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**HANDBOOK OF GRADUATE PROGRAMS
FOR INTERNATIONAL STUDENTS**

ACADEMIC YEAR 2021

琉球大学大学院理工学研究科

Graduate School of Engineering and Science

University of the Ryukyus

2021 Academic Calendar

[2021] Spring Semester

Apr. 1 (Thu.)		Start of Spring Semester
Apr. 2 (Fri.)	~ Apr. 7 (Wed.)	Registration: Classes of Spring Semester, 1 st Quarter, 2 nd Quarter
Apr. 6 (Tue.)		Entrance Ceremony
Apr. 9 (Fri.)		Start of Spring Semester Classes
Apr. 9 (Fri.)	~ Apr. 22 (Thu.)	Registration Adjustment Period
Apr. 13 (Tue.)	~ Apr. 27 (Tue.)	Medical Examination Period
Apr. 20 (Tue.)		Deadline for Submission of Doctoral Dissertation for Preliminary Review
Apr. 30 (Fri.)*		Substitution Day for Classes on Thursdays
May 22 (Sat.)		University Anniversary Day
May 29 (Sat.)		Athletic Festival
Jun. 18 (Fri.)		Deadline for Submission of Doctoral Dissertation for Final Review
Jun. 23 (Wed.)		Okinawa Memorial Day (Holiday)
Aug. 2 (Mon.)	~ Aug. 11 (Wed.)	Spring Semester Examination
Aug. 10 (Tue.)		Deadline for Submission of Master's Thesis
Aug. 12 (Thu.)	~ Aug. 13 (Fri.) **	Substitution Day
Sep. 1 (Wed.)		Grades will be available online
Middle of September		Graduation Ceremony
Sep. 21 (Tue.)		Timetables will be available online
Sep. 22 (Wed.)	~ Sep. 27 (Mon.)	Registration: Fall Semester, 3 rd Quarter, 4 th Quarter
Sep. 30 (Thu.)		End of Spring Semester

[2021] Fall Semester

Oct. 1 (Fri.)		Start of Fall Semester
Oct. 1 (Fri.)		Start of Fall Semester Classes
Beginning of October		Entrance Ceremony
Oct. 1 (Fri.)	~ Oct. 14 (Thu.)	Registration Adjustment Period
Oct. 20 (Wed.)		Deadline for Submission of Doctoral Dissertation for Preliminary Review
Nov. 26 (Fri.)*		Substitution Day for Classes on Wednesdays
Dec. 20 (Mon.)		Deadline for Submission of Doctoral Dissertation for Final Review
Dec. 1 (Wed.)		No Class (Entrance Exam)
Dec. 25 (Sat.)	~ Jan. 3 (Mon.)	Winter Break
Jan. 4 (Tue.)		Fall Semester Classes Restart
Jan. 14 (Fri.)		No Class (Preparation for Entrance Exam)
Jan. 27 (Thu.)	~ Feb. 7 (Mon.)	Fall Semester Examinations
Feb. 8 (Tue.)	~ Feb. 9 (Wed.) **	Substitution Day
Feb. 10 (Thu.)		Deadline for Submission of Master's Thesis
Feb. 11 (Fri.)	~ Mar. 31 (Thu.)	Spring Break
Mar. 1 (Tue.)		Grades will be available online
Mar. 18 (Fri.)		Graduation Ceremony
Mar. 31 (Thu.)		End of Fall Semester

<Notes> * No other examination or make-up classes shall be scheduled on these days.

** Substitution days for classes or examinations that are canceled due to typhoon or other reasons.

Charter of the University of the Ryukyus

(Adopted: May 22, 2007)

Preface

The University of the Ryukyus was established in 1950 on the remains of Shuri Castle, which was burnt to ashes in the Battle of Okinawa. Under the U.S. administration governing Okinawa, the strong desire of Okinawans for postwar reconstruction and restoration of education moved the U.S. Military Government to establish the first university in the Ryukyu Archipelago. In 1966, administration of the University was transferred to the Ryukyu Government, and with the reversion of Okinawa to Japan in 1972, the University became a national university. In 1977, the University was moved to a large new campus in the region where the three municipalities of Nishihara Town, Ginowan City, and Nakagusuku Village meet, and it became a national university corporation in 2004. Although the University of the Ryukyus has gone through a number of historic hardships, such as interference in academic freedom and the autonomy of the University during such transitions, it has made great contributions to the development of human resources in the local community and to the production of new knowledge.

The environment in which the University exists has changed greatly since the beginning of the 21st century. The University's role as an educational and research institution has been evolving in order to deal with a variety of issues, including the globalization of the economy and society, the rapid dissemination of information, the falling birthrate and aging population, and growing social and regional disparity; thus, radically innovative approaches to higher education are needed. National universities are entering an age of competition and rigorous evaluation that is accompanied by tough financial reforms, especially after their corporatization. The University of the Ryukyus is expected to contribute to the protection of the rich natural environment of and the sustainable development of the local community as a hub university in an

island region that includes a vast marine area. Based on the principles set forth in this Charter, the University of the Ryukyus will also actively deal with future system changes through the cooperation of faculty, staff, and students, who are all constituent members of our university.

The University of the Ryukyus embraces the idea of “*Nuchi du takara* (Life is indeed a treasure).” It is based on the historical lessons of Okinawa and has at its root the dignity of life and the individual. It profoundly takes notice of the basic tenet of education in postwar Okinawa: “Never allow the horrors of war to happen again.” The University is located in the Ryukyu Archipelago, which possesses unique natural, cultural, and historical characteristics. Located in such a region, the University will unwaveringly continue its mission to boldly cultivate human resources who are responsible and well rounded, and who aspire to realizing world peace and improving public welfare.

Inheriting and developing the founding spirit of “Freedom and Equality, Tolerance and Peace” and proclaiming our determination to create a “university with great individuality that both maintains its regional characteristics and possesses an international outlook,” we, the faculty, staff, and students of the University hereby establish the Charter of the University of the Ryukyus as the basic standard that we will follow when taking future initiatives.

Section 1. Education

(Educational Purpose and Principle)

1. As a university that emphasizes education based on the principle that students are our main constituents and possess the right to learn, the educational purpose of the University of the Ryukyus is the cultivation of people who can create a society reflecting fully the spirit of “Freedom and Equality, Tolerance and Peace.” The university shall contribute to the sustainable growth of society as a whole through educational activities based on autonomy and independence.

(Responsibility and Social Evaluation of Education)

2. The University of the Ryukyus shall provide all people with equal educational opportunities throughout their life span and be responsible for the maintenance, reinforcement, and development of educational activities appropriate for an institution of higher education. The University of the Ryukyus shoulders a responsibility to society in its educational activities and is profoundly aware of social evaluation in line with the educational purpose and principle stated in the previous clause.

(Promotion of Multicultural Exchange)

3. In view of the fact that the Ryukyu Archipelago has nurtured a multifaceted culture and that a spiritually rich human nature is cultivated through diverse cultural exchanges, the University of the Ryukyus respects all of the cultures humanity has developed on this planet and will promote their exchange.

Section 2. Research

(Principles of Research)

1. The University of the Ryukyus respects academic freedom, and based on the fact that fundamental research and applied research are the two wheels of research activity, the inheritance, creation, and development of knowledge shall be held as our principles of research.

(Regional Characteristics)

2. Acknowledging the importance of fundamental research, the University of the Ryukyus aims to develop research from a diversified point of view, utilizing the regional characteristics of the Ryukyu Archipelago, which possesses a distinctive natural environment, culture, and history, and it further aims to become a world-class and distinctive research hub.

(Promotion of Research Exchanges)

3. Along with sharing information with the local community, the University of the Ryukyus shall promote research exchanges with domestic institutions and

institutions in foreign countries, particularly in the Asian and Pacific regions, and shall disseminate research accomplishments to the rest of the world.

(Responsibility and Social Evaluation of Research)

4. While balancing the responsibility of realizing the research principles of inheritance, creation, and development of knowledge with its role in society, the University of the Ryukyus shall endeavor to maintain and develop a sound research system. Research should be carried out while observing social ethics and standards and be open to mutual academic criticism and social evaluation.

Section 3. Contribution to Society

(An Open University and Social Mission)

1. The University of the Ryukyus aims to be a university that is “open to society” and that unites people. Recognizing the interrelationship by which the university changes society and vice versa, ceaseless efforts shall be made to accomplish the university’s social mission as the highest institution of learning in the Ryukyu Archipelago.

(Cooperation with Society)

2. The University of the Ryukyus shall not only return its academic knowledge and technology to society but shall also cooperate to form partnerships with diversified individuals and organizations to tackle common challenges.

(Responsibility for the Sustainable Development of the Local Community)

3. While working on the revitalization of the local community, the University of the Ryukyus shall assume the responsibility of contributing to the protection of the rich natural environment and sustainable development of the local community.

Section 4. University Management

(Respecting Basic Human Rights)

1. The University of the Ryukyus shall respect basic human rights and shall not discriminate on the basis of race, religion, gender, nationality, or special needs. We will also actively disclose relevant information in our possession while protecting personal information. The University of the Ryukyus shall provide an educational, research, and work environment in which all of its constituent members can fully exercise their individuality and abilities.

(Democratic University Management and Efficient Administration)

2. The University of the Ryukyus shall run an efficient operation with a democratic university management that supports education and research in order to secure the

academic freedom and autonomy of the university. We shall also establish a financial base and sound management that will respond to the environment surrounding incorporated national universities such as ours and sustain the accompanying competition and evaluation.

(Autonomy and Solidarity)

3. The University of the Ryukyus shall form an intellectual community based on the autonomy and solidarity of faculty and staff, and it aims to be a creative and continuously evolving university in which the faculty, staff, and students unite as one. The constituent members of the university shall faithfully attend to independently accomplishing their roles and responsibilities, and reflect diversified feedback from society back to the management of the university.

Concluding Section Contribution to Peace

Historically, Okinawa has served as a “Bridge between Nations” in promoting peace and friendship among Asian countries, and it also experienced a devastating land battle, known as the “Typhoon of Steel,” during the Battle of Okinawa. Currently, vast U.S. military bases still exist in Okinawa even though its reversion to Japan took place after a long postwar U.S. administration. In light of a history such as this and the current conditions in Okinawa, the University of the Ryukyus shall contribute to the establishment of international peace.

The University of the Ryukyus respects ethics and humanity, and it shall base its contributions to peace on education, research, contribution to society, and the purposes of university management and principles set forth in this Charter.

(Amendments to the Charter)

Amendments to this Charter shall be made according to separately established procedures.

Supplementary provision

This Charter has been in effect since May 22, 2007.

Educational Philosophy of the University of the Ryukyus

Guiding Principles

Okinawa was the site of the final battle of the Pacific War, which resulted in the loss of a great number of lives as well as heavy destruction to its nature and cultural heritage. To this day, vast U.S. bases still remain in Okinawa. For these reasons, the University of the Ryukyus has followed its guiding principles of “Freedom and Equality, Tolerance and Peace” since its founding. The quest for truth, and the desire to make a broader and meaningful contribution to both our immediate region and to global society continue to be our primary objectives.

Our University’s Vision

The world continues to change dramatically in the 21st Century. Global warming has become a serious threat. The wasteful use of resources for development primarily benefiting advanced countries has and continues to lead to the depletion of natural resources and regional conflicts.

As such, it become important for our modern societies to put an emphasis on our abundant wisdom and the supple, flexible mind of the south, as alternatives to the theories that benefit the advanced countries in the north, and we must pay particular attention to the vital importance of ecological and environmental issues.

The University of the Ryukyus, with the guidance from Michigan State University, has developed its own traditions: contributing to and advancing along with the local community; conducting international exchange; broadening our knowledge base through academic and educational activities, particularly on a regional level with other Asian countries with whom we share many commonalities; and making a global intellectual contribution to exchanges with Europe and America. Furthermore, we have enhanced development of human resources, regardless of gender and nationality.

Our university vision can be summed as follows:

1. Contribute to society both locally and globally through education and research.
2. Promote the advancement of knowledge with other Asian countries through international exchange.
3. Conduct high-quality education and research as a global knowledge hub.

Human Resources

The mission of the University of the Ryukyus is to send promising individuals out into

society with a high-quality education. We aim to cultivate individuals with the following qualities:

1. Those who can make contributions at the local level as well as on a larger societal scale
2. Those who can take an active role both nationally and globally
3. Those who will strive to accomplish their dreams
4. Those who possess drive and are open-minded
5. Those who can learn from Okinawan history and the university's guiding principles and take advantage of them

Long-term Goals

Our university strives to make contributions to both local and global society based on our founding traditions and principles. In order to develop our university as a knowledge hub to the world, it is necessary to have dedication, with the nurturing of young individuals also being of vital importance.

We have played our role over the years in developing leaders who are active in areas such as science, the fine arts, politics and economics. Although we will continue to develop high quality individuals in these areas, our university must also respond to emerging trends that will have both a local and global impact, such as social change as a result of globalization and population shifts. We need to look at academic development in new areas, as well as in fields of an interdisciplinary nature. With these matters in mind, we have established the following goals:

1. Conduct education which focuses on continual improvement in the quality of graduates
2. Improve the environment in which the potential of young researchers and new academic fields is developed
3. Promote basic research and research utilizing Okinawa's regional characteristics
4. Strive to be a university that makes intellectual contributions to society at large that passes on learning, and that generates new learning.

In order for the University of the Ryukyus to aim towards future expansion and the achievement of its goals, it is necessary to have high-caliber faculty and driven students with drive, along with a sound financial base and flexible management. We have high hopes for and expectations of our strongly-motivated students.

Degree Regulations for the University of the Ryukyus

April 1, 1987

Adopted by the Council of Education and Research

The Degree regulations for the University of the Ryukyus (March 26, 1977), revised.

(Revised on February 28, 2018)

(Aim)

Article 1 These regulations, based on Article 13 of the Degree regulations (Ministry of Education, Culture, Sports, Science and Technology. Ministerial Order 9, 1953), Article 44 clause 2 of the University of the Ryukyus Regulations and Article 47 clause 4 of the University of the Ryukyus Graduate School Regulations, set forth the particulars of the process for thesis screening, examinations, and scholastic ability necessary in the conferral of degrees at the University of the Ryukyus (hereafter referred to as the University).

(Requirements for the Conferral of Bachelor's Degrees)

Article 2 Bachelors Degrees shall be awarded to students graduating from the University.

(Requirements for the Conferral of Master's Degrees)

Article 3 Master's Degrees shall be awarded to those students completing the Master's Program of the Graduate School of the University (Master's Program for the Graduate School of Humanities and Social Science, and Engineering and Science (hereafter referred to as Master's Program).

(Requirements for the Conferral of Doctoral Degrees)

Article 4 Doctoral Degrees shall be awarded to those students completing Doctoral Programs at the University.

(Requirements for the Conferral of Juris Doctoral Degrees)

Article 4(2) Juris Doctoral Degrees shall be awarded to those students completing the Juris Doctor Program at the University.

(Doctoral Degrees Based on Dissertation submission)

Article 5 In addition to the particulars set forth in the preceding article, students shall be awarded Doctoral Degrees based on achieving a passing grade in the doctoral dissertation review, having completed the course and the confirmation of scholastic ability.

