April 2024

2024
Revisions to the Curriculum Table

Graduate School
For students enrolled in/before 2024

Pages 1–29: For students who enrolled in AY 2022 to 2023

Pages 30–31: For students who enrolled before AY 2021

The English translation is solely for reference purpose and not a legally definiticve translation of the original Japanese text. Shoud any differences arise between two versions, the Japanese version will prevail as an official authoritative version.

No.	Classification 区分	Compulsory /Elective必修選択	Subject Name科目名	Credits単位	Year開講年	Term期間	Revisions改定区分	Subject name, Lecturer-in-Charge and Term etc. (Changes are shown as [Before revision] → [After revision].) 細かい改定内容	Measures to students在学生の対応
Revision of Common Rules (Master's Program)									
1	curriculum table	Add a description of the "S" mark to the curricular chart, except for the System Safety Engineering. S:Safety subject recommended to be taken							
2	Common	Diploma Policy	Revise the Diploma Policy of Master's Program in Engineering. (New) In Nagaoka University of Technology's Master's Program in Engineering, the vision of human resource development is the production of leading engineers and researchers who are adept at using information technology, have acquired a safety mindset, and possess advanced practical and creative abilities that can facilitate the global expansion of technology. To this end, the master's program has set the following four attainment targets to enable students to acquire a broad education through the various major subjects, common subjects, research guidance, and extracurricular activities both inside and outside the university. 1. Acquisition of the advanced specialized knowledge and expertise in each student's specialized field, development of proficiency in information technology, and formation of a safety mindset. 2. Acquisition of the ability to comprehend life, humanity, and society from a technological perspective; gain an understanding of integrated technologies covering multiple specialized disciplines; and formation of multifaceted and flexible thinking abilities for advanced technology and science. 3. Acquisition of the ability to consider the impact of technology on the environment and safety, gain insight into global social and industrial trends, and development of the ability to demonstrate strategic technology management skills. 4. Acquisition of the ability to work collaboratively in a team with an international perspective, and development of the capability to compete fairly on the global stage as leading international engineers and researchers. A master's degree will be conferred on students who have acquired the number of credits necessary for completion through lectures, seminars, and experiment/practical subjects offered to facilitate the acquisition of the above targets, and have also passed the master's thesis review. (Old) Nagaoka University of Technology's vision of human resource development is the production of leading engineers and researchers who are adept at using information technology, and possess advanced practical and creative abilities that can facilitate the global expansion of technology. To achieve this vision, the master's program has set the following four attributes as targets for students to attain through a broad education comprising major subjects, common subjects, research guidance, and extracurricular activities both inside and outside the university. 1. Acquisition of the ability to fully utilize advanced specialized knowledge and skills in various scientific and technological fields, as well as proficiency in information technology. 2. Acquisition of the ability to comprehend life, humanity, and society from a technological perspective; capability to understand integrated technologies involving multiple specialized disciplines; as well as multifaceted and flexible cognitive abilities to create new ideas in science and technology. 3. Acquisition of the ability to consider the impact of technology on safety, the environment, and culture; as well as the strategic technology management skills to discern and adapt to global trends in society and industry. 4. Acquisition of the ability to work collaboratively in a team with an international perspective, and the capability to compete fairly on the global stage as leading international engineers and researchers. A master's degree will be conferred on students who have acquired the number of credits necessary for completion through lectures, seminars, and experiment/practical classes (which are all offered to facilitate the acquisition of the above targets); and have also passed the master's thesis screening.							

No.	Classification 区分	Compulsory /Elective必修選択	Subject Name科目名	Credits単位	Year開講年	Term期間	Revisions改定区分	Subject name, Lecturer-in-Charge and Term etc. (Changes are shown as [Before revision] → [After revision].) 細かい改定内容	Measures to students在学生の対応
3	Common	Curriculum Policy	Revise the Curriculum Policy of Master's Program in Engineering. (New) Nagaoka University of Technology, in accordance with its Diploma Policy, offers subjects required in each specialized field of science and technology under the concept of an integrated undergraduate and master's program education. Through these subjects, the university will nurture the development of leading engineers and researchers who possess advanced practical and creative abilities that can facilitate the global expansion of technology. To this end, the master's program offers a systematic curriculum based on the following policies. 1. Specialized education is provided through the lecture subjects offered in each major. In addition, students will receive research guidance for the preparation of their master's thesis through seminars and experiment/practical subjects. 2. Through subject categories and subject groups offered by each major, the master's program provides an education that deepens expertise while also addressing interdisciplinary areas. In addition, students will be able to take subjects from other majors, thereby enabling them to understand integrated technologies that cover multiple specialized disciplines. 3. "Research Integrity" is a compulsory subject for all majors. In addition, students will take major subjects to develop proficiency in information technology and form a safety mindset that are closely related to each major. 4. Common subjects are offered to students in all majors to support the development of expertise from a broad perspective and increase their abilities to implement technology in society. Beginning from the undergraduate-level general studies subjects, these subjects are rationally and systematically organized with the aim of achieving each of the goals described in the Diploma Policy. 5. Graduate-level special courses and other courses are offered to facilitate more advanced and systematic study. While enrolled in their major, students can be awarded a certificate of course completion if they take and complete the stipulated subjects required for each course. 6. Students will be provided with opportunities to experience overseas practical research and development activities related to their master's research topics. By engaging in research and development in other countries, students can gain experience to become engineers and researchers who can perform at the global level. 7. The curriculum organizational diagram is provided to support students' self-directed and independent study. [Policy for Academic Achievement Evaluation] The syllabus of each subject will clearly state its purpose and attainment targets, as well as the learning/education goals based on the Diploma Policy. Grading is conducted in a fair, rigorous, and objective evaluation of performance, and credits will be awarded to those who pass the subjects. For the master's thesis, the screening criteria and methods are clearly stated, and pass/fail decisions are made through screening and examination by multiple faculty members. (Old) Nagaoka University of Technology aims to nurture the development of leading engineers and researchers who are adept at using information technology, and possess advanced practical and creative abilities that can facilitate the global expansion of technology. The master's program will enable students to acquire the following four attributes through major subjects and common subjects composed of lectures, seminars, and experiment/practical classes; as well as research guidance and research activities for the master's thesis. Ability to fully utilize advanced specialized knowledge and skills in various scientific and technological fields, as well as proficiency in information technology. Ability to comprehend life, humanity, and society from a technological perspective; capability to understand integrated technologies involving multiple specialized disciplines; as well as multifaceted and flexible cognitive abilities to create new ideas in science and technology. Ability to consider the impact of technology on safety, the environment, and culture; as well as the strategic technology management skills to discern and adapt to global trends in society and industry. Ability to work collaboratively in a team with an international perspective, and the capability to compete fairly on the global stage as leading international engineers and researchers. Each student's performance will be assessed fairly and impartially in accordance with the goals and criteria specified in the syllabus. [Policy for Academic Achievement Evaluation] In order to develop leading engineers and researchers who are adept at using information technology and possess advanced practical and creative abilities that can facilitate the global expansion of technology, students will be evaluated based on their level of achieving the above objectives through examinations and reports in lecture subjects, as well as through reports and oral examinations in seminars and experiment/practical classes. Student performance in the examination of a subject shall be assessed using a 5-point grading system (S, A, B, C, and D). Grades S, A, B, and C are passing grades, while D is a failing grade. Students who pass a subject shall be awarded the designated credits. In addition, the research achievements of students shall be reviewed and assessed based on specified thesis screening criteria and methods.						
5-year Integrated Doctoral Program (Science of Technology Innovation)									
4	Major	Elective	Cultural Intelligence (CQ)	2	1～5	1	Not Conducted in 2024	As shown in the left	N/A
5	Major	Elective	Cultural Leadership	2	1～5	2	Not Conducted in 2024	As shown in the left	N/A
6	Major	Elective	Social Innovation	2	1～5	2	Not Conducted in 2024	As shown in the left	N/A
7	Common	Elective	Advanced Safety and Information Security I	1	1・2	2	Newly-Established	Miyoshi, ※Ogino & ※Ito(Kosuke)	Students who enrolled in and before AY 2023 can take this subject.
8	Common	Elective	Advanced Safety and Information Security II	1	1・2	2	Newly-Established	Miyoshi & ※Sakurai(Tsu)	Students who enrolled in and before AY 2023 can take this subject.
9	Common	Elective	Tecnhological English	2	1・2	1・2	Change of Term Change in Notes Column	1st & 2nd Term→2nd Term 1st sem. ☆(Tue.) ★(Wed. 2nd sem.→★	N/A
10	Common	Elective	English Presentation Skills	2	1・2	1	Newly-Established	Nobuhara ★	Students who enrolled in and before AY 2023 can take this subject.

<table>
<tr><th>No.</th><th>Classification
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修選択</th><th>Subject Name科目名</th><th>Credits単位</th><th>Year開講年</th><th>Term期間</th><th>Revisions改定区分</th><th>Subject name,
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<tr><td colspan="5">Master's Program (Mechanical Engineering)</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>11</td><td>Major</td><td>Diploma
Policy</td><td colspan="7">Add a Diploma Policy.

[Diploma Policy]
Mechanical Engineering has set the following four attainment targets for students in accordance with the Diploma Policy of the Master’s Program in Engineering.

1. Acquisition of the advanced specialized knowledge and expertise in mechanical engineering, development of proficiency in information technology such as data science, and formation of a safety mindset.
2. Acquisition of the ability to comprehend life, humanity, and society from a technological perspective; gain an understanding of integrated technologies covering multiple specialized disciplines including information technology, artificial intelligence, and data science; and formation of multifaceted and flexible thinking abilities for advanced technology and science.
3. Possess a strong awareness of SDG attainment, gain insight into global social and industrial trends, and development of the ability to demonstrate strategic technology management skills.
4. Acquisition of the ability to work collaboratively in a team with an international perspective, and development of the capability to compete fairly on the global stage as leading international engineers and researchers.</td></tr>
<tr><td>12</td><td>Major</td><td>Curriculum
Policy</td><td colspan="7">Add a Curriculum Policy.

[Curriculum Policy]
Mechanical Engineering offers a systematic curriculum based on the following policies in accordance with the Curriculum Policy of the Master’s Program in Engineering.

