to the world as a leader of science and technology in the global society going forward, Japan will be required to exercise high-level design capabilities and technology management skills, which will enable Japan to grasp the overall picture of increasingly complex technologies and promote harmony within the overall system, in addition to the ability to deeply analyze and comprehend objects.

For example, at the nuclear accident, which occurred immediately after the Great East Japan Earthquake, the importance of systemized technology regarding the use of technology in a society including its implementation and operation was reaffirmed. This suggests that it is time for us to reconsider practical education. At the same time, this also means that nurturing researchers and engineers who will acquire the global values and capabilities required to work internationally.

Based on such a background, the Functional Control Systems Course aims to provide education and to conduct research to nurture outstanding researchers and engineers who have global values and the ability to fully grasp the truth of science and make use of it in practical education. This course consists of a number of different education and research fields, such as communication function control, functional device control, system control, and biosystems and biomolecule control, and operates interdisciplinary education and research. Taking this approach ensures that the course is not specialized in education and research being exclusively relevant to the areas of its academic staff’s expertise. The course also aims to nurture researchers and engineers with basic skills for technology management and proficiency in English for engineers as well as shared values and ethics, while the course as a whole is aware of the relevance based on the diversity in the course and actively promotes collaboration with each other.

2. Curriculum Policy

【Master's Program】

The Master's Program offered by the SIT Graduate School of Engineering and Science is not only on lectures, exercises, experiments and practical training for highly specialized education but also graduate school common education subjects which are arranged in a well-balanced manner in order to train the science and engineering experts listed in the diploma policy. This allows the students to consider not only the advanced expertise, but also the relationship between technology and the diversity of the environment, economy and culture, and to train science and engineering professionals with a wide range of international insights and flexible thinking skills.

＜Electrical Engineering and Computer Science Course＞

Based on the educational goal of this university (philosophy for the foundation of the school), "Nurturing engineers who learn from society and contribute to society," this course has set its educational goal as "Nurturing engineers who have comprehensive problem-solving skills and contribute to the world." For the systematic curriculum and the PDCA in the organization to achieve this educational goal, this course implements a systematic and organizational active learning reform for the duration of two years, visualization of learning outcomes and a guarantee of study hours by the PDCA cycle, strengthening of the promotion system for educational reform, and guaranteed learning through collaboration between teaching staff, administrative staff and students. The talents the Electrical Engineering and Computer Science Course seeks are engineers who will be involved in electrical-, electronic-, information- and communications-related research and development as well as production. The ideal candidates to be trained are engineers who will engage in the construction of sophisticated electrical-, electronic-, information- and communications-systems. In order to achieve the goal, the course is divided into eight main areas - namely, (1) Materials and Devices, (2) Circuit and Control, (3) Power and Energy, (4) Communication, (5) Information, (6) Informational Science, (7) Robotics and Mechatronics, and (8) Bioengineering - and course models for each area are provided. The course models will enable students to prepare and conduct their research by obtaining 30 units required for the completion of the course by taking subjects and research guidance (exercises and experiments).

The academic achievements of the students aiming at the educational goal are evaluated as follows; Achievements in 1) advanced specialized knowledge and application skills are evaluated based on the reports and tests. 2) development of skills to find and solve problems, 3)skills for presentation and communication, and 4)development of cooperative personality and sense of ethics are evaluated mainly based on the results due to the research guidance(exercises and experiments). In addition, in order to evaluate total ability, candidates of the master's degree are required that they have presented more than one paper at an academic conference.

＜Materials Science and Engineering Course＞

The curriculum in the Materials Science and Engineering Course is positioned as an extension of the curriculum in the undergraduate education and has been specifically created to enable students on this course to acquire knowledge and experiences regarding more advanced materials science and engineering. Students in the Materials Science and Engineering Course will be able to deepen the knowledge relevant to their own research area by selecting and taking lectures, which explain basic perspectives regarding the physics and chemistry of materials, and theories etc., related to the application of materials science and engineering, as well as the ones based mainly on seminars and presentations. For the research for a Master's or Doctoral thesis, the students will be able to acquire experiences and obtain a wide view as engineers and researchers in engineering by inventing and implementing their research as well as by presenting research results.

＜Applied Chemistry Course＞

To acquire a deep understanding of knowledge and skills in the major chemistry field as well as a broad understanding of basic knowledge and advanced technology in the relevant chemistry fields, the Applied Chemistry Course offers lecture subjects (including lectures in English). Master candidates must earn 18 and over credits, which leads to acquire knowledge and skills related to the core topics in analytical, organic, inorganic and physical chemistry and the applied topics in biological science, chemical engineering. The laboratory project is offered to foster problem-discovering and -solving skills practically. In the latter half of the course after earning the credits, students may concentrate on the laboratory project to complete their master's thesis.

＜Mechanical Engineering Course＞

The Mechanical Engineering Course provides education in line with the following policy:

Students will acquire:

(1) Skills to accurately grasp social needs and to identify and establish problems.

(2) Skills, which enable them to precisely use specialized knowledge in solving problems.

(3) An attitude towards considering things from a variety of angles and to examine them in a multifaceted way.

(4) An attitude towards working on solving problems based on global perspectives.

(5) An ambitious attitude to challenging new fields, rich culture, and high ethical standards.

＜Architecture and Civil Engineering Course＞

Following the lines of the admission policy, diploma policy and the educational/research policy, this course has designed its curriculum aiming to enable students to acquire the skills and abilities as follows.

Students on this course will be able:

A) To handle the integrated system, which consists of buildings and civil engineering structures studied in architecture and civil engineering, based on natural and social sciences.

B) To acquire a wide variety of knowledge such as on history, culture, customs, art, and international situations, which will be the landscape of national land, cities and towns, and buildings, in order to make

use of them in creating rich human cultures to progress into to the future.

C) To accurately analyze various environmental factors surrounding cities, buildings and civil engineering based on the correct understanding of the relationships between human beings and the environment, and to contribute to the building of a sustainable society and the realization of city, architecture and the civil engineering environmental system.

D) To systematically acquire specialized knowledge in the field of their expertise and to be able to apply it to solve problems.

E) To find, organize and analyze conditions and issues, as well as to demonstrate reasonable solutions, in order to realize land, cities and towns that can satisfy humans and society.

F) To grasp the scientific aspect of architecture and civil engineering at a high level, applying the basic mathematical knowledge of construction technology.

G) To logically convey their own opinions to others through descriptions, discussions, and presentations and to have sophisticated discussions.

H) To understand others and to acquire ways to work on issues in collaboration with others through the actual practice of PBL, and to contribute to society in response to globalization.

I) To understand their roles and responsibilities when engaged in construction and civil engineering and to comply with the ethics for engineers, considering the influence of buildings and civil engineering structures on humans, society, and environment.

＜Systems Engineering and Science Course＞

For the purpose of achieving its educational and research objectives, this course will implement the following synthesis (synthesis thought) led education and research:

(1) By completing the compulsory subjects, students will acquire the following knowledge and skills through cross-disciplinary education and research: “System thought” for comprehensive problem-solving; “System method” for designing functions to achieve objectives; and “System management,” which integrates human and knowledge with the technology required for solving problems. Furthermore, this subject involves special exercises by a hybrid project involving different academic fields through which students will gain communication and leadership skills.

(2) Students will determine research guidance, which will be the core of their specialized knowledge, from the five areas of machinery and control, electronics and information, society and the environment, life science, and mathematical science, and will acquire the skills to solve specialized problems in the area that they have selected.

(3) Students will acquire the skills to clarify the theme set by themselves and to draw comprehensive solutions using the works for research guidance subjects, while they will also acquire skills to systematize the knowledge gained through writing their Master’s thesis.

(4) Students will be allowed to take and complete any subjects from all of available fields to gain the knowledge they require, as an elective.

(5) Students will acquire communication skills through taking common subjects, and at the same time, they will also acquire human competence, which is necessary to solve problems by bringing individual science and technologies together as well as acquiring ethics in engineering practice as engineers who will contribute to society.

＜Global Course of Engineering and Science＞

For the purpose of nurturing engineers and researchers as mentioned in the diploma policy, this course provides most of the subjects related to high level technology planned with experiments, exercises and seminars. In addition, to cultivate development engineers who are independent and have skills to work with global viewing and critical thinking, variety of the high level common subjects in the field of liberal arts is also provided. All of information about subjects, projects and thesis are provided in English.

【Doctor's Program】

The doctoral course by the SIT Graduate School of Engineering and Science is aimed at graduates who have completed a master's course or engineers who are working at the forefront of society with the aims and missions of promoting research and improving the potential of researchers. The goal is to train highly qualified professional engineers and researchers by deepening one's specialization from an interdisciplinary perspective, and gaining the ability to harmonize the entire system from a comprehensive perspective on both software and hardware through lectures, exercises, experimental and practical subjects. Furthermore, in order to foster human resources with sigma-type integrated skills that combine engineering skills, technology management capabilities and metanational ability, a sub-major has been established to provide not only on the advanced technical knowledge but also the international wide-ranging insights and flexible thinking skills.

＜Regional Environment Systems Course＞

The curriculum offered in the Regional Environment Systems Course (this course) is composed with the aim of nurturing talents who will realize harmony between the activation of community activities and conservation of the living environment through a range of fields including electrical engineering and computer science, materials science, chemistry, mechanical engineering, architecture and civil engineering. Therefore, research guidance and subjects covering many different fields have been prepared. In this way, the foundation of the course is based on the idea that curriculums in each area within the wide range of coverage will work to deepen the research in specialized fields. However, the course also encourages and leads doctoral candidates towards being involved in exchanges between different fields and the fusion boundary region, including the relationship between technology and society, nature and the environment, and provide opportunities to acquire the knowledge, which will enable them to contribute to society, culture, sophistication of life, purification, normalization, as well as the improvement of reliability and safety.

Furthermore, the basic policy of the curriculum of this course is: to enable the doctoral candidates to not only accumulate specialized knowledge but also to enhance the skills to utilize such knowledge; to enable the candidates to acquire a high degree of specialized knowledge and skills as well as a wide

range of knowledge and insights, taking into account the fact that this course is for the doctoral candidates in the Graduate School of Engineering and Science and that its purpose is for them to gain the doctoral degree; to become a place for learning in which the candidates will enhance their communication skills and acquire skills to appropriately present their research outcomes.

＜Functional Control Systems Course＞

In the Department of Functional Control Systems, it aims to train engineers and researchers with high levels of creativity and advanced research and development capabilities in the fields of communication function control, functional device control, system control, vital function control and etc. Graduate students enrolled in this department engage in specialized research under the research guidance of their supervisors and aim to complete doctoral dissertations. The following curriculum is arranged so that graduate students who are enrolled can deepen their specialized fields from an interdisciplinary perspective, so that they can study their expertise from a comprehensive perspective both in terms of software and hardware:

(1) Study through research with research advisors to investigate the background of research, set research agendas, formulate research plans, conduct research, analyze results, and logically develop research that leads to conclusions and future prospects.