(Submission of Thesis/Dissertation)

Article 6 Master's Thesis shall be submitted to the Dean of the Graduate School.

2 Doctoral Dissertations shall be submitted to the President of the University, via the Dean of the Graduate School, a request for review, a list of publications, an dissertation abstract and their Curriculum Vitae.

(Application for the Conferral of Degrees)

Article 7 Those students applying to graduate under Article 5 of the regulations shall submit to the President of the University, via the Dean of the Graduate School, a degree application, their dissertations, a list of publications, a dissertation abstract, their Curriculum Vitae, and the prescribed reviewing fee.

2 Those students continuing their doctoral studies for a period in excess of the prescribed standard course length, having earned the prescribed credits and who submit their theses after having withdrawn from the university are subject to the regulations set forth in the preceding clause. However, those who submit within one year of their withdrawal from the university shall be exempt from the dissertation reviewing fee.

Article 8 Only one dissertation submission is permitted. However, the attachment of other publications as reference documents is possible.

Article 9 The Graduate School Committee may require the submission of a translation of the thesis/dissertation, models and samples deemed necessary during the reviewing process.

Article 10 Accepted theses/dissertations shall not be returned.

(Reviewing Referral)

Article 11 When, under articles 6 and 7 of the regulations, the Graduate School Dean and the President of the University accept submitted theses/dissertations, they must refer them for reviewing by the Graduate School Committee.

(Review)

Article 12 When theses/dissertations are referred for reviewing, the Graduate School Committee shall establish a reviewing committee.

2 The reviewing committee shall consist of three or more members.

3 The reviewing committee shall carry out confirmations of scholastic ability, and final examinations in addition to thesis/dissertation screening.

4 Each Graduate School shall, if necessary for the reviewing process, seek the co-operation of staff members of other Graduate Schools or Research Institutions by inducting them as reviewing committee members.

(Final Examinations)

Article 13 Final examinations shall take the form of a presentation or written test relevant to the topic of the submitted thesis/dissertation and shall be held after the completion of the reviewing process.

(Confirmation of Scholastic Ability)

Article 14 The confirmation of scholastic ability set forth in Article 5 of the regulations shall be conducted to ascertain the level scholastic and research ability both orally and in written form. In the case of a foreign language, without acknowledgement of the existence of a special reason by the Graduate Course Committee, both of these procedures shall be carried out.

2 Those students having exceeded the prescribed standard length of the Doctoral Program at the University's Graduate school and who submit dissertations within 3 years of having withdrawn from the university after having earned the prescribed credits may be exempt from the scholastic ability confirmation process.

(Screening Period)

Article 15 Confirmation of scholastic ability, final examinations, and thesis/dissertation reviewing shall, in the case of Master's students, be completed during the period in which they are enrolled at the university. In the case of Doctoral Program students these processes must be completed within 1 year of receipt of their doctoral dissertation.

(Report to the Graduate School Committee)

Article 16 Following the completion of the reviewing, final examination, and scholastic ability confirmation process, the reviewing committee must report their findings in writing to the Graduate School Committee attaching an abstract of their opinions to the results of the final examination and the scholastic ability confirmation.

(Graduate School Committee Decision)

Article 17 The Graduate School Committee shall base their degree conferral decision on the report set forth in the preceding article.

2 For the decision of the previous clause to stand, two thirds or more of the committee members must be in agreement.

(Report to the President)

Article 18 The Dean of the Faculty must report, in writing, the degree conferral decision of the Faculty Committee to the President of the University.

2 When the Graduate School Committee has reached the decision of the preceding clause, the Graduate School Dean must report to the President of the University, the decision, and the grades of the final examination and scholastic ability confirmation.

3 Notwithstanding the preceding clause, when the Graduate School of Law Committee has reached the decision of degree conferral, the Dean of the Graduate School of Law must report, in writing, to the President of the University.

(Degree Conferral)

Article 19 Based on the report of the preceding clause, the President of the University shall decide upon conferral of the degree. Those to whom degree will be conferred shall be issued with the prescribed degree certification. Those to whom a degree will not be conferred shall be informed as to the reason.

2 When the President of the University decides to confer a degree, as set forth in the previous clause, he/she must inform the appropriate faculty Dean or the Dean of the Graduate School concerned of his decision.

(Report of the Conferral of Doctoral Degrees)

Article 20 When a doctoral degree is conferred upon an individual, the President of the University must, under Article 12 of the Degree Regulations (Ministry of Education Ministerial Order 9, 1953) inform the Minister of Education.

(Publication of Doctoral Dissertations Abstracts)

Article 21 When a doctoral degree is conferred upon an individual, the University of the Ryukyus shall publish an abstract of the concerned dissertation and the report of the dissertation committee within three months of awarding the degree by using the academic repository of the University.

(Publication of Doctoral Dissertations)

Article 22 Those being conferred with doctoral degrees must publish their concerned doctoral dissertations in their entirety within one year of being award their degree. However, they are exempt should their theses have been published prior to the conferral of the degree.

2 Notwithstanding the preceding clause, if the recipient of a doctoral degree has reasons beyond his or her control, and with the consent of the President of the University, an abstract of the concerned doctoral dissertation may be published in

place of the dissertation in its entirety. In such cases, the Dean of the Graduate School may call for the reading of the concerned dissertation in its entirety.

- 3 The publishing by the recipient of a doctoral degree in accordance with the preceding Clause 2 shall be done by using the academic repository of the University.

(Specialty Field Names)

Article 22 (2) The name of the specialty field shall be appended to any degree conferred.

- 2 The names of the specialty fields are as follows:

(Bachelor's Degree Specialty Field Names)

Faculty	Department	Name
Humanities and Social Sciences	Law, Politics and International Relations	Law, Policy Science and International Relations(TBD)
	Sociology and Human Sciences	Human Science(TBD)
	Ryukyuan and Asian Studies	Human Science (TBD)
Global and Regional Studies	Global and Regional Studies	Tourism, Economics,Business Administration, Humanities(TBD)
Education		Education
Science		Science
Medicine		Medicine
		Health Science
Engineering		Engineering
Agriculture		Agriculture

(Master's or Doctoral Program Specialty Field Names)

Graduate School	Name	
	Master's Program	Doctoral Program
Humanities and Social Sciences	Law, Political Science, Economics, Business Administration, Sociology, Education, Psychology, Philosophy, Literature, History, Geography, Linguistics and Communication, Arts	Philosophy
Education	Education	
Medicine		Medicine
Health Sciences	Health Sciences	
Engineering and Science	Science Engineering	Science Engineering Philosophy
Agriculture	Agriculture	

(Degree conferred by the Graduate School of Law)

Article 22 (3) The degree conferred by the Graduate School of Law shall be Juris Doctor under Article 5 clause 2 of the Degree Regulations (Ministry of Education, Culture, Sports, Science and Technology. Ministerial Order 9, 1953).

(Degree Names)

Article 23 Those receiving degrees from the University of the Ryukyus shall, when using the degree name, append it with “The University of the Ryukyus”.

(Cancellation of Conferral)

Article 24 Should it become clear that an individual upon whom a degree has been conferred has obtained the degree by dishonest means or has, by his or her conduct, dishonoured the degree then President of the University may, upon deliberation of the Faculty Committee in the case of Bachelor’s, and the Graduate School Committee in the case of Master’s or Doctors, rescind the conferral, order the return of the degree itself, and make public the circumstances of these actions.

2 Should the Faculty Committee or the Graduate School Committee reach the decision set forth in the preceding clause, the Faculty Committee Regulations shall apply to bachelor’s, and Article 17 clause 2 of the regulations shall apply to Master’s and Doctors.

(Degree Certificate Style)

Article 25 Degree certification shall take the form as laid out in Table 1 for Bachelor’s, Table 2 for Master’s, and Tables 3 or 4 for Doctor’s.

(Miscellaneous Provisions)

Article 26 In addition to these regulations, upon approval of the President of the University, the Dean of the Faculty or the Dean of the Graduate School may set forth additional particulars relating to degrees.

University of the Ryukyus Graduate School of Engineering and Science Regulations

April 1, 2019

enacted

Adopted by the Graduate School of Engineering and Science Committee
Degree Regulations for the University of the Ryukyus (April 1, 1985), revised

(Aim)

Article 1 These regulations, based on regulations set forth in the University of the Ryukyus Graduate School Regulations (hereafter referred to as “Graduate School Regulations”), as well as Article 29 Clause 4 of the University of the Ryukyus Organizational Regulations (hereby referred to as “Organizational Regulations”), stipulate necessary particulars relating to courses, credits, methods of completion and other required information pertaining to the University of the Ryukyus Graduate School of Engineering and Science (hereafter referred to as “the Graduate School”).

(Educational and Research Objectives of the Graduate School)

Article 2 The Graduate School has, as its objectives for education and research, the instruction and exploration of theories and application of knowledge pertaining to the fields of science and engineering, contribution to the deepening of academic knowledge and development of scientific technology, as well as the nurturing of individuals imbued with broad-minded perspectives and a high level of specialist and technical expertise.

(Courses and Curricula)

Article 3 The courses in the following list are on offer at the Graduate School.

Master’s Program

Engineering

Mechanical Engineering
Energy and Environment
Electrical and Systems Engineering
Electronic and Communication Engineering
Civil Engineering
Architecture and Building Engineering
Computer Science and Intelligent Systems

Physics and Earth Sciences

Theoretical Physics
Experimental and Computational Physics

Geology and Marine Geology
 Meteorology, Oceanography and
 Sedimentology

Chemistry, Biology and Marine
 Science

Inorganic and Analytical Chemistry
 Marine Chemistry
 Ecology and Systematics
 Cell and Functional Biology
 Fisheries Biology and Coral Reef Studies
 Tropical Biology

Doctoral Program

Materials, Structural and
 Energy Engineering

Processing Development Engineering
 Energy Development Engineering

Interdisciplinary Intelligent
 Systems Engineering

Environment and Information Engineering
 Electronics and Information Engineering

Marine and Environmental Sciences

Island Archipelago Marine Science
 Coral Reef Science
 Tropical Biology

2 The following programs shall be offered within the course of Engineering.

Major

Programs

Engineering

Solid Mechanics and Materials Engineering
 Thermal and Fluid Engineering
 Intelligent Machine Systems
 Electrical Energy and Systems Control Engineering
 Electronic Systems and Devices
 Civil Engineering
 Architecture & Building Engineering
 Computer Science and Intelligent Systems

(Educational and Research Objectives for Courses)

Article 3-2 The objectives concerning talent and human resource development, in addition to other educational and research purposes for the Graduate School's courses and curricula, are defined in the following table.

Table (Article 3-2) Purposes Concerning Human Resource Development, Education, and Research

	Course	Educational and Research Objectives
Master's Program	Engineering Course	To develop human resources capable of making positive contributions to global society with high levels of specialized knowledge, research and development competence, and the ability to reliably execute research-based tasks in the field of engineering.
	Mathematical Sciences Course	To develop human resources with a high level of technical knowledge and skills that can make a positive contribution to modern society through the administration of education and research in the field of mathematical sciences.
	Physics and Earth Sciences Course	To develop broad-minded human resources with a high level of technical knowledge and skills that can make a positive contribution the development of the academic field and scientific technology through the administration of education and research in the fields of physics and Earth sciences as well as related fields.
	Chemistry, Biology and Marine Science Course	To develop broad-minded human resources with a high level of technical knowledge and skills ranging from basic to advanced applications that can make a positive contribution to local regions as well as international society by utilizing the characteristics of Okinawa's rich natural environment to the fullest through the administration of education and research in the fields of chemistry and biology as well as related fields.
	Doctoral Program	Material, Structural and Energy Engineering Course
Interdisciplinary Intelligent Systems Engineering Course		To develop creative technical experts and researchers with a high level of technical knowledge and skills through the administration of education and research in the interdisciplinary and integrated field concerning the fields of environmental information engineering and electronic information engineering that meets the needs of society.
Marine and Environmental Sciences Course		To develop creative and broad-minded researchers through the administration of education and research that aims to further understanding of the basic underlying principles of Earth's environment including the sea and islands by utilizing the characteristics of Okinawa's natural environment.

2 Objectives for each engineering program related to the development of human resources, as well as other educational and research objectives, shall be as listed in the following table.

Course	Program	Educational and Research Objectives
Engineering	Solid Mechanics and Materials Engineering	To develop human resources possessing specialized knowledge and expertise in mechanical engineering-based fields including strength of materials, material processing and corrosion engineering, ranging from foundational to applied concepts, with the ability to put their expertise to practical use.
	Thermal and Fluid Engineering	To develop human resources possessing specialized knowledge and expertise in mechanical engineering-based fields, with a focus on thermal engineering, fluid engineering and energy systems engineering, ranging from foundational to applied concepts, with the ability to put their expertise to practical use.
	Intelligent Machine Systems	To develop human resources possessing specialized knowledge and expertise in mechanical engineering-based fields, with a focus on intelligent mathematical engineering and instrumentation and control engineering, ranging from foundational to applied concepts, with the ability to put their expertise to practical use.
	Electrical Energy and Systems Control Engineering	To develop human resources possessing high levels of specialized knowledge in subjects related to the field of electric power, such as power engineering, power conversion and electrical materials, as well as in instrumentation engineering, control engineering and systems engineering, with the ability to put their expertise to practical use.
	Electronic Systems and Devices	To develop human resources possessing high levels of specialized knowledge in subjects related to the field of electronic systems, such as integrated circuit design and communication engineering, as well as in materials- and device-related fields such as sensor technology and semiconductor technology, with the ability to put their expertise to practical use.
	Civil Engineering	To develop human resources possessing a broad perspective and specialized knowledge encompassing fields such as the creation of sustainable social infrastructure, the prevention and mitigation of climate change-related disasters and environmental preservation.
	Architecture & Building Engineering	To develop human resources possessing high levels of practical expertise in the field of architecture, with the ability to make a positive contribution to the construction of comfortable and culturally-expressive living environments and a safe and sustainable society.
	Computer Science and Intelligent Systems	To develop human resources possessing high levels of specialized knowledge in areas such as artificial intelligence, data science, computer science and networks, with the ability to put their expertise to practical use.

(Vice Dean of the Graduate School)

Article 4 The Graduate School shall be required to appoint a Vice Dean based on rules

set forth in Article 47 Clause 1 of the Organizational Regulations.

2 Either the Dean of the Faculty of Engineering or the Dean of the Faculty of Science who is not presently serving as the Dean of the Graduate School shall be appointed as the Vice Dean of the Graduate School.

(Chairs of Each Major Field)

Article 5 Each of the major fields in both the Master's and Doctoral Programs shall be headed by a Chair, who shall be selected from the professors of the faculty.

2 The term of the Chairship is one year. Reappointment however, shall not be impeded by previous assumptions of the Chairship.

(Supervisors)

Article 6 A supervisor shall be appointed to guide each student in his/her research and theses/dissertations (hereby referred to as "research supervision").

2 Either a qualified professor, associate professor, lecturer or assistant professor shall serve as a supervisor with regards to students enrolled in the Master's Program; a qualified professor or associate professor shall serve as a supervisor with regards to students enrolled in the Doctoral Program.

3 The supervisor shall conduct research supervision and offer appropriate advice concerning subjects and classes taken by his/her students.