<table>
<tr><th>Diploma Policy</th><th>Curriculum Policy</th></tr>
<tr><td>1. Acquisition of the advanced specialized knowledge and expertise in mechanical engineering, development of proficiency in information technology such as data science, and formation of a safety mindset.</td><td>To provide students with the advanced specialized knowledge needed to understand/analyze various phenomena and discover new phenomena in mechanical engineering, the major offers information-related subjects and safety-related subjects in addition to the major subject groups of the Mechatronics Engineering course, Smart Factory course, and Environment and Energy course. Students may also take subjects from other majors, thereby enabling them to understand integrated technologies that cover multiple specialized disciplines.</td></tr>
<tr><td>2. Acquisition of the ability to comprehend life, humanity, and society from a technological perspective; gain an understanding of integrated technologies covering multiple specialized disciplines including information technology, artificial intelligence, and data science; and formation of multifaceted and flexible thinking abilities for advanced technology and science.</td><td>The major offers diverse and advanced groups of common subjects to cultivate the ability to comprehend life, humanity, and society from a technological perspective. Seminars are held throughout the first and second years of the master’s program to foster the students’ abilities to ascertain technological trends and gather information in English. Through special practicals and master’s research, students will gain an understanding of integrated technologies covering multiple specialized disciplines, and cultivate multifaceted and flexible thinking abilities for advanced technology and science.</td></tr>
<tr><td>3. Possess a strong awareness of SDG attainment, gain insight into global social and industrial trends, and development of the ability to demonstrate strategic technology management skills.</td><td>The major offers diverse and advanced groups of major subjects and common subjects to foster the students’ abilities to ascertain and gain insight into the latest trends in society and industry, demonstrate strategic technology management skills, and link these with the attainment of SDGs. In the process of conducting special practicals and master’s research, as well as by compiling their results into the master’s thesis, students will expand their discussions with their academic supervisors and other researchers while cultivating strategic technology management skills.</td></tr>
<tr><td>4. Acquisition of the ability to work collaboratively in a team with an international perspective, and development of the capability to compete fairly on the global stage as leading international engineers and researchers.</td><td>The major offers diverse and advanced groups of major subjects and common subjects to foster an international perspective. Research Integrity is offered as a compulsory subject with the aim of cultivating the capability to compete fairly on the global stage. In addition, an overseas practical research and development course is offered to enable students to acquire the ability to work collaboratively in a team with an international perspective.</td></tr>
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13	Major	Education Goals	Revise a part of the Education Goals. (New) (B) Human Qualities (Humanities/Social Science Subjects, Mechanical Engineering Seminars, Research Integrity) (B1) Internationally Wide Social Perspective: Ability and training as leading engineers to provide insight on global social and industrial trends, and consider people's safety and welfare (Old) (B) Human Qualities (Humanities/Social Science Subjects, Mechanical Engineering Seminars) (B1) Internationally Wide Social Perspective: Ability and training as leading engineers to consider people's safety and welfare						
14	Major	Subject Organization	Revise a part of the Subject Organization. (New) 3.1 Subject Requirements The subjects are composed of experimental/practical training subjects (compulsory), lecture subjects (compulsory) and lecture subjects (elective). Experimental/practical training subjects, i.e., "Mechanical Engineering Special Practicals 1 and 2" and "Mechanical Engineering Seminars 1 to 4" are all compulsory subjects and will be conducted under each student's academic supervisor in their assigned research laboratory. For "Mechanical Engineering Special Practicals 1 and 2", each student will conduct research following experimental/research plans formulated through discussions with their academic supervisor. "Mechanical Engineering Seminars 1 to 4" are reading and discussion (journal club) sessions. In principle, these seminars will be conducted in the research laboratory of each student's academic supervisor throughout the 2 years of the master's program. There may be cases where the seminars are jointly conducted by two or more laboratories with similar specialties. "Research Integrity" is essential for understanding the concept of fairness in conducting research as a graduate student. All lecture subjects (elective) are conducted based on each lecturer's field of study with a high degree of specialization. In addition to selecting the lecture subjects, the table below shows the associated field of study for each subject. The relationships between these subjects and corresponding undergraduate-level subjects are also shown to facilitate deeper understanding of the lectures. To avoid cases where students develop a limited scope and focus only on the subjects in their field, it is important for the students to independently and systematically select the subjects to take while considering their future personal applicability. Students are encouraged to select lecture subjects after careful discussions with their academic supervisors. (Old) 3.1 Subject Requirements The subjects are composed of experimental/practical training subjects (compulsory) and lecture subjects (elective). Experimental/practical training subjects, i.e., "Mechanical Engineering Special Practicals 1 and 2" and "Mechanical Engineering Seminars 1 to 4" are all compulsory subjects and will be conducted under each student's academic supervisor in their assigned research laboratory. For "Mechanical Engineering Special Practicals 1 and 2", each student will conduct research following experimental/research plans formulated through discussions with their academic supervisor. "Mechanical Engineering Seminars 1 to 4" are reading and discussion (journal club) sessions. In principle, these seminars will be conducted in the research laboratory of each student's academic supervisor throughout the 2 years of the master's program. However, there may be cases where the seminars are jointly conducted by two or more laboratories with similar specialties. "Research Integrity" is essential for understanding the concept of fairness in conducting research as a graduate student. All lecture subjects are elective, and are conducted based on each lecturer's field of study with a high degree of specialization. In addition to selecting the lecture subjects, the table below shows the associated field of study for each subject. The relationships between these subjects and corresponding undergraduate-level subjects are also shown to facilitate deeper understanding of the lectures. To avoid cases where students develop a limited scope and focus only on the subjects in their field, it is important for the students to independently and systematically select the subjects to take while considering their future personal applicability. Students are encouraged to select lecture subjects after careful discussions with their academic supervisors.						

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<tr><td>15</td><td>Major</td><td>subject figure</td><td colspan="7">Revise the subject figure.

(New)

<table><tr><th></th><th>Mechatronics Engineering Course</th><th>Smart Factory Course</th><th>Environment and Energy Course</th></tr><tr><td>Bachelor's Program in Engineering
(Elective-Compulsory・General Elective)</td><td colspan="3">〔Common/General Subjects〕
Exercises in Mathematics and Dynamics, Exercises in Computer Programming, Applied Statistics, Linear Algebra, Electronic Circuits, Fundamentals of Mechatronics, Materials Thermodynamics, Integrated Exercises for Mechanical Engineering 4, Special Lectures on Mechanical Engineering, Fundamentals of Safety Engineering, Engineering Materials, Materials Physics, Materials Processing Technology</td></tr><tr><td></td><td>(Elective-Compulsory)
Advanced Course in Strength of Materials,
Machine Dynamics,
Design Engineering of Machine Elements,
Fundamental Study of Computational Mechanics,
Instrumentation and Control Engineering,
Dynamical Systems and Control</td><td>(Elective-Compulsory)
Advanced course in Materials 1,
Advanced course in Materials 2,
Engineering Materials,
Design Engineering of Mechanical Systems,
Machine Dynamics,
Design Engineering of Machine Elements,
Smart factory</td><td>(Elective-Compulsory)
Advanced course in Materials 1,
Applied Thermodynamics,
Applied Fluid Mechanics,
Fluid Engineering,
Environment and Energy</td></tr></table>
<table><tr><td>Master's Program in Engineering</td><td colspan="3">〔Common Subjects〕
Advanced Mechanical Engineering, Information Technologies for Mechanical Engineering, Social Innovation, Advanced Lecture on Solid State Physics, Advanced Instrumental Analysis for Materials, Advanced Course for Microstructure of Materials, Advanced non-ferrous metal materials, Strength of Advanced Materials, Anisotropic Engineering, Research Integrity</td></tr><tr><td></td><td>Advanced Automation,
Advanced Study on Mathematical Design,
Precise measurement engineering,
Bioengineering</td><td>Tribology,
Advanced Construction Machinery Engineering,
Fracture Mechanics,
Engineering Ultrasound,
Ultrasonic machining,
Processing Technology on Advanced Single Crystals
Physics of Laser Materials Processing</td><td>Advanced Thermal Engineering
Advanced Compressible Fluid Dynamics,
Advanced Course for Non-Newton Fluid,
Radiative Heat Transfer and Solar Energy Engineering,
High Energy Materials Engineering,
Snow and Ice Technology</td></tr></table>
(Old)

<table><tr><th></th><th>Mechatronics Engineering Course</th><th>Smart Factory Course</th><th>Environment and Energy Course</th></tr><tr><td>Bachelor's Program in Engineering
(Elective-Compulsory・General Elective)</td><td colspan="3">〔Common/General Subjects〕
Exercises in Mathematics and Dynamics, Exercises in Computer Programming, Applied Statistics, Linear Algebra, Electronic Circuits, Fundamentals of Mechatronics, Materials Thermodynamics, Integrated Exercises for Mechanical Engineering 4, Special Lectures on Mechanical Engineering, Fundamentals of Safety Engineering, Engineering Materials, Materials Physics, Materials Processing Technology</td></tr><tr><td></td><td>(Elective-Compulsory)
Instrumentation and Control Engineering,
Fundamental Study of Computational Mechanics,
Dynamical Systems and Control
Machine Dynamics,
Design Engineering of Machine Elements

(General)
Electronic Circuits,
Fundamentals of Mechatronics</td><td>(Elective-Compulsory)
Machine Dynamics,
Smart Factory,
Advanced course in Materials Science 1,
Advanced course in Materials Science 2,
Design Engineering of Mechanical Systems,
Design Engineering of Machine Elements

(General)
Materials Processing Technology</td><td>(Elective-Compulsory)
Environment and Energy,
Applied Thermodynamics,
Fluids Engineering,
Applied Fluid Mechanics,
Advanced Course in Strength of Materials,
Advanced course in Materials Science 1

(General)
Materials Thermodynamics</td></tr></table>
<table><tr><td>Master's Program in Engineering</td><td colspan="3">〔Common Subjects〕
Advanced Mechanical Engineering, Information Technologies for Mechanical Engineering, Social Innovation, Advanced Lecture on Solid State Physics, Advanced Instrumental Analysis for Materials, Advanced Course for Microstructure of Materials, Advanced non-ferrous metal materials, Strength of Advanced Materials, Anisotropic Engineering</td></tr><tr><td></td><td>Advanced Automation,
Advanced Study on Mathematical Design,
Precise measurement engineering,
Bioengineering</td><td>Tribology,
Advanced Construction Machinery Engineering,
Fracture Mechanics,
Engineering Ultrasound,
Ultrasonic machining,
Processing Technology on Advanced Single Crystals
Physics of Laser Materials Processing</td><td>Advanced Thermal Engineering
Advanced Compressible Fluid Dynamics,
Advanced Course for Non-Newton Fluid,
Radiative Heat Transfer and Solar Energy Engineering,
High Energy Materials Engineering,
Snow and Ice Technology</td></tr></table></td></tr>
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細かい改定内容</th><th>Measures to students在学生の対応</th></tr>
<tr><td>16</td><td>Major</td><td>Elective</td><td>Advanced Construction Machinery Engineering</td><td>2</td><td>1・2</td><td>2</td><td>Change in Notes Column</td><td>O K→O K ★</td><td>N/A</td></tr>
<tr><td>17</td><td>Major</td><td>Elective</td><td>Snow and Ice Technology</td><td>2</td><td>1・2</td><td>2</td><td>Change in Notes Column</td><td>A ★ K
*Classes are held in English in the first term and Japanese in the second term.
→A ★ K S
*Classes are held in English in the first</td><td>N/A</td></tr>
<tr><td>18</td><td>Major</td><td>subject figure</td><td colspan="6">Revise the subject figure.

(New)
○ Mechanical Engineering recommends the following major subjects from other majors.
Mechanical Engineering - Recommended Subjects
<table><tr><th>Recommended major of Mechanical Engineering - Course Name</th><th>Electrical, Electronics and Information Engineering</th><th>Materials Science and Engineering/Bioengineering</th><th>Civil and Environmental Engineering</th></tr><tr><td>Mechatronics Engineering</td><td>Advanced Course of Digital Image Processing</td><td>Advances in cell motility</td><td></td></tr><tr><td>Smart Factory</td><td>Mathematical and Data Science</td><td>Electric Properties of Solids
Advanced Molecular</td><td>Advanced Structural Analysis</td></tr><tr><td>Environment and Energy Engineering</td><td>Energy Conversion and Control Engineering</td><td>Electric Properties of Solids
Advanced Molecular Genetics</td><td>Advanced Hydraulics
Advanced Environmental Information
Survey Engineering
Advanced Topics on Atmospheric and Hydrospheric Sciences 2</td></tr></table>
(Old)
○ Mechanical Engineering recommends the following major subjects from other majors.
Mechanical Engineering - Recommended Subjects
<table><tr><th>Recommended major of Mechanical Engineering - Course Name</th><th>Electrical, Electronics and Information Engineering</th><th>Materials Science and Engineering/Bioengineering</th><th>Civil and Environmental Engineering</th></tr><tr><td>Mechatronics Engineering</td><td>Advanced Course of Digital Image Processing</td><td>Advances in cell motility</td><td>Advanced Structural Engineering</td></tr><tr><td>Smart Factory</td><td>Mathematical Methods in Science and Engineering</td><td>Electric Properties of Solids
Advanced Molecular Genetics</td><td>Advanced Structural Analysis
Advanced Structural Engineering</td></tr><tr><td>Environment and Energy Engineering</td><td>Energy Conversion and Control Engineering</td><td>Electric Properties of Solids
Advanced Molecular Genetics</td><td>Advanced Hydraulics
Advanced Environmental Information
Survey Engineering
Advanced Topics on Atmospheric and Hydrospheric Sciences 2</td></tr></table></td></tr>
<tr><td colspan="10">Master's Program (Electircal, Electronics and Information Engineering)</td></tr>
<tr><td>19</td><td>Major</td><td>Diploma Policy</td><td colspan="6">Add a Diploma Policy.

[Diploma Policy]
Electrical, Electronics and Information Engineering has set the following five attainment targets for students in accordance with the Diploma Policy of the Master’s Program in Engineering.