(2) Study to summarize and present the research results in academic papers and academic journals in and outside Japan

(3) To train technical English skills and learn how to present research results in English.

(4) Ethical education as a researcher / engineer

(5) Leadership training in conducting research in cooperation with the group/laboratory.

3. Diploma Policy

【Master's Program】

In the master's program at the Graduate School of Engineering and Science, we are full of professionalism as science and engineering professionals, and we are looking for human resources who can respond to new aspects of global society and have the ability to contribute to society by using it as an immediate skill. The education in the master's program aims to foster development engineers in specialized fields, with advanced expertise and R & D skills, problem finding ability, ability to recognize knowledge and skills necessary for quantitative problem solving and measurement. We aim to acquire experimental skills such as processing, ability to integrate technical systems, flexible thinking ability that can take into account the relationship between technology and the diversity of the environment, economy, and culture, and acquire a wide range of insights.

When students enrolled in the Master's Program for the prescribed period are deemed to have fulfilled the aims described above through completion of courses and the preparation of a Master's thesis, they shall be granted an SIT Master's Degree.

＜Electrical Engineering and Computer Science Course＞

This course aims to nurture talents who possess a series of sophisticated skills including utilizing specialized knowledge and the skills they have acquired, identifying the root of problems facing them, finding precise solutions, and an ability to achieve concrete realizations. Thus, the course can respond to the needs from an increasingly ICT-influenced society and to the requirements of engineers and researchers who stand on a global perspective to consider the global environment, which is symbolized in the Green IT. In light of these aims, this course will require students to acquire the following skills:

- Advanced knowledge in their specialized field regarding electrical-, electronic-, information- and communications-engineering extensively, and more in-depth specialized skills taking into account practical applications.
- Problem-finding and development skills to accurately draw out problems and issues, and problem-solving skills to find a specific method for solving problems and to evaluate its optimality as they conduct their research.
- Ability to face up to specific issues and problems in a real society, using the above mentioned knowledge, technology and the problem-finding and problem-solving skills.
- Skills to summarize research results in a comprehensive way based on flexible ideas and thinking, whilst possessing high ethical standards, actively working on issues with a high degree of difficulty.

Degree Assessment Criteria

The degree of Masters of Engineering will be conferred by fulfilling the following criteria.

- Candidates will have received research guidance, and will then write and submit their Master's thesis in order to pass the assessment.

Criteria for the judgement of Master's thesis are as follows:

"The submitted Master's thesis includes information confirming that the candidate has presented

more than one paper at an academic conference*, or the thesis should include an equivalent result.**"

* This includes a presentation at an annual meeting or a seminar of an academic association, presentation at an international conference, publication of an article or a letter in an academic journal, etc.

** Results other than a presentation at an academic conference such as applying for and obtaining a patent, or a result equivalent to a presentation or publication at an academic association or in an academic journal as described above.

＜Materials Science and Engineering Course＞

Materials have always been playing an important role in human society. Going forward, the importance of materials in the social infrastructure technology continues to increase. In addition, along with the recent development of the advanced science field, the field of materials science and engineering is also becoming diversified and how we further enhance the high functionality of materials without creating any environmental load is considered a major issue. Materials Science and Engineering Course aims to nurture engineers and researchers who have the abilities and skills to grasp the essence of problems by responding to the needs of society and social backgrounds, to invent in research methods for problem-solving, and to utilize specialized knowledge for practical development. Setting up these educational and human resourced development goals, this course will require students to acquire the following knowledge and skills.

Students will:

- Learn the advanced knowledge and skills of materials science and engineering, and acquire skills to appropriately select and identify problems based on an attitude to explore issues within a wide area.
- Systematically understand the advanced level of materials science and engineering, and enhance their experiment skills regarding the research methods for measuring and processing as an ability to solve problems and issues.
- Acquire the skills to find methods of solving social problems based on the advanced views of materials science and engineering as well as utilizing a range of insights and specialized knowledge in the actual society.
- Understand the relationship between advanced technologies, society and the environment, and also to acquire ethical ideas including the overall contribution of materials science and engineering and flexible thinking.

Degree Assessment Criteria

In light of the educational philosophy of the Materials Science and Engineering Course and the human resources development goals, the degree of Master in Engineering will be conferred on candidates who have fulfilled the following criteria.

Criteria for the judgement of Master's thesis are as follows:

(1) Candidates have put all of their outcomes gained through the research guidance together to write a Master's thesis, which sufficiently meets the standard of the Master's degree in Engineering.

(2) Candidates have disseminated the contents and achievement of their Master's thesis to society by presenting it more than once through academic activities societies such as at academic societies and associations.

＜Applied Chemistry Course＞

The Applied Chemistry Course's research activity covers the core discipline of analytical, organic, inorganic, and physical chemistry, as well as the interdisciplinary of biological science and chemical engineering. Through classes, seminar and laboratory work, the course fosters students to acquire a deep understanding of knowledge and skills in the major chemistry field and a broad understanding of basic knowledge and advanced technology in the relevant chemistry field as well. A candidate of master degree as chemistry major is required to acquire the following abilities.

1. A planning skill to accomplish a given project based on the precise understanding of the project and collected necessary information.
2. Skills to conduct experiments along with a research plan and to interprete obtained results properly.
3. Skills to present and discuss his or her research results in chemistry conferences and as technical papers, and to complete his or her master thesis.
4. A Japanese skill to explain the significance of his or her project to other people appropriately, and a basic English skill to send and receive information precisely.

Degree Assessment Criteria

1. Accomplish the laboratory project under the supervision of specific professor and submit master thesis by the deadline.

Pass the assessments of master thesis and oral defense, which will be examined by not only supervisor but also two more professors. In both assessments, approval requires over 60% of score.

＜Mechanical Engineering Course＞

The Mechanical Engineering Course has set a major goal that, through providing education in specialized subjects and research guidance, it will nurture global and competent engineers who can contribute to the society, who have not only specialized knowledge but also have an ability to see problems by themselves based on engineering ethics, and who have an ability to practice engineering towards solving the problems. Through the problem-solving process of concrete themes, the course offers an educational program in which students can acquire foundation skills, which will enable them to always challenge new issues.

In order to achieve the goal, the requirements of completion are determined specifically as follows:

(1) Specialized knowledge and understanding
- Obtainment of units defined in the study guide.

(2) Acquisition of problem-identifying and problem-solving skills
- Possession of insights for accurately setting problems in proceeding research and logical thinking required for problem-solving.

(3) Motivation and ability to practice

- Possession of abilities to demonstrate human competency in actively challenging difficult issues and resolving them, as well as accurately practicing their own research in advancing it.

(4) Comprehensive strength

- Accurately written research results based on highly original academic knowledge.
-Spreading research achievements throughout the society by giving the presentation in the society of the academic activities such as academic conferences and academic associations.

Degree Assessment Criteria

Candidates will be conferred the degree of Master's in Engineering by fulfilling the following criteria:
Candidates will have to :

- Complete 18 credits unit for subjects, as well as having received research guidance (12 units for Special exercises and Special experiments) from their supervisor.
- Submit their Master's thesis and passed its assessment. The judgment of passing the assessment is based on the evaluation in terms of novelty, usefulness, universality, engineering point of argument, and the overall standard of quality, and 60 out of 100 points must be awarded.

＜Architecture and Civil Engineering Course＞

In the Architecture and Civil Engineering Course, students learn how to develop and manage living space and infrastructure in land and cities with gaining skills and knowledge for environmental sustainability. By the end of the course, students enable to gain:

1. Advanced knowledge about architecture and civil engineering, skills for research and development, and problem-finding/solving skills quantitatively
2. Skills to carry out experiments including measurement and processing and to be integrated with technological system
3. Flexible and wide range of point of views with considering technological, environmental, economic and cultural concerns

Degree Assessment Criteria

The degree of Master of Engineering will be conferred on students who meet all of the following criteria:

1. The mid-assessment is carried out by the date indicated
2. On both of your Master's thesis and presentation, at least one chief examiner and one assistant examiner give the passing grade (more than 60%)

＜Systems Engineering and Science Course＞

This course has set the goal that students will be able to establish the issues in modern society in a flexible manner based on science and technology, culture and values, society and the environment, and the ethics for engineering practice. As their basis, they will use the specialized knowledge, which will become their core knowledge, as well as the background knowledge beyond the disciplinary framework and system thinking. They will also acquire the skills to identify cross-disciplinary problems and comprehensive problem-solving skills. Shibaura Institute of Technology will confer the Master's degree in System Engineering to those who have registered with the Master's Program for the

prescribed period, when the above-described objectives are judged to have been achieved through completing the compulsory subjects, research guidance, elective subjects and common subjects in the program as well as completing a Master's thesis.

The requirements for completion to achieve the goals above are specifically determined as follows.

Students will acquire:

(1) System thought, theories and methods of system engineering, design theory, and system management skills required for resolving social problems by studying the compulsory subjects of this course.

(2) Communication and leadership skills through "special exercises," which is one of the compulsory subjects of this course necessary to realize a successful hybrid project involving different academic fields.

(3) The skills to solve specialized problems by deepening their specialized knowledge and experiences through studying the compulsory and elective subjects.

(4) Background knowledge beyond the disciplinary frameworks through studying technologies from other fields, and will have an ability to accurately utilize such background knowledge in society by combining it with the specialized knowledge, which forms the core of their research.

(5) Skills to clarify their research theme, which is set by themselves and to draw comprehensive solutions through the works for research guidance subjects, while also acquiring skills to systematize the knowledge gained through writing their Master's thesis.

(6) Communication skills through studying common subjects, and at the same time, will also acquire the human competence, which is necessary to solve problems by bringing individual sciences and technologies together. Ethics in engineering practice as engineers who will contribute to society.

Degree Assessment Criteria

In relation to these requirements for completion, the assessment criteria for a Master's degree are defined as follows.

- Candidates will have received research guidance, and will then write and submit their Master's thesis in order to pass the assessment.

Criteria for the judgement of the Master's thesis are as follows:

"The submitted Master's thesis includes information confirming that the candidate has presented more than one paper at an academic conference*, or the thesis should include an equivalent result.**"

* This includes a presentation at a lecture, an annual meeting, and a seminar or a symposium of an academic association, a presentation at an international conference, publication of an article or a letter in an academic journal, or equivalent publication.

** Results equivalent to a presentation at an academic conference refers to results produced other than at an academic conference such as obtaining a patent, or a result equivalent to a presentation or publication at an academic association or in an academic journal.

＜Global Course of Engineering and Science＞

This course aims to nurture engineers and researchers who have the abilities to communicate positively with people who have different cultures all over the world, have skill of advanced technology and are independent. This course will require student to acquire the following knowledge and skills for graduation.

1. Complete the programs during the prescribed period and complete more than 30 credits including Research Guidance.
2. Complete core subjects and at least one common subject or sub-major program subjects provided at the graduate school.
3. For Japanese students, candidates must accomplish Overseas Project Research. For the international students, candidates must accomplish the internship in Japan.
4. Submit master's thesis and presentation then pass the assessment. (Presentation and preparation are in English.)