4 If deemed necessary by the supervisor, a vice-supervisor may be appointed to assist in research supervision.

5 The supervisor shall select a vice-supervisor from instructors of the faculty who are qualified to provide research guidance.

6 The vice-supervisor shall provide research guidance to students in joint cooperation with the supervisor.

7 Supervisors may not be changed in principle. Under special circumstances however, permission may be granted for supervisors to be changed upon deliberation by the University of the Ryukyus Graduate School of Engineering and Science Graduate School Committee (hereby referred to as "the Graduate School Committee").

(Receiving Instruction at Other Graduate Schools)

Article 7 Should the supervisor deem it to be of educational benefit, students may receive necessary instruction at a different graduate school upon agreement with the host institution, based upon stipulations set forth in Article 17 of the Graduate School Regulations.

2 When deemed necessary by the supervisor, students may be instructed to take specific subjects offered at other Graduate Schools within the University.

3 When deemed necessary by the supervisor, students may be instructed to take specific subjects offered in another major within the Graduate School.

4 When deemed necessary by the supervisor, students of the Master's program may be instructed to take specific undergraduate subjects offered at other faculties and departments within the University.

5 The recognition of credits earned for classes taken under the regulations stipulated in Clauses 1 to 4 that count toward degree conferment must be approved through deliberation by the Graduate School Committee, and shall not exceed ten credits for students enrolled in the Master's Program, and four credits for students enrolled in the Doctoral Program. As a requirement for program completion, conferment of credits shall be limited to classes taken at Master's level for students enrolled in the Master's Program, and classes taken at Doctoral level for students enrolled in the Doctoral Program.

(Completion of Course Curricula over an Extended Period of Time)

Article 8 In light of reasons such as full-time employment, students may be granted permission to enroll in and complete their academic programs over a fixed period of time, which exceeds the standard period of study stipulated in Article 11 of the Graduate School Regulations, upon formal application to the Graduate School.

2 With regards to the preceding clause, the desired period of study for extended learning must not exceed the period of enrollment set forth in Article 12 of the Graduate School Regulations.

3 Stipulations pertaining to course completion over an extended period of time are set out in a separate document.

(Recognition of Credits Gained Prior to Enrolment)

Article 9 Should it be deemed by the Graduate School to be of educational merit, students may have credits (including those earned as auditing students) gained from enrolling in classes at a different graduate school (including graduate schools of other universities) prior to enrolment at the Graduate School acknowledged as credits for program completion, under Article 19 of the Graduate School Regulations.

2 Credits attained for classes of the Graduate School taken at undergraduate level prior to enrolment at the Graduate School may also be recognized as credits for program completion at the Graduate School.

(Subjects and Credits)

Article 10 Subjects offered at the Graduate School and their corresponding credits to be awarded are set out in a separate table.

(Methods of Education)

Article 11 Education at the Graduate School shall take the form of class instruction for subjects offered and research guidance.

2 When deemed to be of particular necessity from an educational viewpoint, education methods may assume appropriate forms such as class instruction and research guidance in the evenings and other stipulated times of the day, or over extended periods of time.

(Method of Program Completion)

Article 12 Methods of completing classes offered at the Graduate School are set out in a separate table.

(Method of Study)

Article 13 Students must obtain consent from the supervising instructors of all classes they intend to register for at the beginning of each academic semester. Students are required to inform the Dean of the Graduate School through submission of stipulated documents by the specified deadline.

(Research Theme)

Article 14 Students must, with the consent of their supervisor, decide upon and submit a designated form to the Dean of the Graduate School detailing their intended topic of research within a specified period of time after their enrolment at the Graduate School.

2 In the case of the above, the supervisor shall, upon consulting the student, clearly specify and present a annual schedule of research guidance to the student.

(Clear Specification of Grading and Evaluation Standards)

Article 15 Detailed information concerning course curricula and methods, as well as grading and evaluation standards, will be fully and clearly specified to students at the beginning of each semester.

(Receiving Instruction at other Graduate Schools and Institutes)

Article 16 Students may be allowed to receive instruction at graduate schools and/or research institutes of other universities based upon Article 25 of the Graduate School Regulations upon obtaining permission to do so from the Graduate School Committee.

(Acknowledgement of Credits)

Article 17 Verification of credits obtained from each class shall be conducted by the supervising instructor through assessment of examination performance and research reports.

2 Students unable to sit for scheduled examinations due to reasons pertaining to illness and other unavoidable circumstances may be allowed to take supplementary examinations.

3 Students who do not receive a passing grade on class examinations may, depending on circumstances, be permitted to re-take the examination(s) concerned.

4 Timings and scheduling of supplementary and re-examinations shall be determined separately by the Graduate School Committee.

(Grade Evaluation)

Article 18 Evaluation standards for examinations and research reports are assessed using five grading categories: A, B, C, D, and F. Grades A, B, C and D are considered passing grades, while grade F is regarded as a failure to meet the minimum passing grade.

2 Details of the grade evaluation criteria as set out in the preceding clause are shown in the following table.

Classification of Assessment	Grade Category	Corresponding Marks (out of full marks of 100)
Pass	A	90 marks or more
	B	80 ~ 89 marks
	C	70 ~ 79 marks
	D	60 ~ 69 marks
Fail	F	Less than 59 marks

(Theses/Dissertations, Final Examinations and Evaluation)

Article 19 Students shall be permitted to submit their research thesis/dissertation and sit for final examinations if they have obtained, from the list of subjects set forth in Article 10, 30 or more credits in the case of Master's Program students, or 12 or more credits in the case of Doctoral Program students, and have received the required level of instruction necessary to complete their research and write their thesis/dissertation within their specified period of enrolment at the Graduate School.

2 Subjects defined in Article 7 and Article 19 of the Graduate School Regulations, whereby registration has been approved by the supervisor, may be added toward the list of subjects defined in Article 10. As a requirement for program completion however, the abovementioned shall be limited to subjects taken at Master's level for students enrolled in the Master's Program, and subjects taken at Doctoral level for students enrolled in the Doctoral Program.

3 Comprehensive evaluation of theses/dissertations and approval of coursework completion shall take into consideration various elements including the following:

clarity of problem propositions, persuasiveness of argument processes, uniqueness of research findings, depth of expression, and appropriateness of materials referenced. Corresponding results shall be assessed in either of two categories - "Pass" or "Fail".

4 The above notwithstanding, each major field may define its own criteria for evaluation based on its course objectives.

5 Students must, upon obtaining consent from their supervisor, submit their theses/dissertations to the Dean of the Graduate School by the specified deadline for submission.

6 Particulars relating to final examinations and screening of theses/dissertations shall be defined in the Detailed Regulations for Degree Conferral at the University of the Ryukyus Graduate School of Engineering and Science.

(Requirements for Program Completion)

Article 20 The completion requirements for Master's Programs at the Graduate School are as follows: a period of enrolment of more than two years, the earning of credits stipulated under Article 10, the receiving of necessary research instruction, upon which the student is required to submit a research thesis and obtain a passing grade for the final examinations. However, students who display exemplary research performance may be allowed to complete the program after one year of enrolled student status at the Graduate School.

2 The completion requirements for Doctoral Programs at the Graduate School are as follows: a period of enrolment of more than three years, the earning of credits stipulated under Article 10, the receiving of necessary research instruction, upon which the student is required to submit a research dissertation and obtain a passing grade for the final examinations. However, students who display exemplary research performance may be allowed to complete the program after one year of enrolled student status at the Graduate School.

(Conferral of Degrees)

Article 21 A Master's Degree shall be conferred upon students who have successfully completed the Master's program.

2 A Doctoral Degree shall be conferred upon students who have successfully completed the Doctoral program.

3 In addition to the preceding clauses, particulars relating to the conferral of degrees shall be defined in the Detailed Regulations for Degree Conferral at the University of the Ryukyus Graduate School of Engineering and Science.

(Special Auditors)

Article 22 The Graduate School may permit students from graduate schools of other

universities to take specified subjects in the Graduate School based upon mutual agreement with the student's home institution.

2 Students admitted under stipulations set forth in the preceding clause shall be accorded the status of Special Auditor.

(Special Researchers)

Article 22 The Graduate School may permit students from graduate schools of other universities to receive research instruction in the Graduate School based upon mutual agreement with the student's home institution.

2 Students admitted under stipulations set forth in the preceding clause shall be accorded the status of Special Researcher.

(Auditing Students)

Article 24 Those eligible to enrol in the Graduate School as auditing students must meet any one of the following requirements:

Master's Program

- (1) A person holding a Master's degree or the foreign equivalent thereof.
- (2) One who is deemed to have scholastic ability equal to or above those specified in the preceding clause.

Doctoral Program

- (1) A person holding a doctoral degree or the foreign equivalent thereof.
- (2) One who is deemed to have scholastic ability equal to or above those specified in the preceding clause.

(Researcher)

Article 25 Those eligible to enrol in the Graduate School as a researcher must meet any one of the following requirements:

Master's Program

- (1) A person holding a Master's degree or the foreign equivalent thereof.
- (2) One who is deemed to have scholastic ability equal to or above those specified in the preceding clause.

Doctoral Program

- (1) A person holding a doctoral degree or the foreign equivalent thereof.
- (2) One who is deemed to have scholastic ability equal to or above those specified in the preceding clause.

(Supplementary Regulations)

Article 26 The Graduate School Committee shall specify separately any necessary

particulars relating to the Graduate School that are not stipulated in the regulations herein.

Supplementary Provision (June 23, 2010)

This regulation is to be enforced from June 23, 2010 and shall come into effect from April 1, 2009.

Supplementary Provision (June 20, 2012)

This regulation is to be enforced from June 20, 2012.

Supplementary Provision (March 7, 2018)

This regulation is to be enforced from April 1, 2018.

Supplementary Provision (November 28, 2018)

This regulation is to be enforced from November 28, 2018.

Supplementary Provision (April 23, 2019)

This regulation is to be enforced from April 23, 2019 and shall come into effect from April 1, 2019.

Supplementary Provision (February 17, 2021)

This regulation is to be enforced from April 1, 2021.

Research Plan in Academic Year ()

Date:

To Dean of the Graduate School
of Engineering and Science

(Doctoral • Master's) Program _____ Course _____

Name _____

Signature

Student Number _____ Year _____

Research Title

Research Objective

Research Contents

Research Plan

Comments from Supervisor

Supervisor _____

Signature

Comments from Vice-Supervisor

Vice-Supervisor _____

Signature

2021 SUBJECTS (Engineering)

Table (Article 10)

Master's Program

Common Subjects

AREAS OF STUDY	REQ OR ELEC.	SUBJECT	CREDITS	HOURS PER WEEK	YEARS	SEMESTERS	SUBJECT DESCRIPTION
Common	REQUIRED	Ethical and Social Implications of Engineering	2	2	1	Spring	To address problems from a variety of perspectives in a multifaceted format and improve the practical skills of each student through group discussions to enhance the understanding of engineering ethics and develop the skills required for the social practice of engineering.
		Master's Thesis in Engineering I	1.5	3	1	Spring	Under the guidance of the academic advisor, students will conduct research and analysis on the selected research theme in the engineering field of their program to complete the master's thesis. (In the Master's Thesis in Engineering, the Master's Thesis in Engineering I to IV will be conducted continuously according to the progress of the research.)
		Master's Thesis in Engineering II	1.5	3	1	Fall	Following the Master's Thesis in Engineering I, students will continue research to complete the Master's thesis.
		Master's Thesis in Engineering III	1.5	3	2	Spring	Following the Master's Thesis in Engineering II, students will continue research to complete the Master's thesis.
		Master's Thesis in Engineering IV	1.5	3	2	Fall	Following the Master's Thesis in Engineering III, students will continue research to complete the Master's thesis.
		Special Seminars in Engineering I	1.5	3	1	Spring	In conjunction with Master's Thesis in Engineering I, students will search and explore literature materials such as research papers or publications, that are related to their research fields and will do practical activities to formulate theories and methodologies.
		Special Seminars in Engineering II	1.5	3	1	Fall	In conjunction with Master's Thesis in Engineering II, students will search and explore literature materials such as research papers or publications, that are related to their research fields and will do practical activities to formulate theories and methodologies.
		Special Seminars in Engineering III	1.5	3	2	Spring	In conjunction with Master's Thesis in Engineering III, students will search and explore literature materials such as research papers or publications, that are related to their research fields and will do practical activities to formulate theories and methodologies.
		Special Seminars in Engineering IV	1.5	3	2	Fall	In conjunction with Master's Thesis in Engineering IV, students will search and explore literature materials such as research papers or publications, that are related to their research fields and will do practical activities to formulate theories and methodologies.
	ELECTIVE	International Internship I	2	2	1	Spring	Through practical activities such as survey and research work in foreign organizations, schools, government agencies, and similar institutions that speaks English, have experience in different field in Japan and understand various problems related to society and technology from an international perspective.
		International Internship II	2	2	2	Spring	Through practical activities such as survey and research work in foreign organizations, schools, government agencies, and similar institutions that speaks English, have experience in different field in Japan and understand various problems related to society and technology from an international perspective. (Training will be conducted at a different destination rather than International Internship I)
		Internship I	1	1	1	Spring	The actual development and participation of projects activities at companies, government agencies, schools and other organizations etc, will give understanding of ; the behaviour of members of the society, the structure of the society and approach of work. (About 1 week)
		Internship II	1	1	1	Fall	The actual development and participation of projects activities at companies, government agencies, schools and other organizations etc, will give understanding of ; the behaviour of members of the society, the structure of the society and approach of work. (Training at a different destination from Internship I for about a week)
		Internship III	2	2	1	Spring	The actual development and participation of projects activities at companies, government agencies, schools and other organizations etc, will give understanding of ; the behaviour of members of the society, the structure of the society and approach of work. (About 2 week)
		Internship IV	2	2	1	Fall	The actual development and participation of projects activities at companies, government agencies, schools and other organizations etc, will give understanding of ; the behaviour of members of the society, the structure of the society and approach of work.(Training for about 2 weeks at a different destination from Internship III)

Requirements:

Students must obtain a total of 30 or more credits including 2 credits from Ethical and Social Implications of Engineering, 6 credits from Master's Thesis in Engineering and further 6 credits from Special Seminars in Engineering. In addition to receiving the necessary instruction, the student must also receive a passing grade on final examinations and thesis.

2021 SUBJECTS (Engineering)

Table (Article 10)

Master's Program

Solid Mechanics and Materials Engineering

AREAS OF STUDY	REQ OR ELEC.	SUBJECT	CREDITS	HOURS PER WEEK	YEARS	SEMESTERS	SUBJECT DESCRIPTION
Mechanical Engineering / Energy & Environment	ELECTIVE	Advanced Strength of Materials	2	2	1	Spring	For safety of machine and structure, design method of those has been developed. In this lecture, the concept of machine design and the fundamental mechanics of materials are studied.
		Advanced Theory of Plasticity	2	2	1	Spring	Studies on continuum mechanics and plastic constitutive theory, Analysis of plastic large deformation of metals.
		Solid Mechanics	2	2	1	Fall	Study of the continuum mechanics at the large deformation and its use in the Finite Element Method.
		Theory of Elasticity	2	2	1	Spring	Study on stress analysis of two-dimensional problems and linear fracture mechanics.
		Corrosion and Protection	2	2	1	Fall	Corrosion, Corrosion Protection.
		Advanced material processing	2	2	1	Fall	Study of the rigid-plastic finite element method and computer programing.
		Advanced Partial Differential Equation I	2	2	1	Spring	Advanced Partial Differential Equation
		Advanced Partial Differential Equation II	2	2	1	Fall	Advanced Partial Differential Equation

Requirements:

Students must obtain a total of 30 or more credits including 2 credits from Ethical and Social Implications of Engineering, 6 credits from Master's Thesis in Engineering and further 6 credits from Special Seminars in Engineering. In addition to receiving the necessary instruction, the student must also receive a passing grade on final examinations and thesis.