1. Acquisition of fundamental knowledge as engineers and researchers in the fields of electrical, electronics, and information engineering; necessary advanced expertise; applied skills in information technology; and a safety mindset.
2. Acquisition of the abilities to ascertain technological trends and gather information in one’s field of interest and associated disciplines from a broad international and cross-disciplinary perspective.
3. Acquisition of the practical developmental capability for advancing original research and development based on social conditions and trends in research and development.
4. Possess an awareness of the intellectual property aspect of developed technologies, the ability to communicate information domestically and internationally, and the capacity to enhance one’s own abilities by flexibly incorporating new information.
5. Gain an understanding of the various effects that technology can have on society, and possess the ability to make ethical decisions.</td></tr>
</table>

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<tr><td>20</td><td>Major</td><td>Curriculum Policy</td><td colspan="8">Add a Curriculum Policy.

[Curriculum Policy]
Electrical, Electronics and Information Engineering offers a systematic curriculum based on the following policies in accordance with the Curriculum Policy of the Master’s Program in Engineering.

<table>
<tr><th>Diploma Policy</th><th>Curriculum Policy</th></tr>
<tr><td>1. Acquisition of fundamental knowledge as engineers and researchers in the fields of electrical, electronics, and information engineering; necessary advanced expertise; applied skills in information technology; and a safety mindset.</td><td>By taking the elective subjects and advanced experiment subjects offered by Electrical, Electronics and Information Engineering, students will acquire the fundamental knowledge and experimental techniques that form the foundation for engineers and researchers in the fields of electrical, electronics, and information engineering. In addition, students will take multiple elective subjects corresponding to each course (one of the following three courses: Electric Energy and Control Engineering, Electronic Devices and Light Wave Control Engineering, or Information, Telecommunication and Control), data science-related subjects, and safety-related subjects. This will enable students to form a safety mindset and develop high levels of specialized knowledge in each course, mathematics, and data science.</td></tr>
<tr><td>2. Acquisition of the abilities to ascertain technological trends and gather information in one’s field of interest and associated disciplines from a broad international and cross-disciplinary perspective.</td><td>Students can cultivate global sensibilities by taking university-wide common subjects. In addition, students can gain a cross-disciplinary perspective by taking subjects from other majors. By reading and discussing academic literature on specialized content during Electrical, Electronics and Information Engineering seminars, students will gain a multifaceted understanding of domestic and international advanced/integrated technological trends/information in their own fields of interest and associated disciplines. Based on the ascertained trends and information, students will be able to describe the value of their own research and development activities in their master’s thesis.</td></tr>
<tr><td>3. Acquisition of the practical developmental capability for advancing original research and development based on social conditions and trends in research and development.</td><td>By explaining the progress of their own research and development projects and discussing the problems and direction during Electrical, Electronics and Information Engineering seminars, students will develop problem-solving skills that fully use their specialized knowledge</td></tr>
</table></td></tr>
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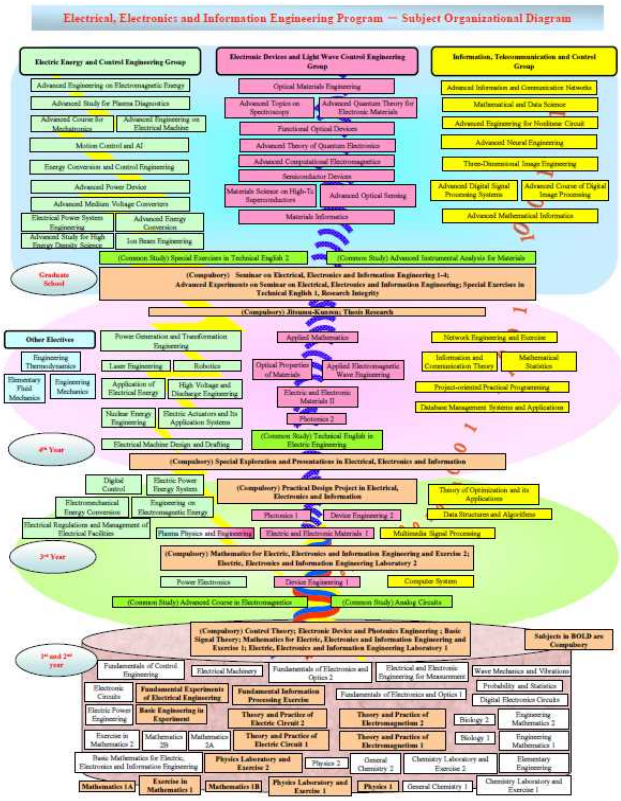
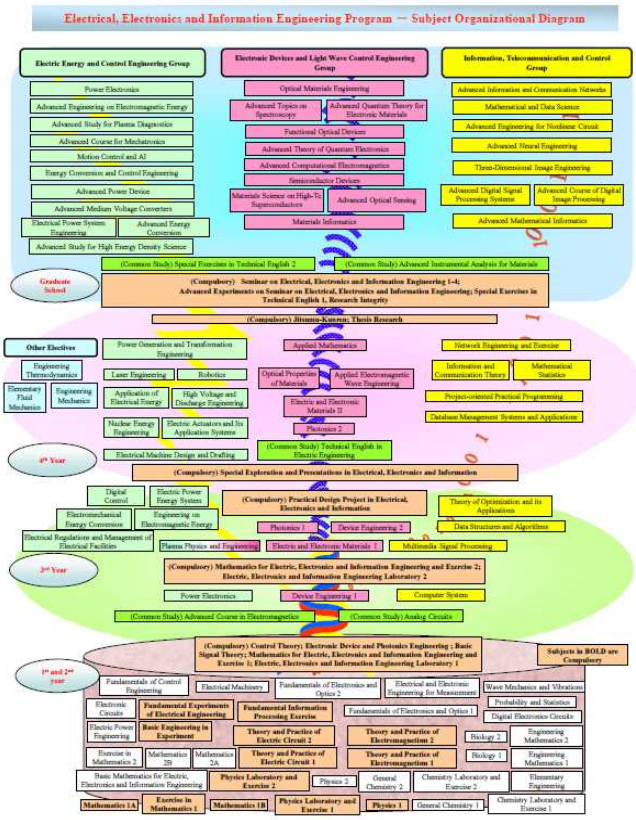
20	Major	Curriculum Policy							

	and techniques based on logical thinking. Students may also choose to take overseas internship subjects to further enhance their on-site practical abilities in international collaborative research and development. Students will conduct practical research and development activities with a constant awareness of originality in accordance with social conditions and trends, and will be able to summarize their results in their master's thesis.↵
4. Possess an awareness of the intellectual property aspect of developed technologies, the ability to communicate information domestically and internationally, and the capacity to enhance one's own abilities by flexibly incorporating new information.↵	In Electrical, Electronics and Information Engineering seminars, students will discuss the novelty and importance of their developed technologies to promote an understanding of their intellectual property value. In addition, students will use the information obtained from reading and discussing academic literature to expand and deepen their own specialized knowledge from a multifaceted perspective. Furthermore, students will improve their English language abilities by taking subjects on technical English, thereby enabling them to communicate the results of their research and development efforts both domestically and internationally.↵
5. Gain an understanding of the various effects that technology can have on society, and possess the ability to make ethical decisions.↵	By taking Research Integrity, which is a compulsory subject, students will learn about the responsible actions that engineers and researchers must take during the series of processes from the start to the end of all research and development activities. In addition, students will be able to understand the fairness to society that is required from research and development activities from an ethical perspective. Furthermore, students will be instructed on the fairness associated with their own research and development activities during Electrical, Electronics and Information Engineering seminars and experiment subjects. In this way, they will be able to conduct these activities while making ethical decisions.↵

No.	Classification 区分	Compulsory /Elective必修選択	Subject Name科目名	Credits単位	Year開講年	Term期間	Revisions改定区分	Subject name, Lecturer-in-Charge and Term etc. (Changes are shown as [Before revision] → [After revision].) 細かい改定内容	Measures to students在学生の対応
21	Major	subject figure						Revise the subject figure. (New)  (Old)  	

No.	Classification 区分	Compulsory /Elective必修選択	Subject Name科目名	Credits単位	Year開講年	Term期間	Revisions改定区分	Subject name, Lecturer-in-Charge and Term etc. (Changes are shown as [Before revision] → [After revision].) 細かい改定内容	Measures to students在学生の対応
22	Major	Elective	Power Electronics	2	1・2	1	Discontinuted		N/A
23	Major	Elective	Advanced Course for Mechatronics	2	1・2	2	Change in Notes Column	O ★ K→O ★ K S	N/A
24	Major	Elective	Advanced Medium Voltage Converters	2	1・2	1	Change in Notes Column	E ★→E ★ S	N/A
25	Major	Elective	Advanced Enginnering on Electrical Machine	2	1・2	2	Change in Notes Column	E ★ K→E ★ K S	N/A
26	Major	Elective	Ion Beam Engineering	2	1・2	2	Newly-Established	Takahashi(Kazumasa) E ★	Students who enrolled in and before AY 2023 can take this subject.
27	Major	Elective	Advanced Mathematical Informatics	2	1・2	2	Discontinuted		N/A
Master's Program (Information and Management Systems Engineering)									
28	Major	Diploma Policy	Add a Diploma Policy. [Diploma Policy] Information and Management Systems Engineering has set the following four attainment targets for students in accordance with the Diploma Policy of the Master's Program in Engineering. 1. (Overall Abilities) Acquisition of the ability to think scientifically and rationally, the ability to insightfully observe people and society, and a safety mindset that will contribute to a healthy and comfortable lifestyle as well as the realization of a diverse and sustainable information society. 2. (Specialized Abilities) Acquisition of a safety mindset and specialized knowledge in the fields of data science, applied informatics, and management that are needed to make broad social contributions as a leading information technology engineer or researcher within an information society. 3. (Practical Abilities) Acquisition of practical and creative abilities to utilize one's expertise in data science, applied informatics, and management in problem solving in order to make broad social contributions as a leading information technology engineer or researcher within an information society. 4. (Communication Abilities) Acquisition of communication abilities, international sensibilities, and language skills that facilitate extensive and active roles both in Japan and overseas as an engineer and researcher.						

<table>
<tr><th>No.</th><th>Classification
区分</th><th>Compulsory
/Elective必
修選択</th><th>Subject Name科目名</th><th>Credits単位</th><th>Year開講年</th><th>Term期間</th><th>Revisions改定区分</th><th>Subject name,
Lecturer-in-Charge and Term etc.
(Changes are shown as
[Before revision] → [After revision].)
細かい改定内容</th><th>Measures to
students在学生の
対応</th></tr>
<tr><td>29</td><td>Major</td><td>Curriculum
Policy</td><td colspan="8">Add a Curriculum Policy.

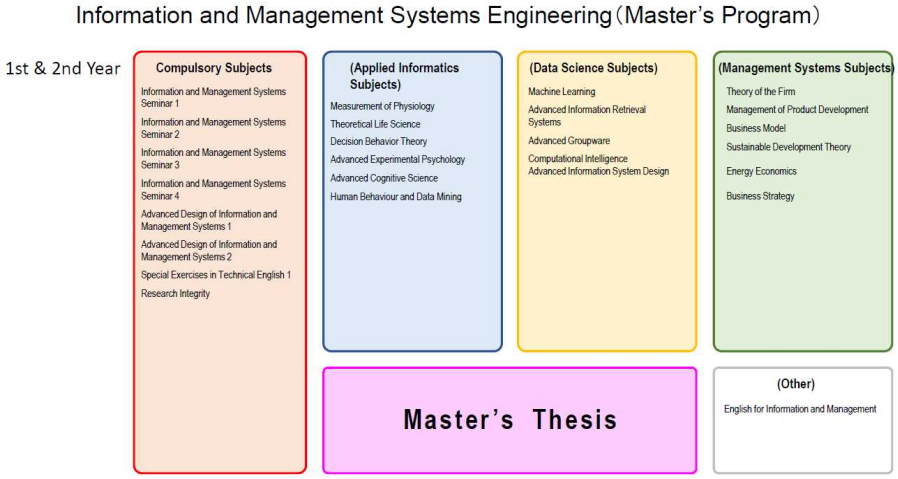
[Curriculum Policy]
Information and Management Systems Engineering offers a systematic curriculum based on the following policies in accordance with the Curriculum Policy of the Master’s Program in Engineering.