Degree Assessment Criteria

Candidates will be conferred the degree of Master of Science in Engineering by fulfilling the following criteria:

- Have received Research Guidance and submitted their Master's thesis and passed its assessment.
- On both of Master's thesis and presentation, one supervisor and one assistant examiner give the passing grade (more than 60%).

【Doctor's Program】

There are two types of doctoral degrees awarded by the doctoral course (Graduate School) in the Graduate School of Engineering and Science: doctoral degrees (doctoral courses) upon completion of the course and doctoral degrees (doctoral thesis) upon submission of thesis. For graduates and for engineers working at the forefront of society, both types are aim to promote research and improve the potential of researchers, which are the missions of universities. It is also aim to train researchers in specialized technologies with rich academic knowledge. The education in the doctoral course is aimed at acquiring the ability to deepen one's specialty from an interdisciplinary perspective in a comprehensive view of both software and hardware, and also to harmonize the entire system. Furthermore, through the completion of the minor program, we aim to develop sigma-type integrated human resources that have multifaceted skills with technical management capabilities and metanational ability.

■Doctoral Degree through Completion of Coursework (Coursework Doctorate)

A person who has been enrolled in the Doctoral course program for a prescribed period of time and who has fulfilled the requirements for completion of the university academic rules is deemed to demonstrate the qualities to work independently as a professional engineer or researcher with a wealth academic knowledge through completion of Doctoral Program coursework and preparation of doctoral thesis dissertations. In addition, if the main contents of the dissertation include elements other than engineering, a Doctoral degree of Doctor of Philosophy will be awarded.

■Doctoral Degree through Submission of a Thesis (Thesis Doctorate)

A person who has not been enrolled in a Doctoral course program but who has been engaged in research and development work for 5 years or more after graduation (including those who have completed a master's course), or a career equivalent to that duration. Those approved by the Graduate School of Engineering and Science can apply for the award of a Doctoral degree through submission of a thesis dissertation. Upon receiving the degree award application, the Graduate School of Engineering and Science will examine the applicant's academic ability and the content of the submitted dissertation. As a result, it is to determined that the applicant has achieved academic and research capabilities that are equivalent to or higher than a person who has completed the Doctoral Program, and is already working independently as a specialist engineer or researcher with a wealth of scholarly knowledge. The Doctoral (engineering) degree will be awarded to those who meet the degree examination criteria indicated by the major. In addition, if the main contents of the dissertation include elements other than engineering, a Doctoral degree of Doctor of Philosophy will be awarded.

＜Regional Environment Systems Course＞

The educational goal of the Regional Environmental Systems Department is to develop and nurture human talents and resources who have a broad perspective on the local regional environment and capable to utilize their expertise to realize their own ideas. In order to obtain a degree in this major, in addition to the submission of a dissertation, it is necessary to satisfy the degree examination standards set by this major. The degree examination standards are scored on the examination sheet in the degree examination.

Degree Assessment Criteria

The degree assessment criteria for a doctoral candidate through a doctoral program and a doctoral thesis are as follows. The following items are scored on a five-point scale, and a score of 60% or higher is considered a pass :

(1) Expertise
(2) Extensive education
(3) Performance
(4) Communication skills

＜Functional Control Systems Course＞

In the Department of Functional Control Systems, it aims to acquire engineers with excellent creativity and excellent research promotion and R & D capabilities in fields such as communication function control, functional device control, system control, and vital function control, as well as highly specialized engineers.

Based on the educational objectives described above, a Doctoral (engineering or academic) subject to the requirements of the Graduate School of Engineering and Science, which meets the requirements for a doctoral degree will be awarded.

Degree Assessment Criteria

1. Degree Assessment Criteria for Candidates in the Doctor's Program

(1) Registered period

Candidates must have been registered with the Doctor's Program at this Graduate School and have received prescribed research guidance. However, for the candidates whose research achievement is exceptionally good, the period registered with the program can be reduced to just over one year.

(2) Research Achievement

(i) In principle, Candidates must have submitted and published two articles as the first author in academic journals involving an assessment by the Academic Society Home Village during the period in which they are registered with the program. However, one of these two journal articles can be replaced with two proceedings (as a first author) for an international conference involving an assessment.

(ii) Candidates whose article has been accepted by an academic journal to be published or at an international conference to be presented must attach documents to prove these acceptances.

2. Degree Assessment Criteria for the Candidate of Doctoral Degree by Completion of Coursework

(1) Enrollment period

The enrollment period is one year. However, if you cannot complete the course in one year, you will continue to be enrolled in the school, and your study term will be three years. Completion in less than three years is also possible.

(2) Research achievements

(i) Have at least three peer-reviewed papers (including permission to publish) by the first or second author related to the contents of the dissertation. However, it is necessary to include at least one publication as first author's dissertation. If you are not the first author but a lead contributor, the supervisor in charge will replace this by attaching a document indicating the degree of contribution of the student as the lead contributor.

(ii) Have at least one international conference paper (no peer review is possible) as a presenter during enrollment. However, it is necessary that the presentation is to be conducted by the final examination or that an attached document proving that the presentation was conducted. The paper presentation (international conference) which is applied before program enrollment is also possible.

(iii) If you decide to publish a journal or make a presentation at an international conference, it is necessary to attach documents proving it.

※Applicants who can apply for the working adult Doctoral course program are those who have the following research achievements :

(1) Those who have completed a master's course and have at least three years of work experience.

(2) Those who have two or more papers (with peer review).

3. Degree Assessment Criteria for the Candidate of Doctoral Degree by Thesis

(1) A person who has been in research and development for more than 5 years after graduating from university, submitted as a first author to an academic journal reviewed by an academic association, and has published at least 5 published papers. However, if a student who has withdrawn and left university upon completion of the program period applies for the conferment of the doctoral degree without re-entering the program, the assessment criteria for candidates in the Doctor's Program will be applied to assess their research achievement only if the assessment is completed within two years following the date, the research criteria of the doctoral student will be applied for research achievements.

However, for exchange students based on the Double Degree Agreement, the rules regarding research achievements at the Doctoral program will be applied as the degree examination criteria.

(2) Candidates whose article has been accepted by an academic journal to be published must attach documents to prove the acceptance.

Student Registration

(1) Student Registration Definitions

Only those who passed the entrance examination and completed all the enrollment procedures, have been issued a student ID card, are students who are eligible to study and do research activities at Shibaura Institute of Technology (SIT).

Registration means your record is filed as a student at SIT. Students are those who have completed their registration and are studying and doing research activities at SIT.

Please be responsible to be a student of SIT.

CATEGORIES	CONTENTS
Program Duration	It takes 2 years to complete the Master's Program. It takes 3 years to complete the Doctor's Program. However, absence and suspension period will not be included to those years.
Period as a Student	You could be a student for maximum 4 years in the Master's Program, 6 years in the Doctor's Program.
How to Complete	To be awarded a graduate degree, all the required credits must be satisfied and a student must pass the final examination (thesis assessment). For those who have completed the Master's Program, SIT is going to confer a Degree of Master of Engineering or a Degree of Master of System Engineering. The Doctor's Program students will be awarded a Doctor of Philosophy Degree by SIT.

(2) Change your status

Please check the table below to see which status you are going to apply for. You will be asked to submit the related forms by the designated due after consulting with your supervisor.

CATEGORIES		CONTENTS
Repeat for Another Year	What does "Repeat for another year" mean?	Failure to meet the assessment criteria on the second year of the Master's Program or the third year of the Doctor's Program will result in repeat for another year to complete the program.
Temporary Leave	What does "Temporary leave" mean?	A student may wish to take a leave（more than 2 months）if you become serious ill or have any other reasons that you cannot come to university. Please complete an application form to take a leave. ① Discuss a leave of absence with your supervisor. ②Submit a doctor's evaluation to support your claim along with the application form in case of leaves due to a medical or psychological condition.

CATEGORIES		CONTENTS
		※If you receive a scholarship, additional steps are also required to take.
	Duration of leave	In general, the duration of the leave will be a minimum of 2 months to a maximum of 1 year. The leave period should be taken during the following academic terms; 1 year leave: April 1st ~ March 31st (following year) Leave in Spring semester: April 1st ~ September 30th Leave in Fall semester: October 1st ~ March 31st (following year)
	Application due	Deadline to take leave in Spring semester: Early March Deadline to take leave in Fall semester : Early September
	Course terms	The period of leave will be included to the total length of period as a student at SIT, but not as the time of your study.
	Credits	You cannot earn any credits during the leave even after you have submitted the course registration.
	Tuition	If you submit your application form and it is approved before the beginning date of each semester, you may be eligible for exemption from the payment of tuition during the period of leave. (Only the administration fee needs to be charged)
Reinstatement	What does “reinstatement” mean	The approved temp leave period is over, so your status will be back to “student”
	Application due	Application form will be sent to you. The submission deadline is : Returning in Spring semester: Early March Returning in Fall semester: Early September
	Tuition	You should pay both tuition and administration fee for your returning semester.

CATEGORIES		CONTENTS
Withdrawal	What does “withdrawal” mean	Students who leave SIT for their personal reasons: ① Consult with your supervisor. ② Submit the application form with your student ID card. Those who are expelled from school include the one who: ① Breaks the pledge you signed on the enrollment ② Disturbs other students by showing inappropriate behaviors and has no sign of improvement. ③ Has poor academic record and least chance to complete the program. ④ Does not attend classes regularly without any reasons. ⑤ Breaks the rules and behaves inappropriate ways as our student.
	Application due	Please submit the form by the following deadlines: Spring semester: Early March Fall semester: Early September
	Tuition	Students must pay all the tuitions and fees owing up to the semester studying at SIT.
Removal from the Registration	What does “removal from the registration” mean	Student registration will be cancelled for those who: ① Have been reported as a missing person. ② Have (an) overdue tuition payment(s) and are not still going to make a payment after receiving the notice from SIT ③ Stay over the period as a student. ④ Have not submitted the form after temporary leave is over.
Suspension	What does “suspension” mean	Suspension will be applied to those who: ① Do not follow the SIT’s Regulations. ② Take any dishonest behaviors during the examination. ③ Take any inappropriate actions as a student. Your graduation will be postponed depending on the period of disciplinary action.
Readmission	What does “readmission” mean	Student who was withdrawn or removed due to the absence of payment by SIT may be able to get admission again.
	Application due	Spring semester: by the mid of December

CATEGORIES		CONTENTS
		Fall semester: by the mid of June
	Tuition	Students are asked to pay the tuition from the semester that they are back.

Credits and Courses

(1) Types of Credits

① Research guidance: This includes credits you have to earn through exercises and experiments that the laboratory you belong to offers. Those credits should be earned before completing your study at SIT.

② Elective subjects: Those are the credits you can choose to earn based on your own need or interest.