2021 SUBJECTS (Engineering)

Table (Article 10)

Master's Program

Thermal and Fluid Engineering

AREAS OF STUDY	REQ OR ELEC.	SUBJECT	CREDITS	HOURS PER WEEK	YEARS	SEMESTERS	SUBJECT DESCRIPTION
Mechanical Engineering / Energy & Environment	ELECTIVE	Advanced Thermal Engineering I	2	2	1	Spring	Applications of thermal dynamics in engineering
		Advanced Thermal Engineering II	2	2	1	Fall	Applications of thermal dynamics in engineering
		Advanced Transport Phenomena	2	2	1	Spring	Fundamentals of momentum, heat and mass transfer.
		Advanced Fluid Mechanics I	2	2	1	Spring	Study of numerical calculations of compressible flow by solving shock tube problems changing the initial and boundary conditions.
		Advanced Fluid Mechanics II	2	2	2	Fall	Fundamental of multiphase flow with particles, droplets and bubbles
		Advanced Measurements of Turbulent Flow	2	2	1	Spring	Measurements of turbulent flow by using sensors, Data acquisition.
		Advanced Heat Transfer Engineering I	2	2	1	Spring	Study of heat and mass transfer on the heat conduction, the heat convection and the thermal radiation.
		Advanced Heat Transfer Engineering II	2	2	2	Fall	Study of heat transfer and its application, modeling of heat and mass transfer phenomena
		Advanced Fluid Machinery	2	2	1	Fall	Airfoil performances, design for wind energy conversion systems.
		Physical chemistry of multiphase and multicomponent systems	2	2	1	Fall	Basic and applied studies of physical chemistry of multiphase and multicomponent systems
		Advanced Partial Differential Equation I	2	2	1	Spring	Advanced Partial Differential Equation
		Advanced Partial Differential Equation II	2	2	1	Fall	Advanced Partial Differential Equation

Requirements:

Students must obtain a total of 30 or more credits including 2 credits from Ethical and Social Implications of Engineering, 6 credits from Master's Thesis in Engineering and further 6 credits from Special Seminars in Engineering. In addition to receiving the necessary instruction, the student must also receive a passing grade on final examinations and thesis.

2021 SUBJECTS (Engineering)

Table (Article 10)

Master's Program

Intelligent Machine Systems

AREAS OF STUDY	REQ OR ELEC.	SUBJECT	CREDITS	HOURS PER WEEK	YEARS	SEMESTERS	SUBJECT DESCRIPTION
Mechanical Engineering / Energy & Environment	ELECTIVE	Soft Control Engineering	2	2	1	Spring	An intensive study of the intelligent control systems: fuzzy control system, neuro-control system, genetic algorithms, stochastic control system.
		Self-Organizing Systems	2	2	1	Spring	Fundamental and applied theory of soft-organizing systems
		Applied Control System Theory	2	2	1	Spring	PID control, Regulator, Observer, Fuzzy control, GA., Intelligent control.
		Advanced Signal Processing in Mechanical Engineering	2	2	1	Fall	Digital signal processing, Fast Fourier Transform, Wavelet, Image processing and feature extraction
		Intelligent Control Engineering	2	2	1	Fall	Genetic Algorithms, Neural Network, Design for Nonlinear Systems.
		Advanced Partial Differential Equation I	2	2	1	Spring	Advanced Partial Differential Equation
		Advanced Partial Differential Equation II	2	2	1	Fall	Advanced Partial Differential Equation

Requirements:

Students must obtain a total of 30 or more credits including 2 credits from Ethical and Social Implications of Engineering, 6 credits from Master's Thesis in Engineering and further 6 credits from Special Seminars in Engineering. In addition to receiving the necessary instruction, the student must also receive a passing grade on final examinations and thesis.

2021 SUBJECTS (Engineering)

Table (Article 10)

Master's Program

Electrical Energy and Systems Control Engineering

AREAS OF STUDY	REQ OR ELEC.	SUBJECT	CREDITS	HOURS PER WEEK	YEARS	SEMESTERS	SUBJECT DESCRIPTION
Electrical Energy and Systems Control Engineering Program	ELECTIVE	Advanced Power Energy Conversion	2	2	1	Spring	Power energy conversion, renewable energy, optimal operation.
		Advanced Electric Machinery	2	2	1	Spring	The characteristic of electric machinery and the control and energy conversion for electric machinery with power electronics techniques are discussed.
		Advanced Magnetic Materials	2	2	1	Spring	Ferromagnetic materials, magnetostriction, magnetic anisotropy.
		Advanced Medical Electronics	2	2	1	Spring	Medical instrumentation, therapeutic and prosthetic devices.
		Advanced relativistic electromagnetism	2	2	1	Spring	Special relativity, electromagnetism, tensor.
		Advanced Power System Analysis	2	2	1	Fall	Computational methods for power system load flow, optimal power flow and stability analysis.
		Advanced Power Electronics	2	2	1	Fall	DC/DC converter, PWM inverter, motor control, AC/DC converter, energy conversion, renewable energy, FACTS devices in power system, advanced control.
		Advanced Plasma Engineering	2	2	1	Fall	Characteristics of plasma, plasma processing.
		Advanced Nonlinear Control Theory	2	2	1	Fall	Geometric properties of nonlinear control systems, stability, nonlinear control system design.
		Advanced Modern Control Theory	2	2	1	Fall	Subject of control, model error CAD system, design method of controlling system.

Requirements:

Students must obtain a total of 30 or more credits including 2 credits from Ethical and Social Implications of Engineering, 6 credits from Master's Thesis in Engineering and further 6 credits from Special Seminars in Engineering. In addition to receiving the necessary instruction, the student must also receive a passing grade on final examinations and thesis.

2021 SUBJECTS (Engineering)

Table (Article 10)

Master's Program

Electronic Systems and Devices

AREAS OF STUDY	REQ OR ELEC.	SUBJECT	CREDITS	HOURS PER WEEK	YEARS	SEMESTERS	SUBJECT DESCRIPTION
Electronic Systems and Devices Program	ELECTIVE	Advanced Thin Film Materials Engineering	2	2	1	Spring	Electronic materials, thin film materials processing for electronics.
		Advanced Quantum Computer Engineering	2	2	1	Spring	Quantum algorithms, quantum gates, quantum devices.
		VLSI Systems Design	2	2	1	Spring	VLSI architecture, VLSI layout, circuit simulation, VLSI CAD tools.
		Optical Device Instrumentation Technology	2	2	1	Spring	Passive and Active fiber components using the ultra long optical transmission system based on light-wave phenomenon, "Maxwell's equations, transmission characteristics on optical fibers and fiber design".
		Advanced Dependable Systems	2	2	1	Spring	Dependable computer systems, fault-tolerant systems and error detecting/correcting codes.
		Advanced Wireless Communication Systems	2	2	1	Spring	Multiple Access techniques, Propagation and Noise, Modulation, Coding.
		Advanced Image Processing	2	2	1	Spring	Image processing systems and its applications based on image analysis or inverse problems.
		Telecommunication and speech signal processing	2	2	1	Spring	Signal processing including ARMA filter and Linear Prediction, Speech Coding including PCM, ACELP and EVS.
		Advanced Semiconductor Electronics	2	2	1	Fall	The structure, physical and chemical properties of electronic materials.
		Advanced Vacuum Technology	2	2	1	Fall	Vacuum pumps and gauges, phenomena in vacuum, fabrication processes for semiconductor.
		Organic Electronics Material Engineering	2	2	1	Fall	Organic functional materials, organic electronics devices.
		Advanced Signal Processing Systems	2	2	1	Fall	Digital signal processing, high-resolution spectral analysis in signal processing, and applications of signal processing.
		Advanced Reconfigurable Architecture	2	2	1	Fall	Fundamental of reconfigurable device architecture, and its design method.

Requirements:

Students must obtain a total of 30 or more credits including 2 credits from Ethical and Social Implications of Engineering, 6 credits from Master's Thesis in Engineering and further 6 credits from Special Seminars in-Engineering. In addition to receiving the necessary instruction, the student must also receive a passing grade on final examinations and thesis.

2021 SUBJECTS (Engineering)

Table (Article 10)

Master's Program

Civil Engineering

AREAS OF STUDY	REQ OR ELEC.	SUBJECT	CREDITS	HOURS PER WEEK	YEARS	SEMESTERS	SUBJECT DESCRIPTION
Civil Engineering	ELECTIVE	Advanced Design Engineering of Steel Structures	2	2	1	Spring	Yield strength, tensile strength and load bearing properties. Mechanical properties and buckling. Steel structure design and strength evaluation method.
		Advanced Continuum Mechanics	2	2	1	Spring	New governing equations of a fluid and solid, new constitutive equations of continuum materials, Hook's law of Nakaza, new evaluation system of strength of elastic materials.
		Advanced Numerical Methods for Fluid Dynamics	2	2	1	Spring	To learn the basics of fluid mechanics, computational fluid dynamics, programming techniques, simulation method and large-scale simulation.
		Advanced Geotechnical and Geoenvironmental Engineering	2	2	1	Spring	Mass transfer in soil, accumulation and leaching in soil, geo-technical engineering and geomicrobiology, mathematical modelling for geo-materials
		Advanced Regional Planning and Design	2	2	1	Spring	To understand a regional development skills in the underdeveloped countries.
		Advanced Environment and Disaster Risk Management	2	2	1	Spring	Methodology and planning systems of natural disaster risk management and environmental creation for sustainable development
		Advanced Diagnosis Engineering of Steel Structures	2	2	1	Fall	Fatigue of welded joints, Fracture mechanics, Corrosion, Inspection, Retrofit,
		Advanced Materials Science of Concrete	2	2	1	Fall	Cement hydration, phase equilibrium in cement systems, microstructure of concrete, deterioration mechanisms and diagnosis of concrete structures.
		Advanced River Engineering	2	2	1	Fall	The course gives numerical simulations of flood flows and river bed variations in complicated boundary geometry by using depth integrated equations of flows in the curvilinear coordinate system.
		Advanced Rock Mechanics	2	2	1	Fall	This course is concerned with the mechanics and engineering characteristics of discontinuous rock such as the slope stability, underground cavity.
		Advanced Computatinal Solid Mechanics	2	2	2	Spring	The course gives the theory of the finite element method, a programming technique for the finite element method using FreeFEM, in addition, how to consider the obtained results.

Requirements:

Students must obtain a total of 30 or more credits including 2 credits from Ethical and Social Implications of Engineering, 6 credits from Master's Thesis in Engineering and further 6 credits from Special Seminars in Engineering. In addition to receiving the necessary instruction, the student must also receive a passing grade on final examinations and thesis.

2021 SUBJECTS (Engineering)

Table (Article 10)

Master's Program

Architecture & Building Engineering

AREAS OF STUDY	REQ OR ELEC.	SUBJECT	CREDITS	HOURS PER WEEK	YEARS	SEMESTERS	SUBJECT DESCRIPTION
Architecture and Building Engineering	REQUIRED	Ethics of architect*	2	2	1	Spring	Please refer to 'Ethical and Social Implications of Engineering' of the required common subjects of the Faculty of Engineering.
	ELECTIVE	Advanced Architectural Design	2	2	1	Spring	This class focuses on aims, concepts, methodologies, technologies, forms and effects in architectural design around the world.
		Advanced Urban Planning	2	2	1	Spring	In this lecture, students will learn about planning theory and development design in urban development.
		Advanced Structural Mechanics	2	2	1	Spring	Elastoplastic analysis, plastic moment, collapse load factor, collapse mechanism, limit states.
		Advanced Structural Design in Natural Hazard Prone Areas	2	2	1	1st Quarter	This subject provides a detailed explanation of the soil behavior against earthquakes. The aim is to understand the basic concepts for design deep and shallow type foundations for buildings in earthquake prone areas.
		Advanced community space planning	2	2	1	3rd Quarter	City planning and neighborhood area planning from points of view of community preservation and development.
		Advanced Environmental Noise	2	2	1	3rd Quarter	Lectures on environmental noise evaluation methods based on noise level and subjective evaluation and the concept of soundscape.
		Advanced Building Materials	2	2	1	Fall	Learn the theory and current status of building life extension, concrete rheology and effective use of waste based on the latest research results.
		Advanced Construction Data Mining	2	2	1	Fall	Focus on building materials and construction, it outlines the machine learning and big data utilization techniques needed to improve their production efficiency.
		Building System Design Business Seminar	2	2	1	Spring	

Requirements:

Students must obtain a total of 30 or more credits including 2 credits from Ethical and Social Implications of Engineering, 6 credits from Master's Thesis in Engineering and further 6 credits from Special Seminars in Engineering. In addition to receiving the necessary instruction, the student must also receive a passing grade on final examinations and thesis.

*Ethics of architect' is replaced by 'Ethical and Social Implications of Engineering'.