<table>
<tr><th>Diploma Policy</th><th>Curriculum Policy</th></tr>
<tr><td>1. (Overall Abilities) Acquisition of the ability to think scientifically and rationally, the ability to insightfully observe people and society, and a safety mindset that will contribute to a healthy and comfortable lifestyle as well as the realization of a diverse and sustainable information society.</td><td>Students will gain a wide range of specialized knowledge as engineers and researchers through common subjects (including safety and information security-related subjects) and subjects from other majors. Through the compulsory Research Integrity subject, students will increase their understanding of the social responsibilities and ethics required of engineers and researchers.</td></tr>
<tr><td>2. (Specialized Abilities) Acquisition of a safety mindset and specialized knowledge in the fields of data science, applied informatics, and management that are needed to make broad social contributions as a leading information technology engineer or researcher within an information society.</td><td>The major offers subject groups centered on data science, applied informatics, and management. Students will be provided with an in-depth specialized education on artificial intelligence and data mining (advanced information technology fields) as well as human factors engineering and user interfaces (applied information technology fields). Furthermore, students will also undergo specialized instruction on management strategies and business models, which are important elements in an advanced information society; as well as on sustainability and energy economics, which are more global safety-related issues.</td></tr>
<tr><td>3. (Practical Abilities) Acquisition of practical and creative abilities to utilize one’s expertise in data science, applied informatics, and management in problem solving in order to make broad social contributions as a leading information technology engineer or researcher within an information society.</td><td>Seminars and advanced design/practical training subjects are offered. Under the guidance of academic staff in charge of the laboratories, students will develop practical and creative abilities to independently conduct the processes of exploring and discovering problems, formulating objectives and implementing plans for solving these problems, and interpreting and discussing the results.</td></tr>
<tr><td>4. (Communication Abilities) Acquisition of communication abilities, international sensibilities, and language skills that facilitate extensive and active roles both in Japan and overseas as an engineer and researcher.</td><td>Seminars and advanced design/practical training subjects are offered to foster the abilities to organize knowledge, structure logic, and present results. Students will strengthen their language skills through foreign language subjects, English e-Learning, and English journal clubs. These skills will be comprehensively developed through the preparation of the master’s thesis. In addition, students will be provided with opportunities to conduct practical research and development overseas.</td></tr>
</table>
</td></tr>
</table>

No.	Classification 区分	Compulsory /Elective必修選択	Subject Name科目名	Credits単位	Year開講年	Term期間	Revisions改定区分	Subject name, Lecturer-in-Charge and Term etc. (Changes are shown as [Before revision] → [After revision].) 細かい改定内容	Measures to students在学生の対応
30	Major	subject figure							

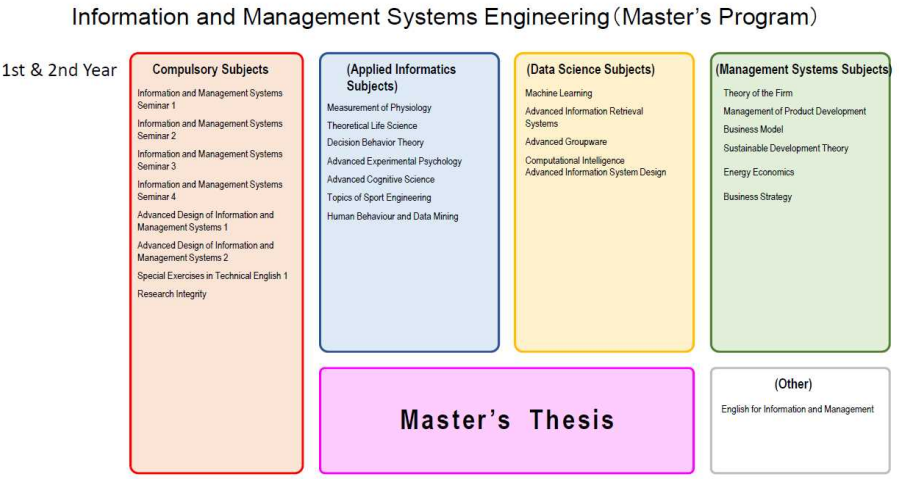
Revise the subject figure.

(New)



Information and Management Systems Engineering – Subject Organization Diagram

(Old)



Information and Management Systems Engineering – Subject Organization Diagram

No.	Classification 区分	Compulsory /Elective必修選択	Subject Name科目名	Credits単位	Year開講年	Term期間	Revisions改定区分	Subject name, Lecturer-in-Charge and Term etc. (Changes are shown as [Before revision] → [After revision].) 細かい改定内容	Measures to students在学生の対応
31	Major	Elective	Topics of Sport Engineering	2	1・2	2	Discontinuted		N/A
32	Major	Elective	Sustainable Development Theory	2	1・2	1	Change in Notes Column	O→O S	N/A
33	Major	Elective	Energy Economics	2	1・2	1	Change in Notes Column	E A→E A S	N/A
Master's Program (Materials Science and Bioengineering)									
34	Major	Diploma Policy	Add a Diploma Policy. [Diploma Policy] Materials Science and Bioengineering has set the following five attainment targets for students in accordance with the Diploma Policy of the Master's Program in Engineering. 1. Students will develop a grounded understanding of chemistry and biology, learn to utilize information technology, and be able to design and create new substances and materials based on atomic and molecular concepts. In addition, students will acquire advanced expertise to analyze the complex mechanisms of living organisms and apply them to engineering, and be able to consider safety issues. 2. By examining case studies, students will understand the development process of new materials/new processes and how unknown biological phenomena were discovered, thereby cultivating a heightened sense of innovation. 3. Students will develop the practical capabilities to advance creative research as engineers and researchers in the fields of materials science and bioengineering with extensive and active roles both in Japan and overseas. 4. Students will develop presentation skills to communicate the results of one's research to a universal audience. 5. Students will understand the various effects that technology can have on society, and be able to make ethical decisions.						

<table>
<tr><th>No.</th><th>Classification
区分</th><th>Compulsory
/Elective必
修選択</th><th>Subject Name科目名</th><th>Credits単位</th><th>Year開講年</th><th>Term期間</th><th>Revisions改定区分</th><th>Subject name,
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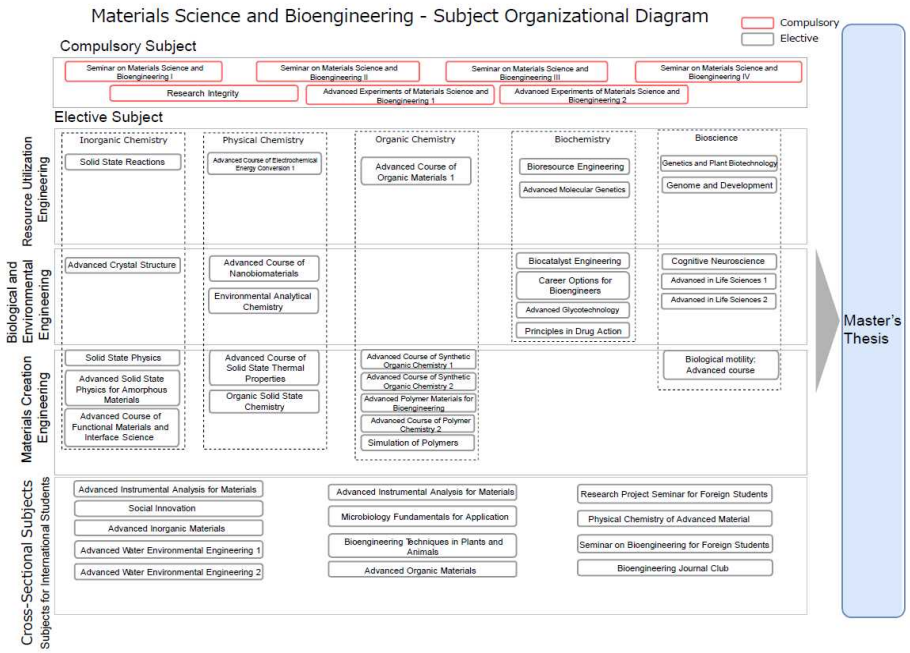
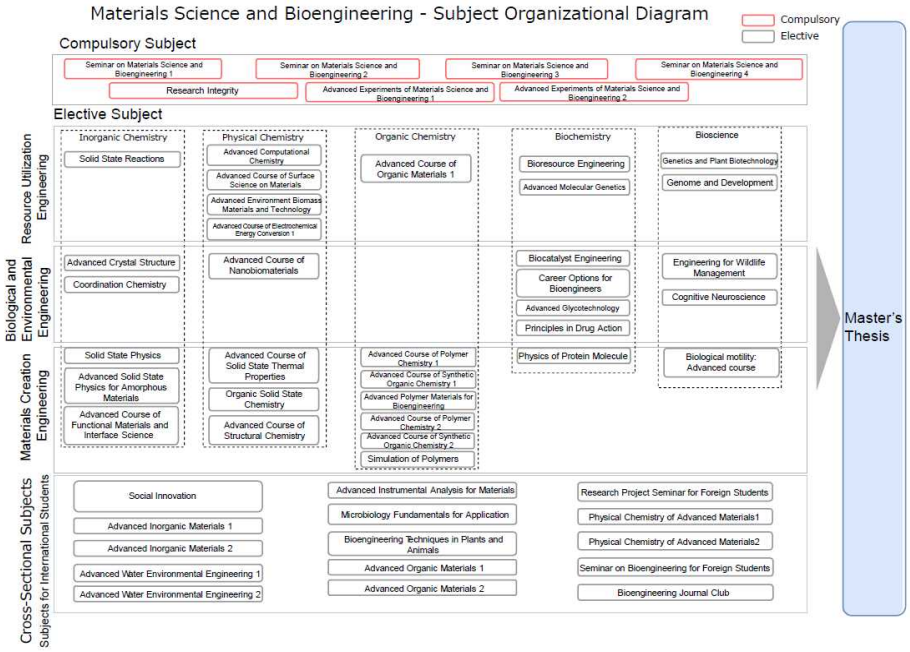
(Changes are shown as
[Before revision] → [After revision].)
細かい改定内容</th><th>Measures to
students在学生の
対応</th></tr>
<tr><td>35</td><td>Major</td><td>Curriculum
Policy</td><td colspan="8">Add a Curriculum Policy.

[Curriculum Policy]
Materials Science and Bioengineering offers a systematic curriculum based on the following policies in accordance with the Curriculum Policy of the Master’s Program in Engineering.