(2) Timetable

1st period	2nd period	3rd period	4th period	5th period	6th period
9:00-10:40	10:50-12:30	13:10-14:50	15:00-16:40	16:50-18:30	18:40-20:20

(100 minutes per period)

(3) Lecture Cancellation/ Makeup Class

Professors will call for a lecture cancellation when they are not able to give a lecture/class for some special reasons such as going to a business trip and being ill. Professors may not be able to finish all the contents on syllabus during the semester for above reasons. In that case, they may have (a) makeup class(es) if necessary.

The lecture cancellation/ makeup class information will be posted on the bulletin board. The information is available on the SIT website with your mobile phone or the Scomb.

(4) Class Registration

In principle, you can register classes up to “20 credits” per year excluding special exercises and experiments and class registration needs to be done by each semester.

(5) Limit of Other Course Registration

You can earn up to 10 credits if you wish to take the following classes. However, you have to get a permission from Graduate School of Engineering and Science Committee that you will take those classes.

① The classes of other courses

② The classes offered by Tokyo University of Marine Science of Technology or Ochanomizu University in the credit transfer system.

Final Grades

Final grades will be determined by the following grading system and be notified to students.
Final grades and the credits will be included on the “Notice of the Grades” which is posted from S*gsot.

(1) Grading System

① PASS

A･･･100-80(points)　B･･･79-70(points)　C･･･69-60(points)

N･･･Transfer credit (subjects that students took in other educational institute and approved at SIT.)

② UNSATISFACTORY (You should take the same course again or choose to take other alternative course)

D･･･59-50(points)　F･･･49-0(points)

③ Others

G･･･In progress

#･･･Unreported Result (Please ask your supervisor and the staff at Graduate School Section)

(2) Grade Confirmation

If you have any questions about your final grades, please come to Graduate School Section. You can access S*gsot to check your grades. If you are not satisfied with your grades, you can talk to the professors directly. Please bring your “Notice of the Grades” with you when you see the professors.

(3) Unsatisfactory

Final grades will be printed on School Register and be kept at SIT permanently.
That means unless you retake the unsatisfactory class and pass it, your grade of the class will be printed on the “School Register” and “Notice of the Grades” as “D” or ”F”.
※An academic transcript may be required for your job search and application for graduate school. Only passing grades (A, B, C, N) will be printed on your academic transcript. The grade of unsatisfactory would not be printed on it. A=Excellent, B=Good, C=Satisfactory, N= Transfer credit.

Information

(1) Announcements

All the important information from SIT would be provided by the following methods. Check the information with all the methods regularly.

① Any change on course list and classroom and intensive lecture schedule ・・・ bulletin board
② Class registration, grades, etc. ・・・ bulletin board, S*gsot.
③ Lecture cancellation/ Makeup class ・・・ bulletin board, Scomb, SIT website
④ In case of fire or earthquake or other emergency ・・・ broadcasting inside SIT.
⑤ Other important information ・・・ bulletin board, SIT website, Scomb

Completion Requirements

Master's Program

(1) Each course requires more than 30 credits to be completed.
12 credits from research guidance, and 18 or more credits from elective subjects.

(2) Master's thesis is written and submitted upon receiving research guidance and should be passed the assessment and final examination.

【Notice】You need to talk to your supervisor before the class registration. If you fail to get credits from the research guidance on the first year, the certificate of expected completion cannot be issued on the second year.
As for Degree Conferment Examination Criteria, check the Diploma Policy.

≪Research Guidance≫

●Course: Electrical Engineering and Computer Science, Materials Science and Engineering, Applied Chemistry, Mechanical Engineering, Systems Engineering and Science.

Research Guidance	Credits	1st year		2nd year		Professor
		Spring semester	Fall semester	Spring semester	Fall semester	
Special Exercise1	1	○				Each Supervisor
Exercise2	1		○			
Exercise3	2			○		
Exercise4	2				○	
Special Experiment1	1	○				Each Supervisor
Experiment2	1		○			
Experiment3	2			○		
Experiment4	2				○	

(The table above is a reference for those who enroll in Spring semester)

●Course: Architecture and Civil Engineering (Research guidance with ※mark (design) in the subject assignment list has only special exercises that 12 credits should be earned)

Research Guidance	Credits	1st year		2nd year		Professor
		Spring semester	Fall semester	Spring semester	Fall semester	
Special Exercise1	1	○				Each Supervisor
Exercise2	1		○			
Exercise3	2			○		
Exercise4	2				○	
Special Experiment1	1	○				
Experiment2	1		○			
Experiment3	2			○		
Experiment4	2				○	
※Special Exercise1	2	○				Each Supervisor
※Exercise2	2		○			
※Exercise3	4			○		
※Exercise4	4				○	

(The table above is a reference for those who enroll in Spring semester)

●Course: Global Course of Engineering and Science

Research Guidance	Credits	1st year				2nd year				Professor
		1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	
Special Exercise1	1	○								Each Supervisor
Exercise2	1		○							
Exercise3	1			○						
Exercise4	1				○					
Exercise5	1					○				
Exercise6	1						○			
Exercise7	1							○		
Exercise8	1								○	
Special Exercise1	1	○								Each Supervisor
Exercise2	1			○						
Exercise3	1					○				
Exercise4	1							○		

(The table above is a reference for those who enroll in Spring semester)

The number of research guidance classes per week

The number of research guidance classes per week is as below.

Confirm the schedule (the days of the week / class period) with your supervisor.

【Electrical Engineering and Computer Science, Materials Science and Engineering, Mechanical Engineering, Systems Engineering and Science, Global Course of Engineering and Science】

	1st year Spring semester	1st year Fall semester	2nd year Spring semester	2nd year Fall semester
Exercise	1 class	1 class	2 classes	2 classes
Experiment	2 classes	2 classes	3 classes	3 classes
Total	3 classes	3 classes	5 classes	5 classes

※Global Course of Engineering and Science：Exercises are conducted in quarters.

【Applied Chemistry】

	1st year Spring semester	1st year Fall semester	2nd year Spring semester	2nd year Fall semester
Exercise	1 class	1 class	2 classes	2 classes
Experiment	3 classes	3 classes	3 classes	3 classes
Total	4 classes	4 classes	5 classes	5 classes

【Architecture and Civil Engineering (design) 】

	1st year Spring semester	1st year Fall semester	2nd year Spring semester	2nd year Fall semester
Exercise	2 classes	2 classes	4 classes	4 classes
Experiment				
Total	2 classes	2 classes	4 classes	4 classes

＊There is no experiment for Architecture and Civil Engineering (design) course. There are only exercise classes for this course.

【Architecture and Civil Engineering (engineer) 】

	1st year Spring semester	1st year Fall semester	2nd year Spring semester	2nd year Fall semester
Exercise	1 class	1 class	2 classes	2 classes
Experiment	2 classes	2 classes	3 classes	3 classes
Total	3 classes	3 classes	5 classes	5 classes

Doctor’s　Program

(1)Each course needs to take at least 2 credits to complete.

(2)Upon receiving research guidance, you need to pass the Doctoral thesis assessment and the final examination.

[Note] As for Degree Conferment Examination Criteria, check the Diploma Policy.

Subject Assignment List

-Master’ s Course-

＜Electrical Engineering and Computer Science＞

Subject･Lecturer Professor･Number of Credits･Semester

Subject	Credits	Semester				Lecturer Professor	Course in English	Note
		Spring		Fall				
		1Q	2Q	3Q	4Q			
Nano Devices and Materials	2	◎				Ueno Kazuyoshi	○	
Optical Fiber Engineering	2			◎		Yokoi Hideki	○	
Epitaxial Semiconductor Materials	2	○				Ishikawa Hiroyasu	○	
Advanced Electronic Circuit	2			○		Koike Yoshikazu	○	
Electric Power Control	2	○				Takami Hiroshi	○	
Advanced Power System	2	○				Fujita Goro	○	
Advances in High Voltage and Power Apparatus Engineering	2	○				Matsumoto Satoshi	○	
Advanced Quantum－Beam Applications	2			○		Nishikawa Hiroyuki	○	
Advanced Vision	2	○				Irikura Takashi	○	
Ubiquitous Computing System	2			◎		Kamioka Eiji	○	
Mobile Communication Networks	2	○				Morino Hiroaki	○	
Wireless Communications Network	2	○				Gyoda Koichi	○	
Mobile Communication System	2	○				Kubota Shuji	○	
Advanced Antenna Engineering	2	○				Hirose Kazuhide	○	
Advanced Computer Architecture	2			○		Usami Kimiyoshi	○	
Advanced Information System Engineering	2			○		Sripian Peeraya	○	
Advanced OS and Virtualization	2	○				Fukuda Hiroaki	○	
Topics in Data Engineering	2			○		Kimura Masaomi	○	
Advanced Robotic Manipulation	2			○		Shimada Akira	○	
Autonomous Mobile Robot System	2	○				Andou Yoshinobu	○	
Micro Mechatronics	1				◎	Hasegawa Tadahiro	○	
Robot Task & System	2			○		Yoshimi Takashi	○	
Space Robotics	2	○				Maruki Satoko	○	
Advanced Bioelectronics	2			○		Muguruma Hitoshi	○	
Sensor Engineering	2			○		Saitoh Atsushi	○	
Advanced Neural Engineering	2	○				Kanoh Shinichiro	○	
Bionic and biomimetic system engineering	2			○		Horie Ryota	○	
Urban and Regional Development in Information Age	2			○		Nakamura Hiroyuki	○	
Language Information Management	2	○				Murakami Kayoko	○	
Advanced Seminar in Advertising Design	2			○		Sugaya Kyoko	○	

＜Materials Science and Engineering＞

Department･Research Guidance･Supervisor

Department	Research Guidance	Supervisor		Remarks
Basic Materials	Materials Chemistry	Supervisor	Noda Kazuhiko	
	Physical Metallurgy	Supervisor	Kariya Yoshiharu	
	Extreme Materials Science	Supervisor	Nagayama Katsuhisa	
	Advanced Research Program on Thin Film Materials and Its Application	Supervisor	Yumoto Atsushi	
	Semiconductor Materials	Supervisor	Kyuno Kentaro	
	Materials Science of Random System	Supervisor	Masaki Tadahiko	
	Resources and Energy Materials Science	Supervisor	Arai Tsuyoshi	
	Materials Science	Supervisor	Shimojo Masayuki Xiaobin Zhang	
	Advanced Materials	Supervisor	Ishizaki Takahiro	
	Materials Design Research	Supervisor	Serizawa Ai Lee So Yoon	
Material Property	Biomaterials Science and Engineering	Supervisor	Matsumura Kazunari	
	Study of High Functional Materials	Supervisor Supervisor Supervisor	Murakami Masato Sakai Naomichi Ikegami Daisuke Oka Tetsuo	
	Research of Bioorganic Material Chemistry	Supervisor	Hatano Akihiko	
	Applied Photochemistry	Supervisor	Konishi Toshifumi	