AREAS OF STUDY	REQ OR ELEC.	CORE Subjects	SUBJECT	CREDITS	HOURS PER WEEK	YEARS	SEMESTERS	SUBJECT DESCRIPTION
Computer Science and Intelligent Systems	ELECTIVE	<input type="radio"/>	Advanced Software Engineering	2	2	1	Spring	Software System Development, Large program, Object Oriented Systems, Persistent Object, Verification, Test
		<input type="radio"/>	Advanced Probabilistic Models	2	2	1 or 2	Spring	Mathematical Statistics, Computational Statistics, Data Science, and Human Behavior Modeling
		<input type="radio"/>	Advanced Artificial Intelligence	2	2	1 or 2	Spring	Problem Solving, Knowledge Representation, Machine Learning, Evolutionary Computation and Intelligent Agents
			Advanced Intelligent Robotics	2	2	1 or 2	Spring	Intelligence of Autonomous Robots, Learning Methods and Emergence of Robot behaviors. Behavior based AI Systems
		<input type="radio"/>	Advanced Intelligent Information Processing	2	2	1	Spring	Design and Development of Intelligent Systems, Machine Learning, Signal Processing, Knowledge Representation
			Advanced Biological Information Processing	2	2	1	Fall	Techniques for Biosignal Measurements, Analysis of Biological Time-Series Data, Nonlinear Time-Series Analysis
		<input type="radio"/>	Project Management Practice	2	2	1 or 2	Fall	Project Management Body of Knowledge, Exercise on IT-related projects
			Practical Exercise I	2	2	1	Spring	Practical Exercise on Information Technology (The content of the exercise should be different from Practical Exercise II and III)
			Practical Exercise II	2	2	1	Fall	Practical Exercise on Information Technology (The content of the exercise should be different from Practical Exercise I and III)
			Practical Exercise III	2	2	2	Spring	Practical Exercise on Information Technology (The content of the exercise should be different from Practical Exercise I and II)
			Advanced Wireless Systems	2	2	1	Spring	Wireless Communication Related Signal Processing Basics, One of the State-of-the-art Communication System such as OFDM, Mobile Phone such as 4G LTE and 5G, 5G New Radio System, Digital Signal Processing Simulation Tools such as Matlab
		<input type="radio"/>	Advanced Algorithms	2	2	1 or 2	Fall	Graph Algorithms, Optimization Algorithms, and Related Applications
		<input type="radio"/>	Advanced Information Networks	2	2	1	Fall	Information Network, Internet Architecture, Computer System, Network Security, Internet of Things (IoT) and Whole technology about IT
		<input type="radio"/>	Advanced Data Mining	2	2	1	Fall	Web inspired Research involving Search, Models of Search, Retrieval and Data Mining, Algorithm Design and Analysis
			Advanced Multimedia Information Processing	2	2	1	Fall	Digital Signal Processing, Intelligent Image Processing, Physiology and Cognitive Science for Human Perception. Neural Computing and Algorithms for Communication Systems
			Advanced UI/UX	2	2	1	Fall	Human Computer Interaction, Usability Engineering, Interaction Design and User-Centered Design
			Advanced Artificial Society & Multi-agent Systems	2	2	1 or 2	Spring	Multiagent Systems, Artificial Societies, Simulated Organizations and Interaction of Humans & Computational Agents
			Advanced Human Augmentation Engineering	2	2	1 or 2	Spring	Studying Technologies and Elemental Technologies to extend and support Human Perception, Cognitive Abilities, and Physical Abilities from Engineering Perspective
			Advanced Service Engineering	2	2	1 or 2	Spring	Service Engineering, Data Science, and Human Behavior Analysis
			Advanced Parallel Processing	2	2	1 or 2	Fall	Parallel Programming, Parallel Algorithms, Distributed Algorithms, and Distributed systems

Requirements:

Students must obtain a total of 30 or more credits including 2 credits from Ethical and Social Implications of Engineering, 10 credits from the CORE Subjects, 6 credits from Master's Thesis in Engineering and further 6 credits from Special Seminars in Engineering. In addition to receiving the necessary instruction, the student must also receive a passing grade on final examinations and thesis.

Table (Article 10) Master's Program

Course: Chemistry, Biology and Marine Science

FIELD			SUBJECT	CREDITS	HOURS	YEARS	SEMESTERS	SUBJECT DESCRIPTION
BIOSCIENCE	REQUIRED	COMMON	Advanced Seminar	6	22.5	1,2	Fall & Spring	Present and discuss research information such as original academic papers, as well as research plans and findings, in a seminar format.
			Thesis Research	12	90	1,2	Fall & Spring	For each individual research objective and phase, provide direct instruction and guidance concerning research methods and development.
	ELECTIVE	SPECIAL	Evolutionary Ecology of Reef Animals I	2	30	1,2	Fall	Reviews and discussions of reproductive strategies, life-history strategies, population dynamics and population genetics of marine organisms, with emphasis on colonial animals.
			Evolutionary Ecology of Reef Animals II	2	30	1,2	Spring	Reviews and discussions of reproductive strategies, life-history strategies, population dynamics and population genetics of marine organisms, with emphasis on colonial animals.
			Advanced Topics in Marine Animal Behavior I	2	30	1,2	Fall	Topics in behavioral studies for marine animals, such as biotelemetry measurement, ethology and comparative psychology. This class deals mainly with cephalopods as a model animals for this field.
			Advanced Topics in Marine Animal Behavior II	2	30	1,2	Fall	Topics in behavioral studies for marine animals, such as biotelemetry measurement, ethology and comparative psychology. This class deals mainly with cephalopods as a model animals for this field.
			Advanced Fisheries Biology	2	30	1,2	Fall	Life history and fishing methods of fishes in Japan (sardine, herring, mackerel, yellowtaile, sea bream, flounder, ayu, etc.).
			Plant Phylogeny and Evolution	2	30	1,2	Fall	Recent advances in flowering plant phylogeny and evolution.
			Life of Tunicates	2	30	1,2	Spring	Introduction to specific features and functions supporting the life of marine invertebrates, dealing with tunicates.
			Stress Physiology	2	30	1,2	Fall	Introduction to basic principles of stress physiology, including the production and scavenging mechanisms of active oxygen and active nitrogen in living organisms.
			Advanced Cell Biology	2	30	1,2	Fall	Current topics in cell biology, with emphasis on the biogenesis of organelles and cytoskeleton.
			Advanced Molecular Physiology	2	30	1,2	Spring	Fundamentals of molecular biology, cellular physiology, developmental biology, immunology, and neurobiology. Focuses on mammalian and insect systems.
			Advanced Scientific Manuscript Writing	2	30	1,2	Spring	Structure and organization of scientific publications, as well as how to organize and write manuscripts will be discussed. Special attention will be put on logical organization and troublesome grammar points. Classes in English.
			Advanced Comparative Endocrinology	2	30	1,2	Fall	Endocrine organs and various hormones in vertebrates. Roles of hormones in metabolism, reproduction, and behavior.
			Marine Molecular Ecology	2	30	1,2	Fall	Principles and fundamental methods in aquatic animals using molecular and population genetics. Practical method on DNA analysis.
			Systematic Zoology	2	30	1,2	Spring	Principles and practices of taxonomy, systematics, and phylogenetics of animals, with reference to contemporary discussions on relevant conceptual issues.
			Responses in Plant Morphogenesis to Environmental Signals	2	30	1,2	Fall	Current topics about the signal cascades of plant morphogenesis caused by environmental signals.
Animal Evolution and Diversity	2	30	1,2	Fall	Introduction to evolution and diversity in vertebrates.			
Advanced Animal Ecology	2	30	1,2	Fall	Overview of animal ecology, animal-plant interaction, and island biology.			

Table (Article 10) Master's Program

Course: Chemistry, Biology and Marine Science

FIELD	SUBJECT		CREDITS	HOURS	YEARS	SEMESTERS	SUBJECT DESCRIPTION	
BIOSCIENCE	ELECTIVE	SPECIAL	Advanced Marine Biology	2	30	1,2	Spring	After the revision of basic marine biology concept, the class will discuss about littoral and pelagic ecosystems from major geographic regions (tropical, temperate and polar).
			Molecular Biochemistry of Plant Biodegradation	2	30	1,2	Fall	Reviews on the current topics in biodegradation of plants with special reference to the mechanisms by which lignocellulolytic enzymes are involved in breakdown of plant cell walls.
			Advanced Evolutionary Ecology	2	30	1,2	Spring	Evolutionary analysis of form and function, life-history, and sexual dimorphism in animals.
			Marine Environmental Biology and Ecology	2	30	1,2	Spring	Overview of current research on marine environmental biology.
			Advanced Coral Reef Ecology	2	30	1,2	Spring	Reviews on current topics in coral reef ecology.
			Advanced Marine Zootaxonomy	2	30	1,2	Spring	Practices of zootaxonomy of marine invertebrates.
			Interaction between Coral and Associated Organisms	2	30	1,2	Fall	Overview of the biological and chemical interactions between corals and other marine organisms.
			Advanced Seminar of Evolutionary Reproductive Biology	2	30	1,2	Spring	Instruction of reproductive biology in terms of evolutionary aspects and practice of analyses with laptop computer.
			Advanced Plant Taxonomy and Phytogeography	2	30	1,2	Spring	Principles and fundamental methods in plant taxonomy and phytogeography with special reference to the diversity of flowering plants.
			Advanced Molecular and Cellular Biology	2	30	1,2	Spring	Topics in organelle dynamics and function. Focuses on single membrane bound organelles such as endoplasmic reticulum, Golgi apparatus, peroxisomes, and lysosomes.
			Advanced Phycology	2	30	1,2	Fall	Current topics on taxonomy, phylogeny, morphology, genetics, ecology etc. of algae and related organisms.
			Advanced Plant Ecology	2	30	1,2	Fall	Review of current topics on the maintenance and origin of biodiversity patterns based on taxonomic, functional and phylogenetic properties.
			Microbial Ecology	2	30	1,2	Spring	Review and discussions on microbial phylogeny, habitat, metabolism, response to environmental stimuli, and research methods.

Requirements for course completion:

Students must obtain a total of 30 or more credits including 6 credits from Advanced Seminar and 12 credits from Thesis Research on Bioscience Field. In addition to receiving the necessary instruction, the student must also receive a passing grade on final examinations and Master's thesis.

Remarks regarding the following subjects:

Credits for Advanced Seminar are earned over 2 years (3 credits received per year).

Credits for Thesis Research are earned over 2 years (6 credits received per year).

Table (Article 10) Master's Program

FIELD			SUBJECT	CREDITS	HOURS	YEARS	SEMESTERS	SUBJECT DESCRIPTION
ENVIRONMENTAL SCIENCE	REQUIRED	COMMON	Advanced Seminar	6	22.5	1,2	Fall & Spring	Present and discuss research information such as original academic papers, as well as research plans and findings, in a seminar format.
			Thesis Research	12	90	1,2	Fall & Spring	For each individual research objective and phase, provide direct instruction and guidance concerning research methods and development.
	ELECTIVE	SPECIAL	Topics on Marine Chemical Ecology	2	30	1,2	Spring	Chemicals involved in the ecology of marine organisms will be reviewed.
			Introduction to Atmospheric Chemistry	2	30	1,2	Spring	This course provides an overview of atmospheric chemistry and a working knowledge of the critical issues that atmospheric chemists face today.
			Environmental Analytical Chemistry I	2	30	1,2	Spring	This course deals with qualitative and quantitative analytical chemistry, especially principles and procedures of chemical analyses of environmental water sample.
			Practical Skills in Presentation, Publication and Patent Application	2	30	1,2	Spring	Learning and training presentation/writing skills for research outputs such as: (1) oral presentation at conference (2) poster presentation at conference (3) patent search and submission (4) scientific paper
			Introduction to Natural Product Chemistry	2	30	1,2	Spring	This course deals with isolation, structure determination and biological activities of natural products.
			Advanced Environmental Analytical Chemistry	2	30	1,2	Fall or Spring	Lectures on air pollution will be given on the characteristics of air pollutants that affect climate change and our health.
			Advanced Crustal Hydrosphere Geochemistry	2	30	1,2	Spring	Reviews of geochemical studies about fluids and gasses beneath the seafloor.
			Biochemistry of Metal Ions	2	30	1,2	Spring	Lecture on roles of metal ions in biology.
			Advanced Stereochemistry	2	30	1,2	Fall	This lecture will be about basic knowledge and information how to control stereochemistry on organic reactions.
			Molecular Spectroscopy I	2	30	1,2	Spring	Spectroscopies to characterize molecular properties and the applications in biophysical chemistry.
			Advanced Ocean Remote Sensing I	2	30	1,2	Spring	Principles of ocean remote sensing such as radiometer, scatterometer and altimeter. Applications of ocean remote sensing to physical oceanography.
			Advanced Ocean Remote Sensing II	2	30	1,2	Spring	Principles of ocean remote sensing such as radiometer, scatterometer and altimeter. Applications of ocean remote sensing to physical oceanography.
			Advanced Meteorology I	2	30	1,2	Fall	Lecture on basic theory and recent advances of atmospheric sciences, including the evolution and structure of precipitating cloud systems in the tropical and subtropical regions.
			Advanced Meteorology II	2	30	1,2	Spring	Lecture on basic theory and recent advances of atmospheric sciences, including the evolution and structure of precipitating cloud systems in the tropical and subtropical regions.
			Advanced Numerical Weather Prediction I	2	30	1,2	Fall	Fundamentals on numerical weather prediction, including basic equations, computer programming, and performing idealized and real through experiments.
			Advanced Numerical Weather Prediction II	2	30	1,2	Spring	Fundamentals on numerical weather prediction, including data analysis, forecast errors, and data assimilation.
			Advanced Metamorphic Petrology I	2	30	1,2	Fall	Petrogenesis and dynamics of metamorphic rocks and its geotectonic implications.
			Advanced Metamorphic Petrology II	2	30	1,2	Spring	Petrogenesis and dynamics of metamorphic rocks and its geotectonic implications.
Advanced Geomorphology I	2	30	1,2	Fall	Principles and applications of geomorphological processes such as weathering, erosion, transportation and sedimentation			
Advanced Geomorphology II	2	30	1,2	Spring	Principles and applications of geomorphological processes such as weathering, erosion, transportation and sedimentation			

Table (Article 10) Master's Program

FIELD			SUBJECT	CREDITS	HOURS	YEARS	SEMESTERS	SUBJECT DESCRIPTION
ENVIRONMENTAL SCIENCE	ELECTIVE	SPECIAL	Advanced Geochemistry I	2	30	1,2	Fall	Isotopic and trace element geochemistry of igneous rocks and its geotectonic implications.
			Advanced Geochemistry II	2	30	1,2	Spring	Isotopic and trace element geochemistry of igneous rocks and its geotectonic implications.
			Crustal Movement Monitoring I	2	30	1,2	Fall	Basic theory for the monitoring of crustal movement, volcanic activity, earthquake, etc., based on radiation science and geomagnetism.
			Crustal Movement Monitoring II	2	30	1,2	Spring	Basic theory for the monitoring of crustal movement, volcanic activity, earthquake, etc., based on radiation science and geomagnetism.
			Advanced Seismology I	2	30	1,2	Fall	This course constitutes an overview of observational and theoretical seismology and the utilization of seismic waves for the study of the earth's interior. Topics include elastic wave propagation, seismic ray theory, interpretation of travel times, surface wave, and seismic tomography.
			Advanced Seismology II	2	30	1,2	Spring	This course constitutes an overview of observational and theoretical seismology and the utilization of seismic waves for the study of the earth's interior. Topics include elastic wave propagation, seismic ray theory, interpretation of travel times, surface wave, and seismic tomography.
			Coral Reef Earth Science I	2	30	1,2	Fall	Lecture on recent advances and topics on earth sciences related to coral reefs, which include geomorphology, geology, geohistory, paleontology, carbonate sedimentology, paleoceanography, environmental sciences, and geocotechnology.
			Coral Reef Earth Science II	2	30	1,2	Spring	Lecture on recent advances and topics on earth sciences related to coral reefs, which include geomorphology, geology, geohistory, paleontology, carbonate sedimentology, paleoceanography, environmental sciences, and geocotechnology.
			Earth History and Palaeontology I	2	30	1,2	Fall	This lecture will help you develop key knowledge and research skills in the field of earth history and palaeontology. Lecture on basic training in earth sciences, with a specialisation in stratigraphy and palaeontology.
			Earth History and Palaeontology II	2	30	1,2	Spring	This lecture will help you develop key knowledge and research skills in the field of earth history and palaeontology. Lecture on basic training in earth sciences, with a specialisation in stratigraphy and palaeontology.

Requirements for course completion:

Students must obtain a total of 30 or more credits including 6 credits from Advanced Seminar and 12 credits from Thesis Research on Environmental Science Field. In addition to receiving the necessary instruction, the student must also receive a passing grade on final examinations and Master's thesis.

Remarks regarding the following subjects:

Credits for Advanced Seminar are earned over 2 years (3 credits received per year).

Credits for Thesis Research are earned over 2 years (6 credits received per year).