<table>
<tr><th>Diploma Policy</th><th>Curriculum Policy</th></tr>
<tr><td>1. Students will develop a grounded understanding of chemistry and biology, learn to utilize information technology, and be able to design and create new substances and materials based on atomic and molecular concepts. In addition, students will acquire advanced expertise to analyze the complex mechanisms of living organisms and apply them to engineering, and be able to consider safety issues.</td><td>Students will acquire the fundamental knowledge needed to be engineers and researchers in the fields of materials science and bioengineering through university-wide common subjects, elective subjects in Materials Science and Bioengineering, information-related subjects, and safety-related subjects. In addition, students will acquire higher levels of specialized knowledge through literature reading, journal clubs, and research discussions during Seminars on Materials Science and Bioengineering.</td></tr>
<tr><td>2. By examining case studies, students will understand the development process of new materials/new processes and how unknown biological phenomena were discovered, thereby cultivating a heightened sense of innovation.</td><td>In Advanced Experiments of Materials Science and Bioengineering, advanced experiments will be conducted as needed on selected topics in each lecturer’s field of expertise, and advanced experiments will also be conducted under the guidance of each student’s academic supervisor in their laboratory. In this way, students will learn about the advanced and integrated technologies in their own fields of research and other related fields in Japan and overseas. In Seminars on Materials Science and Bioengineering, students will examine specialized content through literature reading, journal clubs, research discussions, and debates. Accordingly, students will develop problem-solving skills that fully utilize their specialized knowledge and techniques based on logical thinking, and gain a multifaceted understanding of</td></tr>
<tr><td>3. Students will develop the practical capabilities to advance creative research as engineers and researchers in the fields of materials science and bioengineering with extensive and active roles both in Japan and overseas.</td><td>Throughout the entire duration of the master’s program, students will undergo research guidance from their academic supervisors, and will be tasked to summarize their research results in the master’s thesis. Furthermore, the major provides opportunities for research internships in which interested students can conduct research and development activities related to their master’s research topics in overseas universities, research institutes, and companies (research laboratories).</td></tr>
<tr><td>4. Students will develop presentation skills to communicate the results of one’s research to a universal audience.</td><td>During the master’s thesis presentation sessions, students will present their master’s thesis and answer questions. In addition, students will present and discuss the novelty and importance of their own research findings and developed technologies during Seminars on Materials Science and Bioengineering, thereby expanding and deepening their specialized knowledge and developing multifaceted perspectives while cultivating presentation skills.</td></tr>
<tr><td>5. Students will understand the various effects that technology can have on society, and be able to make ethical decisions.</td><td>Students will take Research Integrity as a compulsory subject to learn about the responsible actions that engineers and researchers must take during the series of processes from the start to the end of all research and development activities, as well as to understand the fairness to society required for research and development activities from an ethical perspective. In addition, students will receive guidance about fairness in their own research and development activities during Seminars on Materials Science and Bioengineering so that they can conduct these activities while making ethical decisions.</td></tr>
</table>
</td></tr>
</table>

No.	Classification 区分	Compulsory /Elective必修選択	Subject Name科目名	Credits単位	Year開講年	Term期間	Revisions改定区分	Subject name, Lecturer-in-Charge and Term etc. (Changes are shown as [Before revision] → [After revision].) 細かい改定内容	Measures to students在学生の対応
36	Major	subject figure						Revise the subject figure. (New)  (Old)  		

No.	Classification 区分	Compulsory /Elective必修選択	Subject Name科目名	Credits単位	Year開講年	Term期間	Revisions改定区分	Subject name, Lecturer-in-Charge and Term etc. (Changes are shown as [Before revision] → [After revision].) 細かい改定内容	Measures to students在学生の対応
37	Major	Elective	Advanced Computational Chemistry	1	1・2	1	Discontinuted		N/A
38	Major	Elective	Advanced Environmental Biomass Materials and Technology	1	1・2	1	Discontinuted		N/A
39	Major	Elective	Physics of Protein Molecule	2	1・2	1	Discontinuted		N/A
40	Major	Elective	Advanced Course of Structual Chemistry	2	1・2	1	Discontinuted		N/A
41	Major	Elective	Coordination Chemistry	2	1・2	1	Discontinuted		N/A
42	Major	Elective	Environmental Analytical Chemistry	2	1・2	1	Newly-Established	Takahashi(Y) O ★	Students who enrolled in and before AY 2023 can take this subject.
43	Major	Elective	Advanced Course of Polymer Chemistry 1	1	1・2	1	Discontinuted		N/A
44	Major	Elective	Principles in Drug Action	2	1・2	1	Change in Notes Column	★ K→★ K S	N/A
45	Major	Elective	Engineering for Wildlife Management	2	1・2	1	Discontinuted		N/A
46	Major	Elective	Advanced in Life Sciences I	2	1・2	1	Newly-Established	Takimoto, Kuwahara & Fujiwara ★	Students who enrolled in and before AY 2023 can take this subject.
47	Major	Elective	Advanced in Life Sciences II	2	1・2	1	Newly-Established	Kasai, Shida ★	Students who enrolled in and before AY 2023 can take this subject.
48	Major	Elective	Physical Chemistry of Advanced Materials 1	2	1・2	2	Discontinuted		N/A
49	Major	Elective	Physical Chemistry of Advanced Materials 2	2	1・2	2	Discontinuted		N/A
50	Major	Elective	Advanced Inorganic Materials 1	2	1・2	2	Discontinuted		N/A
51	Major	Elective	Advanced Inorganic Materials 2	2	1・2	2	Discontinuted		N/A
52	Major	Elective	Advanced Organic Materials 1	2	1・2	2	Discontinuted		N/A
53	Major	Elective	Advanced Organic Materials 2	2	1・2	2	Discontinuted		N/A
54	Major	Elective	Physical Chemistry of Advanced Materials	2	1・2	2	Newly-Established	Imakubo, Takahashi(Y), Tagaya, Funatsu & Shironita O ☆ ◆	Students who enrolled in and before AY 2023 can take this subject.
55	Major	Elective	Advanced Inorganic Materials	2	1・2	2	Newly-Established	Saitoh(H), Ishibashi, Tanaka(S), Homma(Tsu) & Nishikawa E ☆ ◆	Students who enrolled in and before AY 2023 can take this subject.
56	Major	Elective	Advanced Organic Materials	2	1・2	2	Newly-Established	Takenaka, Maekawa, Kawahara, Kuwabara & Shida E ☆ ◆	Students who enrolled in and before AY 2023 can take this subject.

<table>
<tr><th>No.</th><th>Classification
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(Changes are shown as
[Before revision] → [After revision].)
細かい改定内容</th><th>Measures to students在学生の対応</th></tr>
<tr><td>57</td><td>Major</td><td>subject figure</td><td colspan="8">Revise the subject figure.

(New)

○ Materials Science and Bioengineering recommends the following major subjects from other majors.
<table><tr><th>Mechanical Engineering</th><th>Electrical, Electronics and Information Engineering</th><th>Information and Management Systems Engineering</th><th>Civil and Environmental Engineering</th></tr><tr><td>Engineering Ultrasound</td><td>Advanced Course of Digital Image Processing</td><td>Computational Intelligence</td><td>Advanced Environmental Information Survey Engineering</td></tr><tr><td></td><td></td><td></td><td>Advanced Water and Soil Environmental</td></tr></table>
(Old)
○ Materials Science and Bioengineering recommends the following major subjects from other majors.
<table><tr><th>Mechanical Engineering</th><th>Electrical, Electronics and Information Engineering</th><th>Information and Management Systems Engineering</th><th>Civil and Environmental Engineering</th></tr><tr><td>Engineering Ultrasound</td><td>Advanced Course of Digital Image Processing</td><td>Computational Intelligence</td><td>Advanced Environmental Information Survey Engineering</td></tr><tr><td></td><td>Advanced Mathematical Informatics</td><td></td><td>Advanced Water and Soil Environmental Engineering</td></tr></table></td></tr>
<tr><td colspan="10">Master's Program (Civil and Environmental Engineering)</td></tr>
<tr><td>58</td><td>Major</td><td>Diploma Policy</td><td colspan="8">Add a Diploma Policy.

[Diploma Policy]
Civil and Environmental Engineering has set the following seven attainment targets for students in accordance with the Diploma Policy of the Master’s Program in Engineering.

1. Comprehensive abilities: Acquire the abilities to comprehensively think about people’s happiness and welfare, as well as to consider matters from a multifaceted perspective while always being aware of the relationships between the natural environment, humanity’s cultural and economic activities, and infrastructure technologies.
2. Responsibility: Understand the effects of infrastructure technologies on society and the natural environment, and gain awareness of the responsibility to serve society by using one’s skills and academic knowledge as an engineer and researcher involved in the design and building of infrastructure.
3. Technical expertise: Gain knowledge in specialized fields related to social infrastructure, knowledge related to information technology (such as information and communication technology and artificial intelligence), and a safety mindset; as well as acquire the ability to apply these to solve problems.
4. Problem-solving abilities: Acquire the abilities to correctly identify the problems being faced while being aware of existing constraints, consolidate the specialized knowledge and skills associated with social infrastructure to explore the issues, formulate clear strategies, and adopt a multifaceted engineering and humanities approach while maintaining the ability to cooperate with others to solve problems as needed.
5. Explanatory abilities: Acquire the logical descriptive ability, oral presentation ability, communication skills, and language skills of a globally competent engineer and researcher.
6. Learning abilities: Acquire an attitude of active and continuous self-learning and research in order to stay current on the latest advanced specialized technologies and academic knowledge in the real world.
7. Ability to take action: Acquire the ability to systematically advance work within existing constraints, organize and proactively publish their results, and apply them to actual problems.</td></tr>
</table>

<table>
<tr><th>No.</th><th>Classification
区分</th><th>Compulsory
/Elective必
修選択</th><th>Subject Name科目名</th><th>Credits単位</th><th>Year開講年</th><th>Term期間</th><th>Revisions改定区分</th><th>Subject name,
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(Changes are shown as
[Before revision] → [After revision].)
細かい改定内容</th><th>Measures to
students在学生の
対応</th></tr>
<tr><td>59</td><td>Major</td><td>Curriculum
Policy</td><td colspan="8">Add a Curriculum Policy.

[Curriculum Policy]
Civil and Environmental Engineering offers a systematic curriculum based on the following policies in accordance with the Curriculum Policy of the Master’s Program in Engineering.

<table>
<tr><th>Diploma Policy</th><th>Curriculum Policy</th></tr>
<tr><td>1. Comprehensive abilities: Acquire the abilities to comprehensively think about people’s happiness and welfare, as well as to consider matters from a multifaceted perspective while always being aware of the relationships between the natural environment, humanity’s cultural and economic activities, and infrastructure technologies.</td><td>By taking common subjects, students will gain knowledge of the relationships between infrastructure technologies and humanity’s cultural and economic activities. In addition, students will develop the abilities to consider matters from multiple perspectives and think comprehensively about people’s happiness and welfare through planning-related subjects.</td></tr>
<tr><td>2. Responsibility: Understand the effects of infrastructure technologies on society and the natural environment, and gain awareness of the responsibility to serve society by using one’s skills and academic knowledge as an engineer and researcher involved in the design and building of infrastructure.</td><td>Students will take Research Integrity as a compulsory subject to gain a deep understanding of the social responsibilities borne by engineers and researchers. By taking major subjects related to general civil and environmental engineering, students will learn about the effects of infrastructure technology on society and the natural environment. In addition, students will comprehensively learn these concepts through research for their master’s thesis.</td></tr>
<tr><td>3. Technical expertise: Gain knowledge in specialized fields related to social infrastructure, knowledge related to information technology (such as information and communication technology and artificial intelligence), and a safety mindset; as well as acquire the ability to apply these to solve problems.</td><td>Students will gain knowledge in specialized fields related to social infrastructure, knowledge related to information technology (such as information and communication technology and artificial intelligence), as well as a safety mindset by taking applied major subjects that span multiple fields of civil and environmental engineering, subjects in other majors, and common subjects. In addition, students will acquire the ability to apply this knowledge and mindset to solve problems by taking Seminars on Civil and Environmental Engineering and Research Work of Civil and Environmental Engineering.</td></tr>
</table></td></tr>
</table>

No.	Classification 区分	Compulsory /Elective必修選択	Subject Name科目名	Credits単位	Year開講年	Term期間	Revisions改定区分	Subject name, Lecturer-in-Charge and Term etc. (Changes are shown as [Before revision] → [After revision].) 細かい改定内容	Measures to students在学生の対応
59	Major	Curriculum Policy							

4. **Problem-solving abilities**: Acquire the abilities to correctly identify the problems being faced while being aware of existing constraints, consolidate the specialized knowledge and skills associated with social infrastructure to explore the issues, formulate clear strategies, and adopt a multifaceted engineering and humanities approach while maintaining the ability to cooperate with others to solve problems as needed.	By taking major subjects, students will acquire specialized knowledge and skills associated with social infrastructure. During Seminars on Civil and Environmental Engineering and Research Work of Civil and Environmental Engineering, students will engage in groupwork that enables them to learn to cooperate with others in order to solve problems. Students will also comprehensively learn these abilities through research for their master's thesis.
5. **Explanatory abilities**: Acquire the logical descriptive ability, oral presentation ability, communication skills, and language skills of a globally competent engineer and researcher.	Students will cultivate explanatory abilities by taking common subjects on foreign languages, Seminars on Civil and Environmental Engineering, and Research Work of Civil and Environmental Engineering. Furthermore, in laboratories comprising students of various nationalities, students will cultivate international sensibilities through research activities while learning to collaborate under diverse values. At the same time, students will also comprehensively learn these abilities through research for their master's thesis. Furthermore, the major provides opportunities for students to engage in research and development activities overseas.
6. **Learning abilities**: Acquire an attitude of active and continuous self-learning and research in order to stay current on the latest advanced specialized technologies and academic knowledge in the real world.	Students will foster an attitude of continuous self-improvement by engaging in individual research projects in Seminars on Civil and Environmental Engineering held at each laboratory. In addition, students will comprehensively learn these abilities through research for their master's thesis.
7. **Ability to take action**: Acquire the ability to systematically advance work within existing constraints, organize and proactively publish their results, and apply them to actual problems.	Students will comprehensively learn how to systematically conduct planned research under given conditions through Seminars on Civil and Environmental Engineering, Research Work of Civil and Environmental Engineering, and research for their master's thesis. In addition, students will acquire the ability to proactively present their results by presenting at conferences and at the interim presentation of their master's thesis.