＜Materials Science and Engineering＞

Subject･Lecturer Professor･Number of Credits･Semester

Subject	Credits	Semester				Lecturer Professor	Course in English	Note
		Spring		Fall				
		1Q	2Q	3Q	4Q			
High Functional Materials	2	Not held in AY2020				Murakami Masato	○	
Materials Chemistry	2				◎	Noda Kazuhiko	○	
Thin Film Physics	2	◎				Kyuno Kentaro	○	
Methods in Bio－inspired Nanomaterial Science	2	○				Matsumura Kazunari	○	
Basic Physics in Electron Microscopy	2	◎				Shimojo Masayuki	○	
Enzyme Engineering	2			○		Hatano Akihiko	○	

＜Applied Chemistry＞

Department･Research Guidance･Supervisor

Department	Research Guidance	Supervisor		Remarks
Physical Chemistry	Applied Photochemistry	Supervisor	Konishi Toshifumi	
	Applied Electrochemistry	Supervisor	Imabayashi Shinichiro	
	Organic Electron Transfer Chemistry Exercise	Supervisor	Tajima Toshiki	
	Chemical Engineering	Supervisor	Yoshimi Yasuo	
	Research of Energy Engineering	Supervisor	Nomura Mikihiro	
Organic Chemistry	Synthetic Organic Reaction	Supervisor	Kitagawa Osamu	
	Organic Materials Chemistry	Supervisor	Kidowaki Masatoshi	
	Polymer Materials Chemistry	Supervisor	Naga Naofumi	
	Supramolecular Chemistry	Supervisor	Nakamura Asao	
	Research of Biomolecular Chemistry	Supervisor	Hatano Akihiko	
Analytical Chemistry	Environmental Analytical Chemistry	Supervisor	Masadome Takashi	
Biological Science	Life Science	Supervisor	Yamashita Mitsuo	
	Study on Chemical Biology	Supervisor	Hamasaki Keita	
Inorganic Chemistry	Inorganic Materials Chemistry	Supervisor	Kiyono Hajime	
	Molecular Assemblies for Crystal Engineering	Supervisor	Hori Akiko	

＜Applied Chemistry＞

Subject･Lecturer Professor･Number of Credits･Semester

Subject	Credits	Semester				Lecturer Professor	Course in English	Note
		Spring		Fall				
		1Q	2Q	3Q	4Q			
Biomedical Technology Based on Chemical Engineering	2			○		Yoshimi Yasuo	○	
Environmental Analytical Chemistry	2	○				Masadome Takashi	○	
Bioorganic Photochemistry	2			○		Nakamura Asao	○	
Chemical Biology	2	○				Matsumura Kazunari	○	
Life Science	2			○		Yamashita Mitsuo	○	
Energy and Water Treatment Based on Chemical Engineering	2			○		Nomura Mikihiro	○	
Basic Electrochemistry	2	○				Imabayashi Shinichiro	○	
Organic Stereochemistry	2			○		Kitagawa Osamu	○	
Chemistry of Solid State Materials	2	○				Kiyono Hajime	○	
Polymer Chemistry	2	○				Naga Naofumi	○	
Enzyme Engineering	2			○		Hatano Akihiko	○	

＜Mechanical Engineering＞

Department・Research Guidance・Supervisor

Department	Research Guidance	Supervisor		Remarks
Mechanics /Materials / Process	Structure and Properties of Materials for Mechanical Engineering	Supervisor	Takasaki Akito	
	Machinery Dynamics	Supervisor	Hosoya Naoki	
	Optimal System Design	Supervisor	Hasegawa Hiroshi	
	Granular Dynamics	Supervisor	Saeki Masato	
	Studies on Environmentally Friendly Materials	Supervisor	Fujiki Akira	
	Solid Mechanics	Supervisor	Sakaue Kenichi	
	Research of Advanced Design based on Material Strength	Supervisor	Hashimura Shinji	
	Materials Reliability Engineering	Supervisor	Utsunomiya Takao	
	Study for Processing on Structual Materials	Supervisor	Aoki Koushirou	
Fluids /Heat /Energy	Thermal Fluid Engineering	Supervisor	Tsunoda Kazumi	
	Micro Heat Fluid Engineering	Supervisor	Tange Manabu	
	Advanced Fluid Technology and Applications	Supervisor	Suwa Yoshihide	
	Study on Thermal Process Engineering	Supervisor	Kimijima Shinji	
	Studies on Energy and Environmental Engineering	Supervisor	Yahagi Yuji	
	Studies on Radiation Transfer	Supervisor	Yamada Jun	
		Supervisor	Rajagopalan umamaheswari	
	Studies on Energy Transport Engineering	Supervisor	Tanaka Kotaro	
	Combustion Engineering	Supervisor	Saito Hiroyasu	
	Study on Thermal Fluid Science and Engineering	Supervisor	Shirai Katsuaki	
Control /Information /Intelligence	Fluid Power Control	Supervisor	Kawakami Yukio	
	Dynamic System Control Theory Research	Supervisor	Ito Kazuhisa	
	Robot Control Engineering	Supervisor	Uchimura Yutaka	
	Intelligent Mechanical Systems	Supervisor	Matsuhira Nobuto	
	Advanced Motion Control	Supervisor	Shimada Akira	
	Study on Space Exploration Robots	Supervisor	Iizuka Kojiro	
Humans-Mechanical System /Life Support	Human Factor	Supervisor	Kasuga Nobuyo	
	Human-machine Interface	Supervisor	Hirose Toshiya	
	Assistive Technology	Supervisor	Yamamoto Shinichirou	
	Biomechanics and Injury Prevention	Supervisor	Yamamoto Sota	
	Biomicrofluidics Research Project	Supervisor	Futai Nobuyuki	
Design	Study for Product Design	Supervisor	Masunari Kazutoshi	
		Supervisor	Furuya Shigeru	
		Supervisor	Yoshitake Ryoji	
		Supervisor	Hashida Noriko	
		Supervisor	Yang Wonseok	
			Sakuragi Shin	
			Hidaka Kyoko	
			Ashizawa Yusuke	
	Net Shape Manufacturing	Supervisor	Anzai Masahiro	
	Functional Material Engineering	Supervisor	Yoshihara Shouichirou	
	Die & Mold Engineering	Supervisor	Sawa Takekazu	
	Research on Laser and Laser Applications	Supervisor	Matsuo Shigeki	
Nano /Micro	Heat and Mass Transfer	Supervisor	Ono Naoki	
	Micro Robotics	Supervisor	Nagasawa Sumito	
	Smart Material	Supervisor	Maeda Shingo	
	Studies on Electronic Properties Under Multiple Extreme Conditions	Supervisor	Ishii Yasuyuki	
	Study of computational Statistical Physics	Supervisor	Tomita Yusuke	

＜Mechanical Engineering＞

Subject･Lecturer Professor･Number of Credits･Semester

Subject	Credits	Semester				Lecturer Professor	Course in English	Note
		Spring		Fall				
		1Q	2Q	3Q	4Q			
Advanced Materials Science	2			◎		Takasaki Akito	○	
Neuro-Rehabilitation Engineering	2	○				Yamamoto Shinichirou	○	
Human-Machine System	2			○		Hirose Toshiya	○	
Biomechanics & Injury Prevention	2	○				Yamamoto Sota	○	
Experimental Thermo-fluid Engineering	2	○				Tange Manabu	○	
Advanced Micro and Nano Machine	2	○				Maeda Shingo	○	
Transport Phenomena	1			◎		Tanaka Kotaro	○	
Advanced Applications of Fluid Engineering	2			○		Suwa Yoshihide	○	
Adaptive and Optimal Control	2	○				Ito Kazuhisa	○	
Microscale Transport Phenomena	2	○				Ono Naoki	○	
Human-Centric Robotics	2	○				Matsuhira Nobuto	○	
Microscale Fluid Mechanics	2			○		Ono Naoki	○	
Advanced Structural Dynamics	1	◎				Hosoya Naoki	○	
Advanced Thermal Fluid Measurement Science and Engineering	2			○		Shirai Katsuaki	○	
Advanced Seminar in Advertising Design	2			○		Sugaya Kyoko	○	
Materials and Their Interaction with Electromagnetic Waves - Theory and	2	○				Rajagopalan Umamaheswari	○	

＜Architecture and Civil Engineering＞

Department･Research Guidance･Supervisor

Department	Research Guidance	Supervisor		Remarks
Architectural Plannning	※ Architectural Planning	Supervisor	Minami Kazunobu	
	※ Advanced Study of Housing and Environmental Design	Supervisor	Shimizu Ikuro	
Architectural Design	※ Architectural Design	Supervisor	Akahori Shinobu	
		Supervisor	Nishizawa Taira	
		Supervisor	Horikoshi Hidetsugu	
		Supervisor	Gota Osami	
		Supervisor	Harada Masahiro	
		Supervisor	Yamashiro Satoru	
			Tanaka Atsuko	
			Okano Michiko	
	※ Architectural Design Information	Supervisor	Sawada Hideyuki	
	※ Spatial Planning and Design	Supervisor	Taniguchi Taizo	
		Supervisor	Maeda Hidetoshi	
		Supervisor	Matsushita Kiwa	
Architectural History	※History of Architecture	Supervisor	Fujisawa Akira	
		Supervisor	Itou Youko	
Building Environmental Facilities	Research of Building and Community System	Supervisor	Murakami Kimiya	
	Architectural Environmental Engineering	Supervisor	Nishimura Naoya	
		Supervisor	Akimoto Takashi	
			Tsushima Sayana	
Building Structure	Building Structure	Supervisor	Kumazawa Fumitoshi	
		Supervisor	Kabayama Kenji	
	Earthquake Disaster Mitigation of Buildings	Supervisor	Kishida Shinji	
	Building and Ground Dynamic Analysis Engineering	Supervisor	Hijikata Katsuichirou	
	Structural Planning of Buildings	Supervisor	Ozawa Yuki	
	Architectural and Structural Systems	Supervisor	Ishikawa Yuji	
Industrial Engineering	Building Materials and Operations	Supervisor	Hamasaki Hitoshi	
		Supervisor	Koga Jyunko	
	Construction Management	Supervisor	Kanisawa Hirotake	
		Supervisor	Shide Kazuya	
Social Infrastructure Facilities	Structural Engineering	Supervisor	Konno Katsuaki	
		Supervisor	Anami Kengo	
	Composite Materials	Supervisor	Iyoda Takeshi	
	Concrete Structure	Supervisor	Katsuki Futoshi	
	Geotechnical Engineering	Supervisor	Namikawa Tsutomu	
		Supervisor	Inazumi Shinya	
	Social Infrastructure Management	Supervisor	Michael Henry	