2021 SUBJECTS (Engineering)

Table (Article 10)

Doctoral Program

Material, Structural and Energy Engineering

AREAS OF STUDY	REQ OR ELEC.	SUBJECT	CREDITS	HOURS PER WEEK	YEARS	SEMESTERS	SUBJECT DESCRIPTION
COMMON	REQUIRED	Dissertation I on Material, Structural and Energy Engineering	3	6	1	Spring	Students write doctoral dissertation under the guidance of supervisor.
		Dissertation II on Material, Structural and Energy Engineering	3	6	2	Fall	Students write doctoral dissertation under the guidance of supervisor.
PROCESSING DEVELOPMENT ENGINEERING	ELECTIVE	Materials for Sustainable Engineering	2	2	1~3	Fall	This lecture focuses on corrosion degradation of materials under various environments.
		Advanced Theory of Crystal Growth II	2	2	1~3	Fall	This lecture focuses on phenomena in crystal growth based on fluctuations described by Langevin equations and Green functions.
		Special Topics in Manufacturing Process	2	2	1~3	Spring	This lecture focuses the analysis and design of polymer composites materials in manufacturing system.
		Special Topics in Strength of Materials	2	2	1~3	Fall	This lecture focuses on relationship between the fracture mechanisms and strength in engineering materials.
		Special Topics on Fatigue Strength	2	2	1~3	Fall	The strengths of metals, when cyclic stress is applied, are discussed. The mechanisms of crack initiation and growth are focussed to understand the metal fatigue.
		Advanced Computational Mechanics	2	2	1~3	Fall	This lecture focuses on analyses based on FEM and physics-based model for elastoplastic deformation and dislocation.
		Advanced Material Function Development of New Construction Material	2	2	1~3	Spring	This lecture focuses on durability of concrete and rheology of fresh concrete.
		Advanced Steel Structures	2	2	1~3	Fall	The objectives of this lecture are to have fundamental knowledge on steel materials and steel structures, to develop a basic understanding of the design of steel structures.
		Advanced Reinforced Concrete Structures	2	2	1~3	Spring	This lecture focuses on confined Concrete, flexural strength, shear resistance mechanism and collapse mechanism.
		Advanced Electronic Functional Materials	2	2	1~3	Fall	This lecture focuses on the synthesis and properties of inorganic functional materials. Moreover, electrical and optical applications of functional materials are discussed.
		Advanced Plasma Engineering	2	2	1~3	Fall	This lecture focuses on the basic approaches to plasma production and control. Moreover, various aspects of plasma processes are introduced.
		Organic Electronics Device Engineering	2	2	1~3	Spring	Lectures on properties of organic electronics materials and physics of organic electronics devices.
		Advanced Ferromagnetic Materials	2	2	1~3	Fall	Study on the magnetic domain structure and its observation techniques, and relating phenomena are discussed.
		Topics on Ferroelectric Crystals	2	2	1~3	Fall	Lecture on structural phase transitions of ferroelectric and superionic crystals.
		Quantum Physics of Materials	2	2	1~3	Fall	The students will study the basic electron theory in solids.
		Advanced Physics of Disordered Materials	2	2	1~3	Fall	Lecture on advanced physics of disordered materials such as liquids, glasses, and superionic conductors.
		ENERGY DEVELOPMENT ENGINEERING		Advanced Heat Transfer Engineering	2	2	1~3
Advanced Study on Transport Phenomena	2			2	1~3	Spring	Steady-state molecular diffusion, Transient diffusion, Mass transfer associated with chemical reaction, Convective mass transfer, Mass transfer equipment.
Heat Transfer Augmentation	2			2	1~3	Fall	This lecture focuses on the theory of thermal energy transfer. Moreover, heat and mass transfer augmentation technique in convective flow are discussed.
Advanced Fluid Dynamics	2			2	1~3	Fall	Lecture on the concept of high speed gas flow and shock waves using the governing equation of fluid dynamics and thermodynamics.
Advanced Energy Conversion	2			2	1~3	Spring	Lecture on concept of an energy conversion from internal energy to the kinetic energy of gas flow with numerical method.

2021 SUBJECTS (Engineering)

Table (Article 10)

Doctoral Program

Material, Structural and Energy Engineering

AREAS OF STUDY	REQ OR ELEC.	SUBJECT	CREDITS	HOURS PER WEEK	YEARS	SEMESTERS	SUBJECT DESCRIPTION	
ENERGY DEVELOPMENT ENGINEERING	ELECTIVE	Advanced Wind Engineering for Building Structures	2	2	1~3	Spring	This course focuses on the fundamental concepts for the design of wind proof structures. Studying of expected wind velocity return period, wind pressures and forces on structures.	
		Advanced Coastal Engineering on Coral Seas	2	2	1~3	Spring	To be focused on nonlinear interactions of waves in coral sea, littoral drift of sand, wave deformations on reef flat, numerical simulations.	
		Advanced Computational Fluid Dynamics	2	2	1~3	Fall	The course gives numerical simulations of three dimensional fluid flows, the discrete element method for motions of solid particle groups, and parallel computation methods for large-scale simulations.	
		Advanced Control of Electric Power Energy	2	2	1~3	Spring	The students will study the energy conversion between electricity and others. In addition, control methods by power electronics technology are discussed.	
		Topics in Homotopy Theory	2	2	1~3	Fall	Study of topological invariants of classifying spaces. Lie groups and characteristic classes are studied in detail.	
		Time Series Analysis	2	2	1~3	Fall	Time series is the random data changing with time. In this lecture, we introduce theory, methods and application of time series analysis.	
		Strongly-Correlated Materials Science	2	2	1~3	Spring	Fundamentals and applications of strongly-correlated materials science are introduced using English textbooks.	
		Electronic transport properties of metals	2	2	1~3	Fall	Lecture on the electrical resistivity, thermopower and Hall effect in metals and alloys.	
		Properties of Condensed Matter under Multiple-Extreme Conditions	2	2	1~3	Spring	Overview of transport, magnetic and thermal properties in heavy fermion system around quantum critical point, and introduction of methods of obtaining low temperatures and high pressures.	
		Magnetism in Condensed Matter Physics	2	2	1~3	Spring	Lecture on magnetism and phase transition in quantum spin systems.	
		Advanced Magnetic Resonance in Solids	2	2	1~3	Spring	Advanced lecture on NMR and NQR spectroscopy for strongly correlated electron systems.	
		Geo-Disaster Engineering	2	2	1~3	Spring	Lecture on the geo-disaster induced by rainfall and earthquake and tsunami.	
		COMMON		Special Field Works	2	2	1~3	Fall & Spring
Special Educational Training	2			2	1~3	Fall & Spring	The lecture provides a chance for educational training. The contents of the class will be determined by discussion.	
Special Lecture on Material, Structural and Energy Engineering I-III	1			1	1~3	Fall & Spring	The lecture gives various current topics on Interdisciplinary Structure and Energy Engineering.	
Special Lecture on Material, Structural and Energy Engineering IV-VI	2			2	1~3	Fall & Spring	The lecture gives various current topics on Interdisciplinary Structure and Energy Engineering.	
Internship I	1			1 week (1 ~ 3 Year) Fall & Spring				Internship at overseas companies, universities or institutions (international students may choose Japanese organizations). Students are trained under the supervision of a supervisor or a person in charge of the study. However, international students cannot train in their country of origin.
Internship II	1			1 week (1 ~ 3 Year) Fall & Spring				Internship at overseas companies, universities or institutions (international students may choose Japanese organizations). Students are trained under the supervision of a supervisor or a person in charge of the study. However, international students cannot train in their country of origin.
Advanced Scientific Ethics	1			1	1~3	Fall & Spring	The purpose of scientific ethics is to engage students in reading about, considering, and discussing the responsible conduct of science.	

Requirements for course completion:

Students must obtain 12 or more credits, 3 of which must be obtained from Dissertation I on Material, Structural and Energy Engineering and 3 of which must be obtained from Dissertation II on Material, Structural and Energy Engineering. However, credits for Internship I and II cannot be included in the completion requirements. In addition to receiving the necessary instruction, students must also receive a passing grade on final examinations and Doctoral dissertation.

2021 SUBJECTS (Engineering)

Table (Article 10)

Doctoral Program

Interdisciplinary Intelligent Systems Engineering

AREAS OF STUDY	REQ OR ELEC.	SUBJECT	CREDITS	HOURS PER WEEK	YEARS	SEMESTERS	SUBJECT DESCRIPTION
COMMON	REQUIRED	Dissertation I on Interdisciplinary Intelligent Systems Engineering	3	6	1	Spring	Students write doctoral dissertation under the guidance of supervisor.
		Dissertation II on Interdisciplinary Intelligent Systems Engineering	3	6	2	Fall	Students write doctoral dissertation under the guidance of supervisor.
	ELECTIVE	Special Field Works	2	2	1~3	Fall & Spring	The lecture provides a chance for field work. The details will be determined based on the students' experience.
		Special Educational Training	2	2	1~3	Fall & Spring	The lecture provides a chance for educational training. The contents of the class will be determined by discussion.
		Special Lecture on Interdisciplinary Intelligent Systems Engineering I-III	1	1	1~3	Fall & Spring	The lecture gives various current topics on Interdisciplinary Intelligent Systems Engineering.
		Special Lecture on Interdisciplinary Intelligent Systems Engineering IV-VI	2	2	1~3	Fall & Spring	The lecture gives various current topics on Interdisciplinary Intelligent Systems Engineering.
		Advanced Scientific Ethics	1	1	1~3	Fall & Spring	The purpose of scientific ethics is to engage students in reading about, considering, and discussing the responsible conduct of science.
		Internship I	1	1 week (1 ~ 3 Year)	Fall & Spring	Internship at overseas and domestic companies, universities or institutions. Students are trained under the supervision of a supervisor or a person in charge of the study.	
		Internship II	1	1 week (1 ~ 3 Year)	Fall & Spring	Internship at overseas and domestic companies, universities or institutions. Students are trained under the supervision of a supervisor or a person in charge of the study.	
		Advanced Sustainable Regional Development	2	2	1~3	Fall	This class discusses sustainability of regional development promoting economic development and incorporating environmental concerns.
ENVIRONMENT AND INFORMATION ENGINEERING	ELECTIVE	Advanced Theory of Community Living Space Planning	2	2	1~3	Fall	Theory of urban planning and regional planning with a point of view of community development.
		Advanced Urban and Regional Planning System	2	2	1~3	Spring	Urban and regional planning system is for learning the planning systems, existing systems, analysis method on each case in several countries.
		Advanced Regional Planning Systems and Methodology	2	2	1~3	Spring	Planning systems and methodology on environmental creation, disaster risk management and traffic management considering regional characteristics are illustrated and discussed in the class.
		Advanced Acoustic Architectural Design	2	2	1~3	Spring	Explanation of assessment of the architectural design and disposition of the acoustic material.
		Advanced Wave Signal Processing	2	2	1~3	Fall	Discussion and student presentations on applications of electromagnetic wave and multidimensional processing. Focusing mainly on radar signal processings.
		Advanced Parallel and Distributed Systems	2	2	1~3	Spring	We discuss architectures, system softwares, and algorithms for parallel and distributed systems and investigate their advanced research.
		Advanced Emergent and Intelligent Robotics	2	2	1~3	Spring	An overview of emergent and intelligent robots that introduces some of its concepts, backgrounds, control, architecture, and intelligence.
		Advanced Mathematical Modeling	2	2	1~3	Spring	Advanced lecture on mathematical statistics, computational statistics, data science, bio science and human behavior modeling.
		Advanced Software Systems	2	2	1~3	Spring	High level programming technique is studied using real system software.
		ENVIRONMENT AND INFORMATION ENGINEERING	ELECTIVE	Advanced Information Network Theory	2	2	1~3
Advanced Image Processing	2			2	1~3	Fall	Lecture and practice on advanced image processing combined with machine learning, computational intelligence and cognitive science will be discussed.
C*-algebras and K-theory	2			2	1~3	Fall	We study projections and unitaries in C*-algebras and their K-theory as fundamental tools. Moreover, we study classification of AF-algebras as an application.
Representation Theories of the Symmetric Groups and the General Linear Groups	2			2	1~3	Fall	After the basics of finite groups, we explain the representation theories of the symmetric groups and the general linear groups.
Noncommutative Geometry	2			2	1~3	Fall	We study the general theory of C*-algebras and their K-theory and KK-theory. As applications, we study some topics in Noncommutative Geometry.
Introduction to Numerical Relativity	2			2	1~3	Spring	A course for studying formulations and methods for numerically solving Einstein's equation coupled with the equations for relativistic fluid.

2021 SUBJECTS (Engineering)

Table (Article 10)

Doctoral Program

Interdisciplinary Intelligent Systems Engineering

AREAS OF STUDY	REQ OR ELEC.	SUBJECT	CREDITS	HOURS PER WEEK	YEARS	SEMESTERS	SUBJECT DESCRIPTION
ELECTRONICS AND INFORMATION ENGINEERING	ELECTIVE	Physics of Correlated Electrons	2	2	1~3	Fall	This lecture is designed to understand the origin of phenomena derived from electron correlation, such as heavy fermion, multipole ordering, unconventional superconductivity.
		Introduction to the Structure of Space-time	2	2	1~3	Fall	Advanced general relativity and the structure of space-time.
		Advanced Adaptive Systems	2	2	1~3	Spring	Studies on adaptive methods: least mean square algorithm, recursive least mean square algorithm, adaptive filter, neural network, genetic algorithm, particle filter.
		Information Processing by Self-Organizing Systems	2	2	1~3	Fall	Self-Organizing Map and related neural network models are introduced that replicate the formation of functional maps on the cerebral cortex. The models are developed, connected and applied for data process.
		Advanced Intelligent Control Systems	2	2	1~3	Spring	This special lecture provides some control methods, fuzzy control, neural-network, Kalman filter, and H-infinity control, for nonlinear time-variant systems. Some optimization methods are also
		Advanced Asynchronous Systems	2	2	1~3	Fall	Asynchronous system that over comes the clock skew, power consumption and reliability problems, and its mathematical bases and novel design techniques are mentioned and discussed in this subject.
		Advanced Biomedical Engineering	2	2	1~3	Spring	Lectures on medical instrumentation, therapeutic and prosthetic devices, and biomedical signal processing.
		Advanced Computer Control Theory	2	2	1~3	Fall	Robust control, H-infinity control, H2 control, mu-synthesis, LMI's and Controller order reduction.
		Advanced Intelligent Systems	2	2	1~3	Fall	We discuss intelligent system technology. In particular we focus on machine learning neural network, collective intelligence and multi-agent system.
ELECTRONICS AND INFORMATION ENGINEERING	ELECTIVE	Advanced System Architecture	2	2	1~3	Spring	Specific digital system related processing or architecture will be focused such as digital communication, error correction, digital Media processing and so on.
		Advanced Machine Learning	2	2	1~3	Spring	This lecture describes basic concepts in machine learning and data mining, and then introduces examples of applications.
		Elliptic Hypergeometric Function Theory	2	2	1~3	Fall	Various summation and transformation formulae for the q-analog of the hypergeometric series are explained. The elliptic analog of the hypergeometric series is also studied in detail.
		Advanced Algebraic Topology	2	2	1~3	Fall	Study of topological aspects of the space of rational functions from the Riemann sphere to complex manifolds.
		Representation Theory	2	2	1~3	Spring	We discuss the alpha-determinant, which is a parametric deformation of the determinant and permanent, from the representation-theoretic point of view. We study basic properties of the alpha-determinant, representation theory of the symmetric groups and general linear groups, and the structure of cyclic modules generated by the alpha-determinants.
		Categorical Homotopy Theory	2	2	1~3	Fall	An introductory course on closed model categories.
		Advanced Number Theory	2	2	1~3	Spring	Lectures on Number Theory, especially prime numbers, Fermat's theorem and Gaussian reciprocity law.
		Advanced Complex Analysis	2	2	1~3	Fall	After reviewing Cauchy's integral theorem and residue theorem in complex function theory, we give an overview on the theory of special functions.
		Introduction to Superstring Theory	2	2	1~3	Fall	Lecture on superstring theory from the elementary level to the more advanced level.
Advanced Electronic Properties of Molecular Solids	2	2	1~3	Fall	I focus on advanced electronic structure methods for properties of organic solids: from density functional theory to many-body electronic structure theory.		