60	Major	Elective	Advanced course of disaster management	2	1・2	2	Change in Notes Column	★ K→★ K S	N/A
61	Major	Elective	Advanced Structural Analysis	2	1・2	1	Change of Term	1st Term→2nd Term	N/A
62	Major	Elective	Advanced Structural Engineering	2	1・2	2	Discontinuted	O ★ K	N/A
63	Major	Elective	Advanced Structural Engineering	2	1・2	2	Discontinuted	E ☆ K	N/A

<table>
<tr><th>No.</th><th>Classification
区分</th><th>Compulsory
/Elective必
修選択</th><th>Subject Name科目名</th><th>Credits単位</th><th>Year開講年</th><th>Term期間</th><th>Revisions改定区分</th><th>Subject name,
Lecturer-in-Charge and Term etc.
(Changes are shown as
[Before revision] → [After revision].)
細かい改定内容</th><th>Measures to
students在学生の
対応</th></tr>
<tr><td>64</td><td>Major</td><td>subject figure</td><td colspan="8">Revise the subject figure.

(New)
○ Civil and Environmental Engineering recommends the following major subjects from other majors.
<table><tr><th colspan="2">Mechanical Engineering</th><th>Electrical, Electronics and Information Engineering</th></tr><tr><td>Fracture Mechanics</td><td>Advanced Course for Non-Newton Fluid</td><td></td></tr><tr><td>Advanced Course for Microstructure of Materials</td><td>Advanced Compressible Fluid Dynamics</td><td>Advanced Course of Digital Image Processing</td></tr><tr><td>Advanced Lecture on Solid State Physics</td><td>Tribology</td><td></td></tr><tr><td>Advanced Automation</td><td>Advanced Construction Machinery Engineering</td><td></td></tr><tr><td></td><td>Engineering Ultrasound</td><td></td></tr></table>
(Old)
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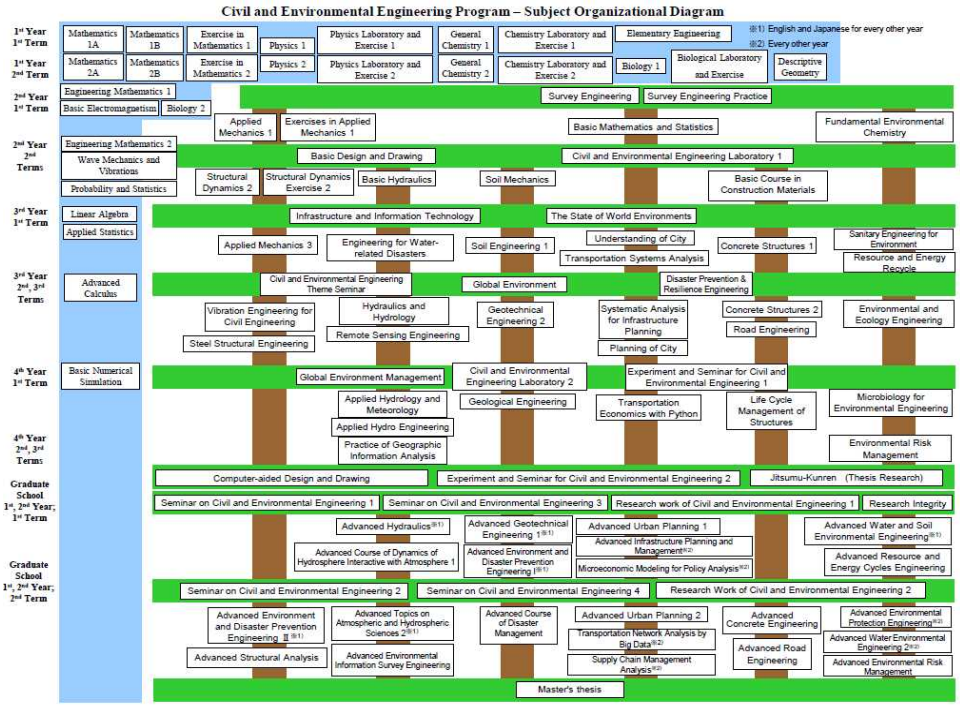
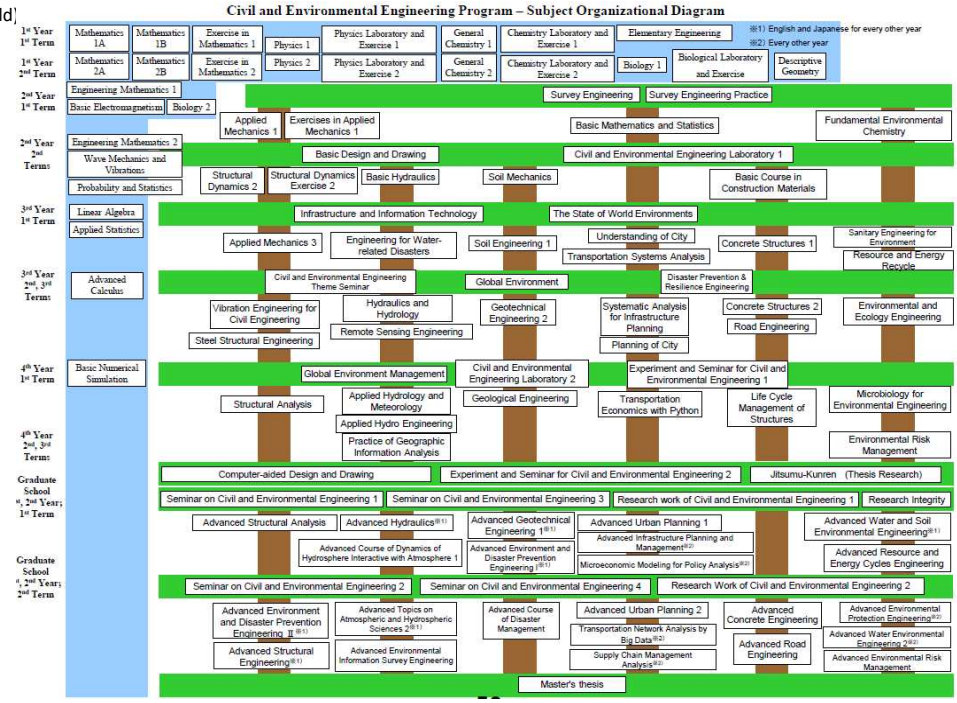
65	Major	subject figure						Revise the subject figure. (New)  (Old)  	

No.	Classification 区分	Compulsory /Elective必修選択	Subject Name科目名	Credits単位	Year開講年	Term期間	Revisions改定区分	Subject name, Lecturer-in-Charge and Term etc. (Changes are shown as [Before revision] → [After revision].) 細かい改定内容	Measures to students在学生の対応
Master's Program (Nuclear Technology)									
66	Major	Diploma Policy	Add a Diploma Policy. [Diploma Policy] Nuclear Technology has set the following four attainment targets for students in accordance with the Diploma Policy of the Master's Program in Engineering. 1. Gain knowledge of nuclear energy and nuclear safety, knowledge of next-generation nuclear energy and accelerators/radiation, or both; acquire the ability to comprehend nuclear engineering and quantum engineering from panoramic and integrated perspectives, the ability to utilize information technology, and the knowledge and skills needed to do so. 2. Acquire in-depth knowledge of nuclear physics, radiation physics, materials science and chemistry, thermal fluids, and electrical power generation and transformation technologies that are required for the nuclear industry and applied radiation fields; as well as the ability to fully use one's specialized knowledge and skills. 3. Foster individuals who possess international sensibilities, the ability to collaborate in teams, practical and creative abilities that can contribute to global society, as well as research and development capabilities that can contribute to the sustainable development of society. 4. Acquire the ability to logically construct research content and the communication skills to obtain understanding from others regarding this content as internationally active leading engineers and researchers.						

<table>
<tr><th>No.</th><th>Classification
区分</th><th>Compulsory
/Elective必
修選択</th><th>Subject Name科目名</th><th>Credits単位</th><th>Year開講年</th><th>Term期間</th><th>Revisions改定区分</th><th>Subject name,
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(Changes are shown as
[Before revision] → [After revision].)
細かい改定内容</th><th>Measures to
students在学生の
対応</th></tr>
<tr><td>67</td><td>Major</td><td>Curriculum
Policy</td><td colspan="8">Add a Curriculum Policy.

[Curriculum Policy]
Nuclear Technology offers a systematic curriculum based on the following policies in accordance with the Curriculum Policy of the Master’s Program in Engineering.

<table>
<tr><th>Diploma Policy</th><th>Curriculum Policy</th></tr>
<tr><td>1. Gain knowledge of nuclear energy and nuclear safety, knowledge of next-generation nuclear energy and accelerators/radiation, or both; acquire the ability to comprehend nuclear engineering and quantum engineering from panoramic and integrated perspectives, the ability to utilize information technology, and the knowledge and skills needed to do so.</td><td>Students will acquire the necessary knowledge and skills by taking multiple elective subjects on “Nuclear Safety Engineering”, “Nuclear System Engineering”, and “Advanced Radiation Engineering”; as well as taking Nuclear Technology Laboratory. In order to comprehend nuclear engineering and quantum engineering from panoramic and integrated perspectives, students will take subjects from other majors and common subjects to gain a broad range of knowledge. In addition, students will learn to utilize information technology such as data science, and form a safety mindset.</td></tr>
<tr><td>2. Acquire in-depth knowledge of nuclear physics, radiation physics, materials science and chemistry, thermal fluids, and electrical power generation and transformation technologies that are required for the nuclear industry and applied radiation fields; as well as the ability to fully use one’s specialized knowledge and skills.</td><td>Students will enhance their expertise through literature reading in Seminars on Nuclear Technology, and acquire practical skills in Nuclear Technology Practical. Through their master’s thesis research, students will gain an in-depth understanding of specialized knowledge and be able to freely use their acquired techniques.</td></tr>
<tr><td>3. Foster individuals who possess international sensibilities, the ability to collaborate in teams, practical and creative abilities that can contribute to global society, as well as research and development capabilities that can contribute to the sustainable development of society.</td><td>Through Special Exercises in Technical English, students will develop English language skills that enable them to collaborate in international teams. Through literature reading in Seminars on Nuclear Technology, students will enhance their abilities to understand the current status of research and development, as well as the technologies required by global society. In Nuclear Technology Laboratory, students will conduct experiments as part of teams comprising students from Japan and overseas, thereby fostering their ability to collaboratively conduct research and development. Students will also develop ethical standards in the Research Integrity subject. In the Nuclear Technology Practical, students will enhance their practical skills in research and development. By engaging in their master’s thesis research, students will cultivate a mindset of contributing to the sustainable development of society while enhancing their creative research skills. In addition, common subjects are offered to foster the foundation of practical and creative abilities in students.</td></tr>
</table>
</td></tr>
</table>

No.	Classification 区分	Compulsory /Elective必修選択	Subject Name科目名	Credits単位	Year開講年	Term期間	Revisions改定区分	Subject name, Lecturer-in-Charge and Term etc. (Changes are shown as [Before revision] → [After revision].) 細かい改定内容	Measures to students在学生の対応
67	Major	Curriculum Policy							

4. Acquire the ability to logically construct research content and the communication skills to obtain understanding from others regarding this content as internationally active leading engineers and researchers.	Through Special Exercises in Technical English and common subjects, students will develop the English language skills needed for the international dissemination of information. Through literature reading and debates in Seminars on Nuclear Technology, students will learn to construct logic and enhance their communication skills needed to obtain understanding from others. Through Nuclear Technology Laboratory, students will increase their ability to logically explain the content and results of experiments. Through their master's thesis research, students will learn how to construct logic in practice. Students will learn to convincingly explain their research conclusions to others at the interim presentation, preliminary screening, and master's thesis presentation. They will also learn to summarize their findings with clear logic in their master's thesis. Students are encouraged to improve their explanatory abilities by presenting their research at scientific meetings and conferences, and by explaining their work to researchers outside of the university. In addition, the major provides opportunities for students to engage in research and development activities overseas.