＜Architecture and Civil Engineering＞

Department･Research Guidance･Supervisor

Department	Research Guidance	Supervisor		Remarks
Regional and Environmental Planning	Hydro-Engineering	Supervisor	Miyamoto Hitoshi	
		Supervisor	Hirabayashi Yukiko	
	Urban Environmental Engineering	Supervisor	Morita Masaharu	
	Spatial Information Engineering	Supervisor	Nakagawa Masafumi	
	※Planning of Ecoinfrastructure Systems	Supervisor	Kurishima Hideaki	
		Supervisor	Masuda Yukihiro	
			Yatagawa Rumi	
	※Environmental Planning Studies	Supervisor	Nakaguchi Takahiro	
	Infrastructure Planning	Supervisor	Iwakura Seiji	
	Research on mathematical programming	Supervisor	Makishita Hideyo	
City Planning	※City Planning	Supervisor	Shimura Hideaki	
		Supervisor	Sato Hirosuke	
		Supervisor	Kuwata Hitoshi	
		Supervisor	Sakuyama Yasushi	
	※Environmental Design	Supervisor	Shinozaki Michihiko	
		Supervisor	Suzuki Shunji	
	※Information and Regional Development	Supervisor	Nakamura Hiroyuki	
	※Planning for Urban and Regional Resilience	Supervisor	Nakamura Hitoshi	
			Yasmin Bhattacharya	

*Research Guidance marked※ includes only Special Exercises (12 credits)

＜Architecture and Civil Engineering＞

Subject･Lecturer Professor･Number of Credits･Semester

Subject	Credits	Semester				Lecturer Professor	Course in English	Note
		Spring		Fall				
		1Q	2Q	3Q	4Q			
gPBL in China (a)	2	Time, registeration etc. will be announced on the bulletin board after the course content has been fixed.				Minami Kazunobu	○	
gPBL in China (b)	2					Minami Kazunobu	○	
Architectural Design Theory and Practice	2			○		Minami Kazunobu	○	
Architectural Planning	2		◎			Minami Kazunobu	○	
Housing and Environmental Design	2			○		Shimizu Ikuro	○	
gPBL in Asia	2	Time, registeration etc. will be announced on the bulletin board after the course content has been fixed.				Minami Kazunobu	○	
gPBL in Europe	2					Suzuki Shunji Nakamura Hiroshi	○	
Architectural Environment Planning	2	○				Akahori Shinobu Nishizawa Taira	○	
Architectural Planning and Project Design	2			○		Yamashiro Satoru Matsushita Kiwa	○	
Exchange program with ENSAPB(a)	2	Time, registeration etc.for the course will be announced on the message board after the course content has been fixed				Akahori Shinobu Aoshima Keita	○	Inbound
Exchange program with ENSAPB(b)	2					Akahori Shinobu Aoshima Keita	○	Outbound
Exchange program with Hanyang University(a)	2					Akahori Shinobu Kuwata Hitoshi	○	Inbound
Exchange program with Hanyang University(b)	2					Akahori Shinobu Kuwata Hitoshi	○	Outbound
Exchange Program with L'Aquila University (a)	2					Itou Youko Sato Hirosuke	○	Inbound
Exchange Program with L'Aquila University (b)	2					Itou Youko Sato Hirosuke	○	Outbound
Exchange program with MARHI(a)	2					Nishizawa Taira Kaiho Kei	○	Inbound
Exchange program with MARHI(b)	2					Nishizawa Taira Kaiho Kei	○	Outbound
History of Architecture and Urban Design	2	◎				Itou Youko	○	Compulsory Elective
Heating Ventilation and Air Conditioning	2			○		Murakami Kimiya Akimoto Takayuki	○	
Geotechnical Engineering	2			○		Namikawa Tsutomu	○	
Environmental Geotechnics	2	○				Inazumi Shinya	○	
Durability Design for Steel Structures	2	○				Anami Kengo	○	
Science of Concrete Material	2			○		Iyoda Takeshi	○	
Environmental Hydraulics	2				◎	Miyamoto Hitoshi	○	
Hydrology and Water Resources	2			○		Kanae Yukiko	○	
Hydrology for Engineers	2			○		Morita Masaru	○	
Urban Environmental Engineering	2	○				Morita Masaru	○	
Urban and Community Design	2			◎		Shinozaki Michihiko Maeda Hidetoshi Shimura Hideaki	○	
Spatial Planning for Disaster Risk Reduction	2	◎				Nakamura Hitoshi	○	Compulsory Elective
Internship a	2	○				Nakamura Hitoshi Minami Kazunobu Akahori Shinobu Masuda Yukihiro	○	
Internship b	2	○				Nakamura Hitoshi Minami Kazunobu Akahori Shinobu Masuda Yukihiro	○	
Internship c	2	○				Nakamura Hitoshi Minami Kazunobu Akahori Shinobu Masuda Yukihiro	○	

＜Architecture and Civil Engineering＞

Subject･Lecturer Professor･Number of Credits･Semester

Subject	Credits	Semester				Lecturer Professor	Course in English	Note
		Spring		Fall				
		1Q	2Q	3Q	4Q			
Internship d	2	○				Nakamura Hitoshi Minami Kazunobu Akahori Shinobu Masuda Yukihiro	○	
Lectures on Civil Engineering	2			○		Anami Kengo Iyoda Takeshi Konno Katsuaki Namikawa Tsutomu Miyamoto Hitoshi Iwakura Masashi Nakagawa Masafumi Inazumi Shinya Hirabayashi Yukiko	○	
Placemaking Studies	2	○				Suzuki Shunji	○	
Urban Environmental System Planning	2			○		Masuda Yukihiro	○	
Field studies for sustainable city	2	○				Nakaguchi Takahiro	○	
Advanced　Structural Systems	2			○		Ishikawa Yuji	○	
Principles of Sustainable Development for Engineers	2			○		Iyoda Takeshi	○	

＜Systems Engineering and Science＞

Department･Research Guidance ･Supervisor

Department	Research Guidance	Supervisor		Remarks
Machine Control	System Design Research	Supervisor	Hasegawa Hiroshi Watanabe Dai Tanaka Minami Bui Ngoc Tam Sakai Yasunori	
	Research in Advanced Mechatronics	Supervisor	Adachi Yoshitaka	
	Research on Fluid Control System	Supervisor	Kawakami Yukio	
	Research on Control System	Supervisor	Chen Xinkai	
	Advanced Driver Assistance Systems Research	Supervisor	Ito Toshio	
	Study on the Control Systems of Cell Physiology	Supervisor	Yoshimura Kenjiro	
	Study on Robotics System	Supervisor	Iizuka Kojiro	
Electronic Information	Signal Processing System	Supervisor	Watanabe Eiji Ioka Eri	
	Research in Medical Ultrasonic Engineering	Supervisor	Tanaka Naohiko	
	Advanced Communication Design	Supervisor	Mano Kazunori	
	Information Network Systems	Supervisor Supervisor	Miyoshi Takumi Inoue Masahiro Yokemura Taketoshi Yamazaki Taku	
	Studies on Problem-solving System	Supervisor	Aiba Akira Suzuki Tetsuya	
	Visual Information Processing System	Supervisor	Takahashi Masanobu	
	Observation System for Space and Astrophysical Science	Supervisor Supervisor	Yoshida Kenji Kubota Aya	
	Systems Quantum Information	Supervisor	Kimura Gen	
	Communication and Diversity Studies	Supervisor	Yamazaki Atsuko	
	Community Information System Research	Supervisor	Murakami Kayoko	
	Software Engineering and Knowledge Engineering	Supervisor	Matsuura Saeko	
	Materials for Energy and Environment	Supervisor	Miryala Muralidhar	
	High-pressure Material Science Research	Supervisor	Yamamoto Ayako	
	Electronic Circuits and Systems Design	Supervisor	Nicodimus Retdian	
	Research in Data Science and Simulation	Supervisor	Ichikawa Manabu	
	Analysis and Applications of Nonliner System / Exercise	Supervisor	Ioka Eri	
	Cognitive Systems Research	Supervisor	Yatabe Kiyomi	
Social and Environmental	Social Design	Supervisor	Nakai Yutaka	
	Special Lectures on Social Mathematical Systems	Supervisor	Muto Masayoshi	
	Special Lectures on Economic System	Supervisor	Koyama Yusuke Yatagawa Rumi	
	Environmental System Studies	Supervisor Supervisor	Iwata Tomoko Nakaguchi Takahiro	
	Topics on Management System Research	Supervisor	Tanaka Hideho	
	Planning for Urban and Regional Resilience	Supervisor	Nakamura Hitoshi Yasmin Bhattacharya	
	Information Design	Supervisor	Masuda Yukihiro	

＜Systems Engineering and Science＞

Department･Research Guidance ･Supervisor

Department	Research Guidance	Supervisor		Remarks
Life Sciences	System Research in Biomedical Control	Supervisor	Watanabe Nobuo Nakamura Naoko	
	Medicinal Chemistry and Organic Synthesis	Supervisor Supervisor	Suhara Yoshitomo Hirota Yoshihisa	
	Molecular Cell Biology	Supervisor	Fukui Koji	
	Research on Welfare and Rehabilitation Support System	Supervisor	Hanafusa Akihiko	
		Supervisor	Yamamoto Shinichirou	
		Supervisor	Akagi Ryota Takagi Motoki	
	Research in Food Chemistry	Supervisor	Osakabe Naomi	
	Advanced Environmental Life Sciences	Supervisor	Fuse Hiroyuki Okuda Hiroshi Azham Zulkarnain	
	Research on Brain Imaging System	Supervisor	Satou Hiroki	
	Biomedical Polymer Chemistry	Supervisor	Nakamura Asao	
	Health Effects Science Research	Supervisor	Yajima Ichiro	
Mathematical Science	Applied Mathematics Science	Supervisor Supervisor Supervisor Supervisor Supervisor	Kameko Masaki Ozaki Katsuhisa Matsuda Haruhide Fukuda Akiko Shimizu Kenichi Idogawa Tomoyuki	
	Research on Mathematical Control	Supervisor	Zhai Guisheng	
	Research in Mathematical Physics	Supervisor	Suzuki Tatsuo Nakatsu Tomonori	
	Nonlinear Analysis	Supervisor	Takeuchi Shingo Enomoto Yuko	
	Advanced Mathematical Analysis	Supervisor	Ishiwata Tetsuya	
	Research on Partial Differential Equation on Complex Domain	Supervisor	Yamazawa Hiroshi	
	Research on Mathematics Education	Supervisor	Makishita Hideyo	
	Educational Development of Higher Education	Supervisor	Sakakibara Nobuhisa	