Requirements for course completion:

Students must obtain 12 or more credits including 6 credits of required subjects (Dissertation I on Interdisciplinary Intelligent Systems Engineering and Dissertation II on Interdisciplinary Intelligent Systems Engineering).

In addition to receiving the necessary instruction, students must also receive a passing grade on final examinations and Doctoral dissertation.

Table (Article 10) Doctoral Program

Course: Marine and Environmental Sciences

FIELD	SUBJECT		CREDITS	HOURS	YEARS	SEMESTERS	SUBJECT DESCRIPTION	
BIOSCIENCE	REQUIRED	COMMON	Advanced Special Seminar	2	30	1-3	Fall/ Spring	Present and discuss research information such as original academic papers, as well as research plans and findings, in a seminar format.
		Advanced Special Exercise	2	60	1-3	Fall/ Spring	For each individual research objective and phase, provide direct instruction and guidance concerning research methods and development.	
	ELECTIVE	SPECIAL	Fish and Shellfish Molecular Population Genetics	2	30	1-3	Fall	Genetic species identification of fish and shellfish, existence of cryptic species, exploration of genetic markers for stock identification, study method for aquatic organisms will be presented and discussed. How to write dissertation will be instructed.
			Cephalopod Behavior	2	30	1-3	Fall	Various aspects of behavioral characteristics in cephalopods. These include learning, memory, sociality, and reproductive behavior in octopus, squid and cuttlefish. This class tries to learn how intelligent these creatures (cephalopods) are.
			Reproductive Physiology	2	30	1-3	Spring	Physiological and behavioral mechanisms of reproductive events in low vertebrates. Special attention is paid to endocrine regulation of respective function.
			Advanced Marine Ecology	2	30	1-3	Fall	Reviews and discussions of recent topics in ecology of coral reef organisms with emphasis on responses of the organisms to climate change.
			Coral Disease	2	30	1-3	Spring	Overview of coral diseases/syndromes for conservation of future coral reefs.
			Freshwater Biology	2	30	1-3	Spring	Life historical characteristics of freshwater fishes (primary freshwater fish, amphidromous fish, catadromous fish) in the Ryukyu Archipelago.
			Plant Molecular Phylogeny	2	30	1-3	Spring	Discussion of current topics in molecular phylogeny and evolution of vascular plants.
			Plant Molecular Biology	2	30	1-3	Fall	Current topics in molecular genetics, genome science, genetic engineering, and bioimaging techniques, mainly focusing on plants.
			Oxygen Biology	2	30	1-3	Fall	Comprehensive review on biochemistry and biology of reactive oxygen (ROS) and nitrogen species (RNS).
			Microscopic Structures of Body Surfaces and Their Functions	2	30	1-3	Fall	Microscopic structures of the body surface of marine invertebrates and the approaches to reveal their properties and functions.
			Developmental Physiology	2	30	1-3	Spring	Molecular and cellular aspects of mammalian and insect developmental systems.
			Species Biology	2	30	1-3	Fall	Discussion and presentation about the definition, identification and characteristics of "species".
			Evolutionary Biology of Tropical Organisms	2	30	1-3	Fall	Discussion about evolutionary mechanisms that create biodiversity in the tropics.
			Organelles and Cell Physiology	2	30	1-3	Fall	Topics in physiological aspects of organelle dynamics and function. Focuses on organelle-related diseases, aging, and cell differentiation.
			Vertebrate Systematics and Evolutionary Biology	2	30	1-3	Fall	Discussion and presentation about evolution and divergence processes in vertebrates.
			Molecular Enzymology of Plant Degradation	2	30	1-3	Fall	Reviews on the recent advances on molecular machinery and classifications of enzymes involved in biodegradation of plant cell walls.
			Evolutionary Anthropology	2	30	1-3	Spring	Review of evolutionary histories of human: genetics, extant primates, fossils, culture, and society.
			Ecology of Tropical Coasts	2	30	1-3	Spring	Review on current topics of tropical coastal ecology, including coral reefs and discussion on environmental issues.
Advanced Seminar of Reproductive Biology	2	30	1-3	Fall	Seminar and laboratory work on reproductive biology.			
Zoological Nomenclature	2	30	1-3	Spring	Learning how to address problems related to zoological nomenclature through discussion on actual cases.			
Physiology and Biochemistry of Microorganisms	2	30	1-3	Fall	Reviews and discussions on physiology and biochemistry of microbial cell structure, metabolism, growth mechanism, and response to environmental stimuli.			

Table (Article 10) Doctoral Program

Course: Marine and Environmental Sciences

FIELD	SUBJECT		CREDITS	HOURS	YEARS	SEMESTERS	SUBJECT DESCRIPTION	
ENVIRONMENTAL SCIENCE	ELECTIVE	SPECIAL	Applied Phycology	2	30	1-3	Fall	Discussion and presentation about recent and advanced phycological studies especially in applied phycology.
			Advanced Ecology	2	30	1-3	Fall	Review of current topics on the maintenance and origin of biodiversity patterns based on taxonomic, functional and phylogenetic properties.
			Advanced Ecology of Coral Reef Organisms	2	30	1-3	Fall	Review, presentation and discussion about coral reef organisms and related research fields.
			Advanced Environmental Chemistry	2	30	1-3	Spring	This course provides an overview of chemical reactions occurring in aquatic environment. In particular, this course deals with photochemical reactions caused by sunlight.
			Carbonate Geochemistry	2	30	1-3	Spring	This course deals with carbonates in lithosphere and hydrosphere, especially natural mechanism of CO ₂ absorption from atmosphere in the global carbon cycles and its role in coral reefs.
			Advanced Asymmetric Organic Reaction	2	30	1-3	Fall	This lecture will be about synthetic strategies for asymmetric organic reactions including catalysis.
			Advanced Marine Environmental Chemistry	2	30	1-3	Fall & Spring	Chemical processes in marine environments.
			Organic Structural Spectroscopy	2	30	1-3	Spring	Spectroscopic methods to analyze the structures of organic molecules will be reviewed.
			Spectrometric Analysis of Organic Compounds	2	30	1-3	Fall	Spectroscopic methods for structure analysis such as mass spectrometry, nuclear magnetic resonance spectroscopy and infrared spectroscopy.
			Advanced Ocean Wave Remote Sensing	2	30	1-3	Fall & Spring	Physics of ocean surface waves, principle of ocean wave remote sensing and application of ocean wave remote sensing to physical oceanography.
			Tropical Meteorology	2	30	1-3	Fall	This course provides fundamental knowledge of about tropical atmosphere, including energy balance, atmospheric structure and circulation, tropical cyclone, and intraseasonal variability.
			Advanced data assimilation	2	30	1-3	Fall	Data assimilation synthesizes the results of mathematical model with observations. In this lecture, Kalman filter, 4D-Var and particle filter are explained through lecture and exercise.
			Environmental Tectonics	2	30	1-3	Fall & Spring	Basics and application on the environmental changes related to crustal movement, weathering process, material circulation, sea-level change, etc..
			Igneous Petrology and Geochemistry	2	30	1-3	Fall & Spring	Reviews and discussion about trace elements and isotopic composition of environmental Earth materials.
			Geodynamics	2	30	1-3	Fall	This course deals with mechanics of deformation of the crust and mantle. Geological areas of application include earthquakes and tsunamis, tectonic plate flexure, and upper mantle flow and deformation.
	Coral-reef Biogeoscience	2	30	1-3	Fall	A seminar to study topics and terms on multidisciplinary research on biogeosciences related to coral reefs in the present and past.		
Crustal Evolution	2	30	1-3	Fall	This unit of study provides an introduction to crustal evolution process from the point of views of petrogenesis of metamorphic rock and its geochronology.			
Advanced Biodiversity of Marine Invertebrates	2	30	1-3	Spring	Discussion of marine biodiversity, historical and modern problems in its estimation, and varying concepts of species and methodologies to detect and count them.			
	COMMON		Special Lecture A - D	2	30	1-3	Intensive	Course on marine and environmental sciences.

Requirements for course completion:

Students must obtain a total of 12 or more credits including 2 credits from Advanced Special Seminar and 2 credits from Advanced Special Exercise. In addition to receiving the necessary instruction, the student must also receive a passing grade on final examinations and Doctoral dissertation.

Detailed Degree Conferral Regulations for the University of the Ryukyus Graduate School of Engineering and Science

April 1, 1997

Adopted by the Graduate School of Engineering and Science Committee

Chapter 1 General Regulations

(Aim)

Article 1 These regulations, based on the University of the Ryukyus Degree Regulations (hereafter referred to as the Regulations), set forth the necessary particulars regarding the conferral of degrees at the University of the Ryukyus Graduate School of Engineering and Science (hereafter referred to as the Graduate School).

Chapter 2 Conferral of Degrees for the Master's Program.

(Qualifying Requirements for the Submission of Theses)

Article 2 Under Article 3 of the regulations, students of the Master's Program, who have fulfilled the requirements for completion of the aforementioned Course, as set forth in Article 42 of the University of the Ryukyus Graduate School Regulations (hereafter referred to as the University Regulations), may submit theses.

(Documents for Submission)

Article 3 Documents for submission under article 6 clause 2 of the regulations are as follows:

- | | |
|---|---------------------|
| (1) Thesis Review Request (Form 1-1) | 1 |
| (2) Thesis and Author's Publication List (Form 2-1) | 1 |
| (3) Abstract (Form 3) | 1 |
| (4) Text of Thesis | original and 1 copy |
| (5) Curriculum Vitae (Form 4) | 1 |

(Thesis Submission Period)

Article 4 The deadline for theses submission shall be February 10 (August 10 for those intending to graduate in September)

(Method of Review)

Article 5 The Dean of the Graduate School shall refer all received theses to the Master's Thesis Screening Committee for the purpose of review.

(Master's Thesis Screening Committee)

Article 5-2. The Master's Thesis Screening Committee (hereafter referred to as the Master's Reviewing Committee) shall be established as a committee of the Graduate School.

- 2 The Master's Reviewing Committee shall be comprised of three or more faculty members, including a chief examiner. All other members shall be vice-chief examiners.
- 3 The chief examiner shall coordinate the review of the concerned thesis and the final examination.

(Reviewing Members)

Article 6 For every thesis, each major (for Master's of Science majors) or each program (for Master's of Engineering programs) shall select three candidates from its faculty members that are responsible for research guidance as Reviewing Committee members (hereafter referred to as Reviewing Member Candidates), one of them being the chief examiner, and brief the Dean of the Graduate School. However, if necessary, a full-time instructor of the Graduate School may be selected as a Reviewing Member Candidate.

- 2 Article 5-2 notwithstanding, if deemed necessary for the review of a Master's thesis, instructors from other graduate school, institution, or research institute may be added to the list of Reviewing Member Candidates as external reviewing members. However, they cannot be chief examiner.
- 3 The Dean of the Graduate School shall make a decision on the members after consultation with the Graduate School Committee.

(Final Examinations)

Article 7 The Master's Reviewing Committee shall administer a final examination in an oral or a written format related specifically to the topic of the concerned thesis.

- 2 Theses may be presented at an oral thesis presentation (hereafter referred to as the presentation) in place of the final examination of the preceding clause.
- 3 The presentation of the preceding clause shall be open to the public and the time and place of presentation for each course and program shall be announced to the Dean of the Graduate School no later than one week prior.
- 4 The Chair of the major (for Master's of Science majors) or the Chair of the program

(for Master's of Engineering programs) shall host the presentation. Following the presentation of a thesis by the submitting student, a question and answer session shall be held for those attending the presentation.

(Report)

Article 8 The Master's Reviewing Committee shall report the results of the thesis screening and the final examination to the Dean of the Graduate School by way of form 5-1.

(Decision of the Graduate Course Committee)

Article 9 Based on deliberation of the Master's Reviewing Committee, the Graduate School Committee shall make the decision as to whether or not to confer a degree.

Chapter 3 Conferral of Degrees for the Second Term Doctoral Course

(Requirements for the Submission of Theses)

Article 10 Under Article 4 of the regulations, students of the Second Term Doctoral Course, who have fulfilled the requirements for completion of the aforementioned Course, as set forth in Article 43 of the University Regulations, may submit theses.

(Preliminary Review)

Article 11 Based upon the preceding article, those students wishing to submit thesis for reviewing must first submit their thesis for preliminary review.

2 Those students wishing to submit for preliminary review shall submit documents as specified separately to the Dean of the Graduate School no later than 2 months prior to the beginning of preliminary review begins.

(Doctoral Dissertation Preliminary Reviewing Committee)

Article 12 The Graduate School Committee shall establish a Doctoral Dissertation Preliminary Reviewing Committee (hereafter referred to as the Preliminary Reviewing Committee).

2 The Preliminary Reviewing Committee shall be comprised of three or more faculty members, including a chief examiner. All other members shall be vice-chief examiners.

3 The chief examiner shall coordinate the review of the concerned thesis and the final examination.

4 The preliminary Reviewing Committee shall complete the screening process within

1 month. Upon completion the chief examiner shall make a report to the Dean of the Graduate School.

- 5 Those students who are not awarded a passing grade at the outcome of preliminary review may, upon improvement of the content of their thesis, resubmit their thesis for preliminary review.

(Reviewing Members)

Article 12-2. For every thesis, each major shall select three candidates from its faculty members that are responsible for research guidance as Reviewing Committee members (hereafter referred to as Reviewing Member Candidates), one of them being the chief examiner, and brief the Dean of the Graduate School. However, if necessary, a full-time instructor of the Graduate School may be selected as a Reviewing Member Candidate.

- 2 Article 12-2 notwithstanding, if deemed necessary for the review of a Doctoral thesis, instructors from other graduate school, institution, or research institute may be added to the list of Reviewing Member Candidates as external reviewing members. However, they cannot be chief examiner.
- 3 The Dean of the Graduate School shall make a decision on the members after consultation with the Graduate School Committee.

(Dissertation Submission Period)

Article 13 Submission period for dissertations shall be between April 1 and December 20; and for those who are planning to complete the degree requirements by September, the degree submission deadline is June 20.