No.	Classification 区分	Compulsory /Elective必修選択	Subject Name科目名	Credits単位	Year開講年	Term期間	Revisions改定区分	Subject name, Lecturer-in-Charge and Term etc. (Changes are shown as [Before revision] → [After revision].) 細かい改定内容	Measures to students在学生の対応
68	Major	Compulsory	Nuclear Technology Laboratory	1	1・2	1～3	Change of Term	1st to 3rd Term→1st Term	N/A
69	Major	Elective	Structural Engineering in Nuclear Reactors	1	1・2	2	Change in Notes Column	The class period for this course will be the same as the nuclear design lecture in the Specialized Course on Nuclear Reactor Design, which will be offered to students enrolling in or after AY 2024.	N/A
70	Major	Elective	Thermal Hydraulics in Nuclear Reactors	1	1・2	2	Change in Notes Column	The class period for this course will be the same as the thermal fluid engineering lecture in the Specialized Course on Nuclear Reactor Design, which will be offered to students enrolling in or after AY 2024.	N/A
71	Major	Elective	Nuclear Power Reactor and Plant Systems	2	1・2	1	Change in Notes Column	K→K S	N/A
72	Major	Elective	Advanced Safety and Crisis Management	2	1・2	1	Change in Notes Column	K→K S	N/A
73	Major	Elective	Advanced Lecture on Nuclear Regulation	2	1・2	1	Change in Notes Column	★→★ S	N/A
74	Major	Elective	Advanced Seismic Safety Engineering and Community Disaster Management	2	1・2	2	Change in Notes Column	★ K→★ K S	N/A
75	Major	Elective	Nuclear Emergency Planning and Resilience Engineering	2	1・2	2	Change in Notes Column	S	N/A
Master's Program (Common Subject)									
76	Common	Elective	Advanced Safety and Information Security 1	1	1・2	2	Newly-Established	Miyoshi, ※Ogino & Ito(Kosuke) Safety	Students who enrolled in and before AY 2023 can take this subject.
77	Common	Elective	Advanced Safety and Information Security 2	1	1・2	2	Newly-Established	Miyoshi & ※Sakurai(Tsu) Safety	Students who enrolled in and before AY 2023 can take this subject.
78	Common	Elective	Tecnhological English	2	1・2	1・2	Change of Term Change in Notes Column	1st & 2nd Term→2nd Term 1st sem. ☆(Tue.) ★(Wed., 2nd sem.→★	N/A
79	Common	Elective	English Presentation Skills	2	1・2	1	Newly-Established	Nobuhara ① ★	Students who enrolled in and before AY 2023 can take this subject.
80	Major	Elective	Advanced Global Innovation 1		1・2	1～3	Discontinuted		N/A
81	Major	Elective	Advanced Global Innovation 2		1・2	1～3	Discontinuted		N/A
82	Major	Elective	Advanced GI Computational Engineering Science		1・2	1～3	Discontinuted		N/A
83	Major	Elective	Advanced GI Management Study 1		1・2	1～3	Discontinuted		N/A
84	Major	Elective	Advanced GI Management Study 2		1・2	1～3	Discontinuted		N/A
Revision of Common Rules (Master's Program)									
85	curriculum table	Revise a description of the subjects marked with an "S". (New) 【Symbols in the Notes Column】 ・Subjects marked with an "S" are offered as part of the Advanced Safety Engineering Course (Old) 【Symbols in the Notes Column】 ・Subjects marked with an "S" are offered as part of the Safety Engineering Course							
Doctoral Program (Energy Engineering)									
86	Major	Elective	Advanced Cource for Nuclear Energy Management	2	1～3	1	Discontinuted		N/A
87	Major	Elective	Advanced Safety on Fire and Explosion	2	1～3	1	Discontinuted		N/A
88	Common	Elective	Advanced Ion Beam Engineering	2	1～3	1	Newly-Established	Takahashi(Kazumasa)	Students who enrolled in and before AY 2023 can take this subject.
Doctoral Program (Information Science and Control Engineering)									
89	Major	Elective	Advanced Business Strategy	2	1～3	1	Discontinuted		N/A
Doctoral Program (Civil Engineering and Bioengineering)									
90	Major	Elective	Advanced Sports Engineering and Human Dynamics	2	1～3	2	Discontinuted		N/A

No.	Classification 区分	Compulsory /Elective必修選択	Subject Name科目名	Credits単位	Year開講年	Term期間	Revisions改定区分	Subject name, Lecturer-in-Charge and Term etc. (Changes are shown as [Before revision] → [After revision].) 細かい改定内容	Measures to students在学生の対応
Nuclear System Safety Regulatory Course									
91	Major	Elective	Thermal Hydraulics in Nuclear Reactors	1	1～2	2	Change in Notes Column	The class period for this course will be the same as the thermal fluid engineering lecture in the Specialized Course on Nuclear Reactor Design, which will be offered to students enrolling in or after AY 2024	N/A
WISE Program (Course for the 5-year Integrated Doctoral Program)									
92	Major	Elective Compulsory	Cultural Intelligence (CQ)	2	1～5	1	Not Conducted in 2024	As shown in the left	N/A
93	Major	Elective Compulsory	Cultural Leadership	2	1～5	2	Not Conducted in 2024	As shown in the left	N/A
94	Major	Elective Compulsory	Social Innovation	2	1～5	2	Not Conducted in 2024	As shown in the left	N/A
WISE Program (Course for the Master's Program and Doctoral Program)									
95	Major	Elective Compulsory	Cultural Intelligence (CQ)	2	Master 1～2 Doctor 1～3	1	Not Conducted in 2024	As shown in the left	N/A
96	Major	Elective Compulsory	Cultural Leadership	2	Master 1～2 Doctor 1～3	2	Not Conducted in 2024	As shown in the left	N/A
97	Major	Elective Compulsory	Social Innovation	2	Master 1～2 Doctor 1～3	2	Not Conducted in 2024	As shown in the left	N/A

No.	Classification 区分	Compulsory /Elective必修選択	Subject Name科目名	Credits単位	Year開講年	Term期間	Revisions改定区分	Subject name, Lecturer-in-Charge and Term etc. (Changes are shown as [Before revision] → [After revision].) 細かい改定内容	Measures to students在学生の対応
【The following is for students enrolled before AY 2021.】									
Master's Program (Mechanical Engineering)									
	Major	Elective	Advanced Construction Machinery Engineering	2	1・2	2	Change in Notes Column	O K→O K ★	N/A
Master's Program (Electrical, Electronics and Information Engineering)									
	Major	Elective	Power Electronics	2	1・2	1	Discontinued		N/A
	Major	Elective	Ion Beam Engineering	2	1・2	2	Newly-Established	Takahashi(Kazumasa) E ★	Students who enrolled in and before AY 2023 can take this subject.
	Major	Elective	Advanced Mathematical Informatics	2	1・2	2	Discontinued		N/A
Master's Program (Materials Science and Technology)									
	Major	Elective	Advanced Course of Structual Chemistry	2	1・2	1	Discontinued		N/A
	Major	Elective	Advanced Environmental Biomass Materials and Technology	1	1・2	1	Discontinued		N/A
	Major	Elective	Advanced Computational Chemistry	1	1・2	1	Discontinued		N/A
	Major	Elective	Advanced Course of Polymer Chemistry 1	1	1・2	1	Discontinued		N/A
	Major	Elective	Coordination Chemistry	2	1・2	1	Discontinued		N/A
	Major	Elective	Physical Chemistry of Advanced Materials 1	2	1・2	2	Discontinued		N/A
	Major	Elective	Physical Chemistry of Advanced Materials 2	2	1・2	2	Discontinued		N/A
	Major	Elective	Advanced Inorganic Materials 1	2	1・2	2	Discontinued		N/A
	Major	Elective	Advanced Inorganic Materials 2	2	1・2	2	Discontinued		N/A
	Major	Elective	Advanced Organic Materials 1	2	1・2	2	Discontinued		N/A
	Major	Elective	Advanced Organic Materials 2	2	1・2	2	Discontinued		N/A
Master's Program (Civil and Environmental Engineering)									
	Major	Elective	Advanced Structural Analysis	2	1・2	1	Change of Term	1st Term→2nd Term	N/A
	Major	Elective	Advanced Structural Engineering	2	1・2	2	Discontinued	O ★ K	N/A
	Major	Elective	Advanced Structural Engineering	2	1・2	2	Discontinued	E ☆ K	N/A
Master's Program (Bioengineering)									
	Major	Elective	Physics of Protein Molecule	2	1・2	1	Discontinued		N/A
	Major	Elective	Engineering for Wildlife Management	2	1・2	1	Discontinued		N/A
Master's Program (Information and Management Systems Engineering)									
	Major	Elective	Topics of Sport Engineering	2	1・2	2	Discontinued		N/A
Master's Program (Nuclear System Safety Engineering)									
	Major	Compulsory	Nuclear Safety Laboratory	1	1・2	1〜3	Change of Term	1st to 3rd Term→1st Term	N/A
	Major	Elective	Structural Engineering in Nuclear Reactors	1	1・2	2	Change in Notes Column	The class period for this course will be the same as the nuclear design lecture in the Specialized Course on Nuclear Reactor Design, which will be offered to students enrolling in or after AY 2024.	N/A
	Major	Elective	Thermal Hydraulics in Nuclear Reactors	1	1・2	2	Change in Notes Column	The class period for this course will be the same as the thermal fluid engineering lecture in the Specialized Course on Nuclear Reactor Design, which will be offered to students enrolling in or after AY 2024.	N/A
Master's Program (System Safety Engineering)									
	Major	Elective	Advanced Organization Management	2	1・2	2	Change of Term	2nd Term→1st & 2nd Term	N/A

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Master's Program (Common Subject)									
	Common	Elective	Advanced Safety and Information Security 1	1	1・2	2	Newly-Established	Miyoshi, ※Ogino & Ito(Kosuke) Safety	Students who enrolled in and before AY 2023 can take this subject.
	Common	Elective	Advanced Safety and Information Security 2	1	1・2	2	Newly-Established	Miyoshi & ※Sakurai(Tsu) Safety	Students who enrolled in and before AY 2023 can take this subject.
	Common	Elective	Tecnhological English	2	1・2	1・2	Change of Term Change in Notes Column	1st & 2nd Term→2nd Term 1st sem. ☆(Tue.) ★(Wed.) 2nd sem.→★	N/A
	Common	Elective	English Presentation Skills	2	1・2	1	Newly-Established	Nobuhara ⓘ ★	Students who enrolled in and before AY 2023 can take this subject.
	Major	Elective	Advanced Global Innovation 1		1・2	0	Discontinuted		N/A
	Major	Elective	Advanced Global Innovation 2		1・2	0	Discontinuted		N/A
	Major	Elective	Advanced GI Computational Engineering Science		1・2	0	Discontinuted		N/A
	Major	Elective	Advanced GI Management Study 1		1・2	0	Discontinuted		N/A
	Major	Elective	Advanced GI Management Study 2		1・2	0	Discontinuted		N/A
Doctoral Program (Information Science and Control Engineering)									
	Major	Elective	Advanced Business Strategy	2	1〜3	1	Discontinuted		N/A
	Major	Elective	Advanced Safety on Fire and Explosion	2	1〜3	1	Discontinuted		N/A
Doctoral Program (Energy and Environment Science)									
	Major	Elective	Advanced Cource for Nuclear Energy Management	2	1〜3	1	Discontinuted		N/A
	Common	Elective	Advanced Ion Beam Engineering	2	1〜3	1	Newly-Established	Takahashi(Kazumasa)	Students who enrolled in and before AY 2023 can take this subject.
Doctoral Program (Integrated Bioscience and Technology)									
	Major	Elective	Advanced Sports Engineering and Human Dynamics	2	1〜3	2	Discontinuted		N/A
Nuclear System Safety Regulatory Course									
	Major	Elective	Thermal Hydraulics in Nuclear Reactors	1	1〜2	2	Change in Notes Column	The class period for this course will be the same as the thermal fluid engineering lecture in the Specialized Course on Nuclear Reactor Design, which will be offered to students enrolling in or after AY 2024.	N/A

Applied Safety Engineering Course

(Course for All Master's Programs, including the System Safety Engineering)

Applied Safety Engineering Course (Open to All Majors in the Master's Program Excluding System Safety Engineering)

1. Overview and Objectives

Safety has become more important than ever before due to increasingly sophisticated and complex technologies, large-scale business activities, and society's demands on the activities of organizations and corporations. The continued existence of organizations and corporations is contingent on ensuring safety in the workplace and providing safe goods and services to consumers. In this context, there is a societal need for universities to train individuals who have in-depth expertise that can be applied to safety-related issues and new technologies, logical thinking abilities and creative abilities, as well as excellent problem-solving capabilities for safety-related problems. In other words, there is a widespread need for education and research on safety engineering.