＜Systems Engineering and Science＞

Subject･Lecturer Professor･Number of Credits･Semester

Subject	Credits	Semester				Lecturer Professor	Course in English	Note
		Spring		Fall				
		1Q	2Q	3Q	4Q			
Cross-cultural Engineering Project	2			○		Hasegawa Hiroshi Inoue Masahiro Mano Kazunori Yamazaki Atsuko Ichikawa Manabu Yokemura Taketoshi	○	
Embedded Systems Engineering	2			○		Inoue Masahiro Ooe Nobuhiro Yokemura Taketoshi	○	
Control Systems Engineering	2	◎				Chen Xinkai	○	
Computational Models	2			○		Aiba Akira	○	
Statistical Signal Processing	2	◎				Mano Kazunori	○	
Data Communication Network	2			◎		Miyoshi Takumi	○	
Engineering Optimization	2			○		Hasegawa Hiroshi	○	
Neurophysiology and Rehabilitation Engineering	2			○		Yamamoto Shinichirou	○	
Welfare Engineering	2			○		Hanafusa Akihiko	○	
Advanced Biofluid Engineering	2		◎			Watanabe Nobuo	○	
Topics in Algebraic Topology	1	◎				Kameko Masaki	○	
Topics in Mathematical Control	1	◎				Zhai Guisheng	○	
Language Communication Studies in Engineering	2	◎				Yamazaki Atsuko	○	
Advanced Driver Assistance System	2			◎		Ito Toshio	○	
Language Information Management	2	○				Murakami Kayoko	○	
Advanced Course on Materials for Energy and Environment	2	Not held in AY2020				Miryala Muralidhar	○	
High－Pressure Science	2	◎				Yamamoto Ayako	○	
Electronic Circuits and Systems	2	◎				Nicodimus Retdian	○	
Spatial Planning for Disaster Risk Reduction	2	◎				Nakamura Hitoshi	○	
Urban Environmental System Planning	2			○		Masuda Yukihiro	○	

＜Global Course of Engineering and Science＞

Department･Research Guidance･Supervisor

Department	Research Guidance	Supervisor		Remarks
Advanced Science and Innovative Engineering	Advanced Science and Innovative Engineering	Supervisor	Takasaki Akito	
		Supervisor	Hasegawa Tadahiro	
		Supervisor	Mano Kazunori	
		Supervisor	Kamioka Eiji	
		Supervisor	Miyoshi Takumi	
		Supervisor	Miryala Muralidhar	
		Supervisor	Yamamoto Ayako	
		Supervisor	Rzeznicka Izabela Irena	
		Supervisor	Nicodimus Retdian	
		Supervisor	Ueno Kazuyoshi	
		Supervisor	Yokoi Hideki	
		Supervisor	Ishikawa Hiroyasu	
		Supervisor	Koike Yoshikazu	
		Supervisor	Takami Hiroshi	
		Supervisor	Fujita Goro	
		Supervisor	Matsumoto Satoshi	
		Supervisor	Nishikawa Hiroyuki	
		Supervisor	Morino Hiroaki	
		Supervisor	Gyoda Koichi	
		Supervisor	Hirose Kazuhide	
		Supervisor	Usami Kimiyoshi	
		Supervisor	Kimura Masaomi	
		Supervisor	Andou Yoshinobu	
		Supervisor	Yoshimi Takashi	
		Supervisor	Muguruma Hitoshi	
		Supervisor	Kanoh Shinichiro	
		Supervisor	Noda Kazuhiko	
		Supervisor	Kyuno Kentaro	
		Supervisor	Shimojo Masayuki	
		Supervisor	Matsumura Kazunari	
		Supervisor	Murakami Masato	
		Supervisor	Imabayashi Shinichiro	
		Supervisor	Yoshimi Yasuo	
		Supervisor	Nomura Mikihiro	
		Supervisor	Kitagawa Osamu	
		Supervisor	Nakamura Asao	
		Supervisor	Masadome Takashi	
		Supervisor	Yamashita Mitsuo	
		Supervisor	Hamasaki Keita	
		Supervisor	Tange Manabu	
		Supervisor	Matsuhira Nobuto	
		Supervisor	Yamamoto Sota	
		Supervisor	Ono Naoki	
		Supervisor	Minami Kazunobu	
		Supervisor	Maeda Hidetoshi	
		Supervisor	Itou Youko	
		Supervisor	Shinozaki Michihiko	
		Supervisor	Nakamura Hitoshi	
		Supervisor	Hasegawa Hiroshi	
		Supervisor	Ito Kazuhisa	
		Supervisor	Chen Xinkai	
		Supervisor	Ito Toshio	
		Supervisor	Inoue Masahiro	
		Supervisor	Aiba Akira	
		Supervisor	Yamazaki Atsuko	
		Supervisor	Watanabe Nobuo	

＜Global Course of Engineering and Science＞

Department･Research Guidance･Supervisor

Department	Research Guidance	Supervisor		Remarks
Advanced Science and Innovative Engineering	Advanced Science and Innovative Engineering	Supervisor	Hanafusa Akihiko	
		Supervisor	Yamamoto Shinichirou	
		Supervisor	Kameko Masaki	
		Supervisor	Zhai Guisheng	
		Supervisor	Nakamura Hiroyuki	
		Supervisor	Maeda Shingo	
		Supervisor	Hosoya Naoki	
		Supervisor	Murakami Kayoko	
		Supervisor	Michael Rudolf Koblischka	
		Supervisor	Anjela Dimitrova Koblischka-Veneva	
		Supervisor	Paolo Mele	
			Thomas Silverston	
			Francesca Borzumati	
			Alicja Klimkowicz	
			Phan Xuan Tan	
			Yasmin Bhattacharya	

＜Global Course of Engineering and Science＞

Subject･Lecturer Professor･Number of Credits･Semester

Subject	Credits	Semester				Lecturer Professor	Course in English	Note
		Spring		Fall				
		1Q	2Q	3Q	4Q			
Advanced Science and Innovative Engineering	2	◎				Yamamoto Ayako Miryala Muralidhar Rzeznicka Izabela Irena Nicodimus Retdian	○	Compulsory
Overseas Project Research	2		○			Rzeznicka Izabela Irena	○	
Advanced Materials Science	2			◎		Takasaki Akito	○	
Statistical Signal Processing	2	◎				Mano Kazunori	○	
Micro Mechatronics	1				◎	Hasegawa Tadahiro	○	
Ubiquitous Computing System	2			◎		Kamioka Eiji	○	
Data Communication Network	2			◎		Miyoshi Takumi	○	
High-Pressure Science	2	◎				Yamamoto Ayako	○	
Material Science for Engineering	2		◎			Yamamoto Ayako	○	
Structural Chemistry	2			◎		Yamamoto Ayako	○	
Materials for Energy and Environment	2			◎		Miryala Muralidhar	○	
How to Write and Publish a Scientific Paper at International Journals	2	◎				Miryala Muralidhar	○	
Advances in Superconducting Cable Technology and its Applications	2			◎		Miryala Muralidhar	○	
Superconducting materials: Synthesis and Characterization	2	◎				Miryala Muralidhar	○	
General and Sustainable Chemistry	2		◎			Rzeznicka Izabela Irena	○	
Basic Molecular Spectroscopy	2			◎		Rzeznicka Izabela Irena	○	
Advanced Spectroscopy	2				◎	Rzeznicka Izabela Irena	○	
Vacuum Technology and Surface Analysis	2				◎	Rzeznicka Izabela Irena	○	
Electronic Circuits and Systems	2	◎				Nicodimus Retdian	○	
Mathematics for Electrical and Electronics Engineering	2	◎				Nicodimus Retdian	○	
Intensive course on Integrated Circuits Analysis and Design 1	2		◎			Nicodimus Retdian	○	
Intensive course on Integrated Circuits Analysis and Design 2	2				◎	Nicodimus Retdian	○	
Future Internet	2				◎	Thomas Silverston	○	
Physics of Nanostructures: 0D-, 1D-, 2D-Materials	2	◎				Michael Rudolf Koblischka	○	
2D Superconductors	2				◎	Michael Rudolf Koblischka	○	
Advanced Characterization of Materials	2			◎		Anjela Dimitrova Koblischka Veneva	○	
Fundamentals of Magnetism and Advanced Magnetic Materials	2				◎	Anjela Dimitrova Koblischka Veneva	○	
Multimedia Technology	2				◎	Phan Xuan Tan	○	
Materials Characterization Methods	2		◎			Alicja Klimkowicz	○	
Microscale Fluid Mechanics	2			○		Ono Naoki	○	
Human-Centric Robotics	2	○				Matsuhira Nobuto	○	
Biomechanics & Injury Prevention	2	○				Yamamoto Sota	○	
Chemical Biology	2			○		Matsumura Kazunari	○	
Environmental Analytical Chemistry	2	○				Masadome Takashi	○	
Biomedical Technology Based on Chemical Engineering	2			○		Yoshimi Yasuo	○	
Energy and Water Treatment Based on Chemical Engineering	2			○		Nomura Mikihiro	○	
Basic Electrochemistry	2			○		Imabayashi Shinichiro	○	
Organic Stereochemistry	2			○		Kitagawa Osamu	○	
Life Science	2			○		Yamashita Mitsuo	○	
Bioorganic Photochemistry	2			○		Nakamura Asao	○	
Advanced Power System	2	○				Fujita Goro	○	
Autonomous Mobile Robot System	2	○				Andou Yoshinobu	○	
Advanced Quantum-Beam Applications	2			○		Nishikawa Hiroyuki	○	

＜Global Course of Engineering and Science＞

Subject･Lecturer Professor･Number of Credits･Semester

Subject	Credits	Semester				Lecturer Professor	Course in English	Note
		Spring		Fall				
		1Q	2Q	3Q	4Q			
Electric Power Control	2	○				Takami Hiroshi	○	
Advanced Information System Engineering	2			○		Sripian Peeraya	○	
Wireless Communications Network	2	○				Gyoda Koichi	○	
Advanced Electronic Circuit	2			○		Koike Yoshikazu	○	
Nano Devices and Materials	2	◎				Ueno Kazuyoshi	○	
Epitaxial Semiconductor Materials	2	○				Ishikawa Hiroyasu	○	
Advanced Bioelectronics	2			○		Muguruma Hitoshi	○	
Optical Fiber Engineering	2			○		Yokoi Hideki	○	
Advances in High Voltage and Power Apparatus Engineering	2	○				Matsumoto Satoshi	○	
Robot Task & System	2			○		Yoshimi Takashi	○	
Topics in Data Engineering	2			○		Kimura Masaomi	○	
Advanced Computer Architecture	2			○		Usami Kimiyoshi	○	
Advanced Antenna Engineering	2	○				Hirose Kazuhide	○	
Advanced Neural Engineering	2	○				Kanoh Shinichiro	○	
gPBL in Europe	2	※				Suzuki Shunji	○	
gPBL in Asia	2	※				Minami Kazunobu	○	
Architectural Planning	2	◎				Minami Kazunobu	○	
Architectural Design Theory and Practice	2			○		Minami Kazunobu	○	
History of Architecture and Urban Design	2	◎				Itou Youko	○	
Urban and Community Design	2			◎		Shinozaki Michihiko Shimura Hideaki Maeda Hidetoshi	○	
Spatial Planning for Disaster Risk Reduction	2	◎				Nakamura Hitoshi Yasmin Bhattacharya	○	
Neurophysiology and Rehabilitation Engineering	2			○		Yamamoto Shinichirou	○	
Neuro-Rehabilitation Engineering	2	○				Yamamoto Shinichirou	○	
Welfare Engineering	2			○		Hanafusa Akihiko	○	
Control Systems Engineering	2	◎				Chen Xinkai	○	
Embedded Systems Engineering	2			○		Inoue Masahiro	○	
Computational Models	2			○		Aiba Akira	○	
Topics in Mathematical Control	1	○				Zhai Guisheng	○	
Language Communication Studies in Engineering	2	◎				Yamazaki Atsuko	○	
Engineering Optimization	2			○		Hasegawa Hiroshi	○	
Adaptive and Optimal Control	2	○				Ito Kazuhisa	○	
Methods in Bio-inspired Nanomaterial Science	2	○				Matsumura Kazunari	○	
Materials Chemistry	2				◎	Noda Kazuhiko	○	
Thin Film Physics	2	◎				Kyuno Kentaro	○	
Basic Physics in Electron Microscopy	2	◎				Shimojo Masayuki	○	
High Functional Materials	2	Not held in AY2020				Murakami Masato	○	
Advanced Driver Assistance System	2			◎		Ito Toshio	○	
Experimental Thermo-fluid Engineering	2	○				Tange Manabu	○	
Mobile Communication Networks	2	○				Morino Hiroaki	○	
Advanced Biofluid Engineering	2		◎			Watanabe Nobuo	○	
Urban and Regional Development in Information Age	2			○		Nakamura Hiroyuki	○	
Advanced Micro and Nano Machine	2	○				Maeda Shingo	○	
Advanced Structural Dynamics	1	○				Hosoya Naoki	○	
Language Information Management	2	○				Murakami Kayoko	○	

＜Sub-Major Program Subjects＞

Subject･Lecturer Professor･Number of Credits･Semester

Subject	Credits	Semester				Lecturer Professor	Course in English	Note
		Spring		Fall				
		1Q	2Q	3Q	4Q			
Introduction to Management for Engineers	2			◎		Kato Kyoko	○	
International Marketing	2				◎	Nakamura Jun	○	
Management of Innovation	2				◎	Hayashi Ryuichi	○	
Management of Intellectual Property	2			◎		Tanaka Hideho	○	
International Production Management	2			◎	◎	Hirata Sadayo	○	
Global Engineering Management	2			○		Sakai Naomichi Oka Tetsuo	○	
Global Internship	2	○				Rzeznicka Izabela	○	
Intensive Workshop	2			○		Sakai Naomichi Oka tetsuo	○	
Advanced Research Paper Writing ＆Presentation	2			○		Yamazaki Atsuko	○	

* From any of the above subjects, only up to 4 credits for 2 subjects could be included in the Requirement of Completion.

* For students of Global Course of Engineering and Science, no limitation on number of credits for the Requirement of Completion.

＜Common Subjects＞

Subject･Lecturer Professor･Number of Credits･Semester

Subject	Credits	Semester				Lecturer Professor	Course in English	Note
		Spring		Fall				
		1Q	2Q	3Q	4Q			
Social Volunteer Work (Tokyo 2020 Olympic and Paralympic Games)	1	○				Takasaki Akito		
Advanced Global PBL	2	○				Takasaki Akito	○	
Advanced Global PBL Ⅱ	2	○				Takasaki Akito	○	
Advanced Internship	2	○				Takasaki Akito	○	
Advanced Internship Ⅱ	2	○				Takasaki Akito	○	
Japanese Language Ⅰ	2	○		○		Hannya Yoko Ryo Masaki	Only for International students	Cannot be included in Completion Requirement
Japanese Language Ⅱ	2	○		○		Ryo Masaki Inoue Shoko Jeong Mijeong		
Japanese Language Ⅲ	2	○		○		Inoue Shoko Jeong Mijeong		

Subject Assignment List

-Doctor’ｓ Course-

＜Regional Environment Systems＞

Research Guidance Field・Research Guidance Subject and Supervisor

Field	Research Guidance Subject	Supervisor	Remarks
Regional Environment Planning	Advanced Research Program on Regional Environmental Design (Research Guidance)	Morita Masaru Nakamura Hitoshi Inazumi Shinya Shinozaki Michihiko Murakami Kimiya Iwakura Seiji Fujisawa Akira Akahori Shinobu Itou Youko Nishimura Naoya Horikoshi Hidetsuku Shimura Hideaki Minami Kazunobu Kanisawa Hirotake Akimoto Takashi Nakaguchi Takahiro Kuwata Hitoshi Kabayama Kenji Matsushita Kiwa Taniguchi Taizo Maeda Hidetoshi Namikawa Tsutomu Gota Osami Shimizu Ikuro Sawada Hideyuki Yamashiro Satoru Harada Masahiro Nishizawa Taira Kurishima Hideaki Miyamoto Hitoshi Nakagawa Masafumi Sato Hirosuke Sakuyama Yasushi Shide Kazuya Masuda Yukihiro Suzuki Shunji Iwata Tomoko Hirabayashi Yukiko	

＜Regional Environment Systems＞

Research Guidance Field・Research Guidance Subject and Supervisor

Field	Research Guidance Subject	Supervisor	Remarks
Environmental Materials Engineering	Advanced Research Program on Eco-materials Engineering (Research Guidance)	Takasaki Akito Murakami Masato Masadome Takashi Nakamura Asao Imabayashi Shinichiro Noda Kazuhiko Naga Naofumi Yamashita Mitsuo Kitagawa Osamu Matsumura Kazunari Kariya Yoshiharu Nomura Mikihiro Koga Jyunko Arai Tsuyoshi Kidowaki Masatoshi Kiyono Hajime Tajima Toshiki Hatano Akihiko Konishi Toshifumi Fujiki Akira Sakaue Kenichi Hashimura Shinji Utsunomiya Takao Miryala Muralidhar Yamamoto Ayako Hori Akiko Hamasaki Hitoshi Sakai Naomichi Ikegami Daisuke Camelia Miron Michael Rudolf Koblischka Anjela Dimitrova Koblischka-Veneva Rzeznicka Izabela Irena	
Energy and Environmental Engineering	Advanced Research Program on Environmental Energy Engineering (Research Guidance)	Irikura Takashi Nishikawa Hiroyuki Yahagi Yuji Yamada Jun Tsunoda Kazumi Tanaka Kotaro Fujita Goro Matsumoto Satoshi Ono Naoki Kimijima Shinji Saito Hiroyasu Tange Manabu Suwa Yoshihide Ishii Yasuyuki Rajagopalan Umamaheswari Shirai Katsuaki	

＜Regional Environment Systems＞

Research Guidance Field・Research Guidance Subject and Supervisor

Field	Research Guidance Subject	Supervisor	Remarks
Environmental Disaster Prevention Research	Advanced Research Program on Urban Engineering for Disaster Mitigation (Research Guidance)	Katsuki Futoshi Kumazawa Fumitoshi Konno Katsuaki Anami Kengo Kishida Shinji Iyoda Takeshi Hijikata Katsuichirou Ishikawa Yuji Ozawa Yuki Michael Henry	
Tip Management Engineering	Advanced Research Program on Management of Technology (Research Guidance)	Tanaka Hideho Hirata Sadayo	

＜Functional Control Systems＞

Research Guidance, Field ･Research Guidance Subject and Supervisor

Field	Research Guidance Subject	Supervisor	Remarks
Communication Function Control Engineering	Advanced Research on Telecommunication Function Control （Research Guidance）	Watanabe Eiji Miyata Sumiko Aiba Akira Takahashi Masanobu Saitoh Atsushi Miyoshi Takumi Yoshida Kenji Nakai Yutaka Kamioka Eiji Hirose Kazuhide Kanzawa Yuuchi Tanaka Naohiko Kubota Shuji Tanaka Shinichi Muto Kenji Kubota Aya Morino Hiroaki Gyoda Koichi Yasumura Yoshiaki Yamazaki Kenichi Inoue Masahiro Matsuda Haruhide Mano Kazunori Horie Ryota Hirakawa Yukata Kimura Gen Nicodimus Retdian Eri Ioka	

＜Functional Control Systems＞

Research Guidance, Field ･Research Guidance Subject and Supervisor

Field	Research Guidance Subject	Supervisor	Remarks
Function Device Engineering	Function Device Engineering	Nagayama Katsuhisa Homma Tetsuya Muguruma Hitoshi Koike Yoshikazu Yokoi Hideki Yamaguchi Masaki Kyono Kentaro Masaki Tadahiko Ueno Kazuyoshi Aoki Koushirou Ishikawa Hiroyasu Masunari Kazutoshi Sasaki Masahiro Shimojo Masayuki Furuya Shigeru Yumoto Atsushi Ishizaki Takahiro Maeda Shingo Hashida Noriko Yoshitake Ryoji Yang Wonseok Serizawa Ai Matsuo Shigeki Maeda Tadashi Tomita Yusuke Premachandra Chinthaka	

＜Functional Control Systems＞

Research Guidance, Field ･Research Guidance Subject and Supervisor

Field	Research Guidance Subject	Supervisor	Remarks
System Control Engineering	Advanced Research Program on Systems Control Engineering （Research Guidance）	Murakami Kayoko Yoshihara Shouichirou Kawakami Yukio Usami Kimiyoshi Igarashi Harukazu Chen Xinkai Yamamoto Shinichirou Sugimoto Tooru Adachi Yoshitaka Takami Hiroshi Matsuura Saeko Hasegawa Hiroshi Hasegawa Tadahiro Shimada Akira Kasuga Nobuyo Anzai Masahiro Saeki Masato Ichikawa Manabu Ito Kazuhisa Uchimura Yutaka Kimura Masaomi Yoshimi Takashi Fukuda Hiroaki Andou Yoshinobu Hosoya Naoki Matsuhira Nobuto Muto Masayoshi Koyama Yusuke Fukuda Akiko Kameko Masaki Zhai Guisheng Suzuki Tatsuo Takeuchi Shingo Yamazaki Atsuko Ishiwata Tetsuya Yonemura Shunichi Sugaya Midori Ito Toshio Ozaki Katsuhisa Ijiri Takashi Shimizu Sota Nagasawa Sumito Sawa Takekazu Yamazawa Hiroshi Abiko Satoko Nakajima Tsuyoshi Noda Natsuko Hirose Toshiya Iizuka Kojiro Makishita Hideyo Shimizu　Kenichi Sakakibara　Nobuhisa Matsubara　Ryota Ishizaki　Satoshi Manabe Hiroyuki	

＜Functional Control Systems＞

Research Guidance, Field ･Research Guidance Subject and Supervisor

Field	Research Guidance Subject	Supervisor	Remarks
Life Function Control Engineering	Advanced Research Program on Bio-function Control（Research Guidance）	Yoshimi Yasuo Hamasaki Keita Hanafusa Akihiko Yamamoto Sota Osakabe Naomi Fukui Koji Fuse Hiroyuki Suhara Yoshitomo Satou Hiroki Watanabe Nobuo Kanoh Shinichiro Yoshimura Kenjiro Futai Nobuyuki Akagi Ryota Hirota Yoshihisa Shimizu Kenichi Yajima Ichiro	