The Applied Safety Engineering Course aims to facilitate the acquisition of fundamental and applied knowledge of safety engineering. Course graduates should aim to obtain System Safety Sub-Engineer certification (System Safety Engineer Certification System).

2. Course Outline

(1) Course Requirements

Students must take the common subjects and specialized subjects offered in each major shown in the list of subjects in **Table 1**.

(2) Course Application

This course is open to students in the master's programs of all majors except System Safety Engineering. Students who wish to apply for this course must submit the *Application for the Applied Safety Engineering Course* to the Division of Academic Affairs during the stipulated registration period (scheduled to be the subject registration periods of the First Term and Second Term). When taking a subject, students should carefully check all distributed handouts and follow the procedures.

(3) Course Completion

To complete this course, students must earn a total of 8 credits from the subjects shown in **Table 1**: 4 credits from "Advanced Safety Engineering", "Advanced Safety and Information Security 1", and "Advanced Safety and Information Security 2" (course compulsory subjects); 2 credits from "Advanced Lecture on Risk Assessment" or "Construction of Safety System", which address the foundational knowledge for practical applications of safety engineering (course elective-compulsory subjects ●); and 2 credits from safety-related subjects offered in each of the majors (course elective-compulsory subjects ○).

Students who complete the course will be conferred a certificate of course completion upon graduation from the master's program.

◆Applied Safety Engineering Course（Attached Table 1）

Subject Name	Credits	Compulsory/Elective	Major/Subject Classification	Term
Advanced Safety Engineering	2	**Compulsory**	Common Subjects	2nd Term
Advanced Safety and Information Security 1	1	**Compulsory**	Common Subjects	2nd Term
Advanced Safety and Information Security 2	1	**Compulsory**	Common Subjects	2nd Term
●Advanced lecture on risk assessment	2	**Elective Compulsory (acquire a minimum of 2 credits from "●" subjects)**	Major Subject of System Safety Engineering	1st Term
●Construction of Safety System	2		Major Subject of System Safety Engineering	2nd Term
○Snow and Ice Technology	2	**Elective Compulsory (acquire a minimum of 2 credits from "○" subjects)**	Major Subject of Mechanical Engineering	1st and 2nd Term
○Advanced Course for Mechatronics	2		Major Subject of Electrical, Electronical and Information Engineering	2nd Term
○Advanced Engineering on Electrical Machine	2		Major Subject of Electrical, Electronical and Information Engineering	2nd Term
○Advanced Medium Voltage Converters	2		Major Subject of Electrical, Electronical and Information Engineering	1st Term
○Sustainable Development Theory	2		Major Subject of Information and Management Systems Engineering	1st Term
○Energy Economics	2		Major Subject of Information and Management Systems Engineering	1st Term
○Principles in Drug Action	2		Major Subject of Materials Science and Bioengineering	1st Term
○Advanced course of disaster management	2		Major Subject of Civil and Environmental Engineering	2nd Term
○Nuclear Power Reactor and Plant Systems	2		Major Subject of Nuclear Technology	1st Term
○Advanced Safety and Crisis Management	2		Major Subject of Nuclear Technology	1st Term
○Advanced Lecture on Nuclear Regulation	2		Major Subject of Nuclear Technology	1st Term
○Advanced Seismic Safety Engineering and Community Disaster Management	2		Major Subject of Nuclear Technology	2nd Term
○Nuclear Emergency Planning and Resilience Engineering	2		Major Subject of Nuclear Technology	2nd Term

*To count subjects indicated with ● and subjects from other majors indicated with ○ as completion criteria for the master's program, approval must first be obtained from each student's academic supervisor.

*For subjects indicated with ●, classes will mainly be held on Saturdays and Sundays. Students should only take these subjects after carefully checking the schedule and class methods in the syllabus and distributed handouts. If there are many applications for "Advanced Lecture on Risk Assessment", students may be required to undergo selection for registration. Please refer to the distributed handouts and other materials for details.

No.	Classification 区分	Compulsory /Elective必修選択	Subject Name科目名	Credits単位	Year開講年	Term期間	Revisions改定区分	Subject name, Lecturer-in-Charge and Term etc. (Changes are shown as [Before revision] → [After	Measures to students在学生の対応
【The following is for students enrolled before AY 2021.】									
Master's Program (Mechanical Engineering)									
	Major	Elective	Advanced Construction Machinery Engineering	2	1・2	2	Change in Notes Column	O K→O K ★	N/A
Master's Program (Electrical, Electronics and Information Engineering)									
	Major	Elective	Power Electronics	2	1・2	1	Discontinuted		N/A
	Major	Elective	Ion Beam Engineering	2	1・2	2	Newly-Established	Takahashi(Kazumasa) E ★	Students who enrolled in and before AY 2023 can take this subject.
	Major	Elective	Advanced Mathematical Informatics	2	1・2	2	Discontinuted		N/A
Master's Program (Materials Science and Technology)									
	Major	Elective	Advanced Course of Structual Chemistry	2	1・2	1	Discontinuted		N/A
	Major	Elective	Advanced Environmental Biomass Materials and Technology	1	1・2	1	Discontinuted		N/A
	Major	Elective	Advanced Computational Chemistry	1	1・2	1	Discontinuted		N/A
	Major	Elective	Advanced Course of Polymer Chemistry 1	1	1・2	1	Discontinuted		N/A
	Major	Elective	Coordination Chemistry	2	1・2	1	Discontinuted		N/A
	Major	Elective	Physical Chemistry of Advanced Materials 1	2	1・2	2	Discontinuted		N/A
	Major	Elective	Physical Chemistry of Advanced Materials 2	2	1・2	2	Discontinuted		N/A
	Major	Elective	Advanced Inorganic Materials 1	2	1・2	2	Discontinuted		N/A
	Major	Elective	Advanced Inorganic Materials 2	2	1・2	2	Discontinuted		N/A
	Major	Elective	Advanced Organic Materials 1	2	1・2	2	Discontinuted		N/A
	Major	Elective	Advanced Organic Materials 2	2	1・2	2	Discontinuted		N/A
Master's Program (Civil and Environmental Engineering)									
	Major	Elective	Advanced Structural Analysis	2	1・2	1	Change of Term	1st Term→2nd Term	N/A
	Major	Elective	Advanced Structural Engineering	2	1・2	2	Discontinuted	O ★ K	N/A
	Major	Elective	Advanced Structural Engineering	2	1・2	2	Discontinuted	E ☆ K	N/A
Master's Program (Bioengineering)									
	Major	Elective	Physics of Protein Molecule	2	1・2	1	Discontinuted		N/A
	Major	Elective	Engineering for Wildlife Management	2	1・2	1	Discontinuted		N/A
Master's Program (Information and Management Systems Engineering)									
	Major	Elective	Topics of Sport Engineering	2	1・2	2	Discontinuted		N/A
Master's Program (Nuclear System Safety Engineering)									
	Major	Compulsory	Nuclear Safety Laboratory	1	1・2	1〜3	Change of Term	1st to 3rd Term→1st Term	N/A
	Major	Elective	Structural Engineering in Nuclear Reactors	1	1・2	2	Change in Notes Column	The class period for this course will be the same as the nuclear design lecture in the Specialized Course on Nuclear Reactor Design, which will be offered to students enrolling in or after AY 2024.	N/A
	Major	Elective	Thermal Hydraulics in Nuclear Reactors	1	1・2	2	Change in Notes Column	The class period for this course will be the same as the thermal fluid engineering lecture in the Specialized Course on Nuclear Reactor Design, which will be offered to students enrolling in or after AY 2024.	N/A
Master's Program (System Safety Engineering)									
	Major	Elective	Advanced Organization Management	2	1・2	2	Change of Term	2nd Term→1st & 2nd Term	N/A

No.	Classification 区分	Compulsory /Elective必修選択	Subject Name科目名	Credits単位	Year開講年	Term期間	Revisions改定区分	Subject name, Lecturer-in-Charge and Term etc. (Changes are shown as [Before revision] → [After	Measures to students在学生の対応
Master's Program (Common Subject)									
	Common	Elective	Advanced Safety and Information Security 1	1	1・2	2	Newly-Established	Miyoshi, ※Ogino & Ito(Kosuke) Safety	Students who enrolled in and before AY 2023 can take this subject.
	Common	Elective	Advanced Safety and Information Security 2	1	1・2	2	Newly-Established	Miyoshi & ※Sakurai(Tsu) Safety	Students who enrolled in and before AY 2023 can take this subject.
	Common	Elective	Tecnhological English	2	1・2	1・2	Change of Term Change in Notes Column	1st & 2nd Term→2nd Term 1st sem. ☆(Tue.) ★(Wed.) 2nd sem.→★	N/A
	Common	Elective	English Presentation Skills	2	1・2	1	Newly-Established	Nobuhara ① ★	Students who enrolled in and before AY 2023 can take this subject.
	Major	Elective	Advanced Global Innovation 1		1・2	0	Discontinuted		N/A
	Major	Elective	Advanced Global Innovation 2		1・2	0	Discontinuted		N/A
	Major	Elective	Advanced GI Computational Engineering Science		1・2	0	Discontinuted		N/A
	Major	Elective	Advanced GI Management Study 1		1・2	0	Discontinuted		N/A
	Major	Elective	Advanced GI Management Study 2		1・2	0	Discontinuted		N/A
Doctoral Program (Information Science and Control Engineering)									
	Major	Elective	Advanced Business Strategy	2	1〜3	1	Discontinuted		N/A
	Major	Elective	Advanced Safety on Fire and Explosion	2	1〜3	1	Discontinuted		N/A
Doctoral Program (Energy and Environment Science)									
	Major	Elective	Advanced Cource for Nuclear Energy Management	2	1〜3	1	Discontinuted		N/A
	Common	Elective	Advanced Ion Beam Engineering	2	1〜3	1	Newly-Established	Takahashi(Kazumasa)	Students who enrolled in and before AY 2023 can take this subject.
Doctoral Program (Integrated Bioscience and Technology)									
	Major	Elective	Advanced Sports Engineering and Human Dynamics	2	1〜3	2	Discontinuted		N/A
Nuclear System Safety Regulatory Course									
	Major	Elective	Thermal Hydraulics in Nuclear Reactors	1	1〜2	2	Change in Notes Column	The class period for this course will be the same as the thermal fluid engineering lecture in the Specialized Course on Nuclear Reactor Design, which will be offered to students enrolling in or after AY 2024	N/A