(Documents for Submission)

Article 14 Those students who receive a passing grade at the outcome of the preliminary review must submit the following documents to the Dean of the Graduate School:

- | | |
|---|-----------------------|
| (1) Dissertation Review Request (Form 1-2) | 1 |
| (2) Dissertation and Author's Publication List (Form 2-2) | 1 |
| (3) Abstract (Form 3) | 1 |
| (4) Text of Dissertation | original and 2 copies |
| (5) Curriculum Vitae (Form 4) | 1 |

(Method of Review)

Article 15 The Dean of the Graduate School shall brief the President of the University when the dissertation and accompanying documents are received.

(Establishment of the Reviewing Committee)

Article 16 The Graduate School Committee shall, under Article 12 of the regulations for each referred dissertation, establish the Doctoral Dissertation Reviewing Committee (hereafter referred to as the Doctoral Reviewing Committee) and request the committee to carry out dissertation review and final examinations.

- 2 The Doctoral Reviewing Committee shall be comprised of three or more faculty members, including a chief examiner. All other members shall be vice-chief examiners.
- 3 The chief reviewer shall make report for dissertation review and final examination .

(Reviewing Members)

Article 17 For every thesis, each major shall select three candidates from its faculty members that are responsible for research guidance as Reviewing Committee members (hereafter referred to as Reviewing Member Candidates), one of them being the chief examiner, and brief the Dean of the Graduate School. However, if necessary, a full-time instructor of the Graduate School may be selected as a Reviewing Member Candidate.

- 2 Article 16-2 notwithstanding, if deemed necessary for the review of a Doctoral thesis, instructors from other graduate school, institution, or research institute may be added to the list of Reviewing Member Candidates as external reviewing members. However, they cannot be chief examiner.
- 3 The Dean of the Graduate School shall make a decision on the members after consultation with the Graduate School Committee.

(Final Examinations)

Article 18 Following the Dissertation Review, the Doctoral Reviewing Committee shall administer a final examination in an oral or a written format relating specifically to the topic of the concerned dissertation.

- 2 Dissertations may be presented at an oral presentation (hereafter referred to as the presentation) in place of the final examination of the preceding clause.
- 3 The presentation of the preceding clause shall be open to the public and the time and place of each major's presentation shall be announced to the Dean of the Graduate School no later than one week prior.
- 4 The chair of the major or the Supervisor shall host the presentation. Following the

presentation of a dissertation by the submitting student, a question and answer session shall be held for those attending the presentation.

(Report)

Article 19 The Doctoral Reviewing Committee shall report the results of the Dissertation Review and the final examination to the Dean of the Graduate School by means of form 5-2.

(Documents for Submission)

Article 20 Those students who receive a passing grade at the Doctoral Reviewing Committee must submit the following documents to the Graduate School Committee.

- (1) Text of Dissertation original
- (2) Statement of Reason (Form 6) 1

(Decision of the Graduate School Committee)

Article 21 Based on deliberation of the Doctoral Reviewing Committee, the Graduate School Committee shall make the decision as to whether or not to confer a degree.

(Documents for Submission)

Article 22 Those students for whom degree conferral is decided must submit the following documents to the Dean of the Graduate School.

- (1) Electronic Data of Dissertation (CD-R, etc.) 1
- (2) University of the Ryukyus' Repository Registration 1
- (3) Letter of Acceptance (Form 7) necessary number
- (4) Consent Letters from Publishers

2 If the dissertation in its entirety cannot be published using the academic repository, the student shall submit to the Graduate School Dean documents listed in the preceding clause and the following:

- (1) Text of Dissertation 2 copies
- (2) University Repository Registration Application (Submission of the Abstract of the Dissertation) 1

3 In the event the "reasons beyond his or her control" that prevented the publishing of the dissertation in its entirety have ceased to exist, the dissertation in its entirety shall be published by submitting the University of the Ryukyus' Repository Registration (submission of the complete doctoral dissertation).

(Date of Degree Certification)

Article 23 The date of degree certification following completion of the course shall be

as follows:

- (1) Those students for whom degree conferral is decided within the specified standard time limit for studies, shall have the present academic year affixed to their certification.
- (2) Students not falling into this category shall have the date of conferral as decided by the President of the University affixed.

(Handling of Students Having Withdrawn from the University)

Article 24 Those student having withdrawn from the Graduate School, who do not return to the University, under Article 17 of the regulations, and do not complete the specified course shall not be awarded a degree.

Chapter 4 Doctoral Degree Conferral by Dissertation Submission

(Required Qualifications for Dissertation Submission)

Article 25 Under Article 5 of the regulations, the following people are eligible to apply for degree conferral without having passed through the course.

- (1) Those students who withdrew from the university after having, spent three or more years in the Graduate School Doctoral Program, obtained the specified credits, and received the necessary research instruction.
- (2) Those students with three or more years or research experience following the completion of the Master's Program.
- (3) Those with five or more years of research experience following their graduation from the University.
- (4) Those with nine or more years of research experience.

(Preliminary Review)

Article 26 Based on the regulations of the preceding article, those people applying for Dissertation Review must, prior to submitting their dissertation, undergo preliminary review.

2 Those people intending to submit for preliminary review must submit the documents, as specified separately, to the Dean of the Graduate School.

(Documents for Submission)

Article 27 Upon consent of the advising professor, a member of the Graduate School Committee, as set forth in Article 7 clause 1, the following documents must be

submitted to the Dean of the Graduate School;

(1) Dissertation Review Request (Form 1-3)	1
(2) Dissertation and Author's Publication List (Form 2-2)	1
(3) Abstract (Form 3)	1
(4) Text of Dissertation	original and two copies
(5) Published Papers	
(6) Curriculum Vitae (Form 4)	1
(7) Graduation Certificate of Last School Attended	1
(8) Research Record	1
(9) Other Necessary Documents	1

(Reviewing Administration Fee)

Article 28 The documents specified in the preceding article must be accompanied by the administration fee of ¥57,000.

2 Notwithstanding the preceding clause, students who have withdrawn from the university after having completed three or more years in the Doctoral Program, and having obtained all the specified credits, shall be exempt from the administration fee should they submit their dissertation within one year of withdrawal.

(Dissertation Submission Period)

Article 29 Dissertations may be submitted at any time.

(application)

Article 30 Article 12, Article 12-2 and Article 15 through 23 of the regulations apply to the review for degree conferral for submitted dissertations. In this case, "final examination" in Articles 16, 18, and 19 shall be read "confirmation of scholastic ability", and "form 5-2" in Article 19 shall be read "form 5-3".

Chapter 5 Miscellaneous Provisions

(Miscellaneous Provisions)

Article 31 In addition to these regulations, the Graduate School Committee shall specify separately any necessary particulars relating to degree conferral.

Supplementary Provision

This document is enforced from March 7, 2018, and applied from April 1, 2018.

Supplementary Provision

This document is enforced from February 17, 2021, and applied from April 1, 2021.

/ /
(yy / mm / dd)

To Dean of the Graduate School of
Engineering and Science,

Graduate School of Engineering and Science

Major

Name

Supervisor

Signature

Thesis Review Request

In order to be awarded a Master's Degree (Engineering / Science), as set forth in Article 6 Clause 1 of the University of the Ryukyus Degree Regulations, I hereby submit the following documents.

Thesis and Author's Publication List (Form 2-1)	1 copy
Abstract (Form 3)	1 copy
Text of Thesis	original
	1 copy
Curriculum Vitae (Form 4)	1 copy

/ /
(yy / mm / dd)

To President of the University
of the Ryukyus

Graduate School of Engineering and Science

Major

Name

Supervisor

Signature

Dissertation Review Request

In order to be awarded a Doctoral Degree (Engineering / Science / Philosophy), as set forth in Article 6 Clause 2 of the University of the Ryukyus Degree Regulations, I hereby submit the following documents.

Dissertation and Author's Publication List (Form 2-2)	1 copy
Abstract (Form 3)	1 copy
Text of Dissertation	original
	2 copies
Curriculum Vitae (Form 4)	1 copy

/ /
(yy / mm / dd)

To President of the University
of the Ryukyus

Name

Advising Professor

Signature

Dissertation Review Request

In order to be awarded a Doctoral Degree (Engineering / Science / Philosophy), as set forth in Article 7 of the University of the Ryukyus Degree Regulations, I hereby submit the following documents .

Dissertation and Author's Publication List (Form 2-2)	1 copy
Abstract (Form 3)	1 copy
Text of Dissertation	original 2 copies
Published Papers	1 copy
Curriculum Vitae (Form 4)	1 copy
Graduation Certificate of Last School Attended	1 copy
Research Experience	
Others ()	

/ /
(yy / mm / dd)

To Dean of the Graduate School of
Engineering and Science

Graduate School of Engineering and Science

Major

Name

Supervisor

Signature

Request for Preliminary Review

In order to be awarded a Doctoral Degree (Engineering / Science / Philosophy), as set forth in Article 11 Clause 1 of Detailed Degree Conferral Regulations for the University of the Ryukyus Graduate School of Engineering and Science, I hereby submit the following documents.

Dissertation and Author's Publication List (Form 2-2)	3 copies
Abstract (Form 3)	3 copies
Dissertation Draft	3 copies

/ /
(yy / mm / dd)

To Dean of the Graduate School of
Engineering and Science

Name

Advising Professor

Signature

Request for Preliminary Review

In order to be awarded a Degree (Engineering / Science / Philosophy), as set forth in Article 26 Clause 1 of Detailed Degree Conferral Regulations for the University of the Ryukyus Graduate School of Engineering and Science, I hereby submit the following documents.

Dissertation and Author's Publication List (Form 2-2)	3 copies
Abstract (Form 3)	3 copies
Dissertation Draft	3 copies

Dissertation and Author's Publication List

Name

Dissertation Title

Author's Publication List (published articles related to the thesis: only articles not used for any other degree applications)

Form 3

Abstract

Title

Name _____

Form 4

Curriculum Vitae

Name		Date of birth (yy / mm / dd) / /	M / F
Nationality			
Address	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Tel () - () - ()		
Please list Academic Record / Vocational Record / Research Record and Awards separately			
Particulars	Date yy/mm	Summary	

Please continue overleaf

Form 6

Statement of Reason
(Unavoidable reason for not presenting the whole dissertation)

/ /
(yy / mm / dd)

To Dean of the Graduate School of
Engineering and Science

Name :
signature

Applicable Number (unavoidable reason for not presenting the full text of the dissertation on the university repository system): 1 · 2 · 3 · 4

(Reason: in detail)

.....

.....

.....

.....

.....

【Unavoidable Reasons】

- 1 The dissertation contains object type of data.
- 2 The time of publication cannot exceed more than one year due to the rights regarding copyright and/or privacy.
- 3 It is clear that more than one year of publication will cause disadvantages to the author due to book publishing, multiple posting, and/or patent application.

Agreement Regarding the University of the Ryukyus Graduate School of Engineering and Science Doctoral Program

September 28, 2000

Decision by the Graduate School of Engineering and Science Committee

- 1 This agreement sets forth the necessary particulars for the conferral of degrees under Article 31 of the detailed regulations for the handling of degree conferred in the University of the Ryukyus Graduate School of Engineering and Science. (hereafter referred to as “the detailed regulations”).
- 2 In order to apply for dissertation review in the Doctoral Program, it is required that, at the time of application, at least two papers have been published or accepted for publication on refereed academic journals recognized by a major or a course in the Master’s Program. The applicant must have lead authorship on at least one of the papers. Also, at least one of the papers must be in English. If the applicant has none, English papers published in proceedings and similar publications shall also be considered. Published papers that merit consideration are limited to those that have never been used for the degree applications of other co-authors.
- 3 For applicants through submission of doctoral dissertations, it is required that, at the time of application, at least four papers have been published or accepted for publication on refereed academic journals recognized by a major or a course in the Master’s Program. The applicant must have lead authorship on at least two of the papers. Also, at least one of the papers must be in English. Published papers that merit consideration are limited to those that have never been used for the degree applications of other co-authors.
- 4 Those who fall under Article 25 (1) of the detailed regulations will be treated as a doctor if they apply for the degree and pass the examination within one year after leaving school. Requirement 2 above applies to those who apply for the degree between one and three years after leaving school.
- 5 For applicants through submission of doctoral dissertations, the foreign language achievement test referred to in Article 30 of the detailed regulations requires a written test of English. Academic aptitude shall be evaluated by Major Dean and

Chief Evaluator (or Deputy Chief Evaluator), and the result shall be presented, upon deliberation of the major committee, to the Head of the Graduate School of Engineering and Science.

- 6 Those that were denied degree conferment by the committee in accordance with Article 21 of the detailed regulations may re-apply. However, the application shall undergo preliminary review.
- 7 In addition to these agreements, upon deliberation of the Graduate School Committee, each course shall specify any necessary particulars relating to degree conferral.

Agreement Regarding the Conferral of Degrees in the Marine and Environmental Sciences Major

October 18, 2000

Approved by the Graduate School of Engineering and Science Committee

- 1 This agreement specifies the necessary particulars for the conferral of degrees in the Marine and Environmental Sciences Major based on clause 7 of the the Agreement Regarding the University of the Ryukyus Graduate School of Engineering and Science Doctoral Program.
- 2 Requirements for the submission of dissertations in the Doctoral Program.
 - (1) Dissertations shall be works compiled independently that are based upon work appearing in an academic journal with an established referee system, or work that is of the level to appear in such a journal.
 - (2) Reference papers shall be works that provide a wide base for the compilation of the dissertation and which have been published or accepted for publishing by an academic journal with an established referee system.
 - (3) Number of reference papers, the necessity of a first author, and other necessary standards shall, upon deliberation of the Committee of the Major, be decided by each academic field (Physics, Earth Science, Chemistry, and Biology)
 - (4) Each academic field shall carry out approval of the academic journals with established referee systems.
- 3 The Doctoral Dissertation Reviewing Committee shall report the results of the review to a meeting of the major.

Agreement on the Handling of Names on the Doctorate Diploma at the Graduate School of Engineering and Science

January 29, 2014

Decision by the Graduate School of Engineering and Science Committee

1. The name to be displayed on the doctoral diploma shall be, in principle, the full name as it appears in the family register; if the student has applied to use his/her former family name, this shall be permitted also. However, if the student wishes to have both his/her current and former family names, the student shall complete and submit to the Graduate School Dean a Diploma Family Name Request Form (Form 1) (hereinafter the "Form").
2. The Graduate School Dean shall state the student's former family name in parenthesis provided that the student has been granted conferral of a degree and has submitted the Form.
3. Documents other than the doctoral diploma such as the Certificate of Degree Conferred shall be issued with the family name as it appears in the family register; if the student has requested to use his/her former family name, the document shall be issued with the former family name.
4. If those who had their doctoral diplomas made to display only their former family name or their current and former family name request an explanation concerning the consistency of names on the diploma and other various documents, a copy of certificate entitled Concerning the Name on the Doctoral Diploma (Form 2) shall be issued, and the University shall not bear any responsibility beyond the issuance of this certificate.

Supplementary Provision

This Agreement shall be enforced from March 31, 2014, and its application shall begin from October 1, 2013.

Diploma Family Name Request Form

Date: _____

To Dean of the Graduate School of Engineering and Science

*To be completed by a student of the University only	Student No.	
	Graduate School	
	Major	
Name	Signature	

I hereby request that my current and former family names to be displayed on my doctoral diploma as stated below, and submit this form with my family register attached.

Name	Furigana		Furigana	
	New Family Name		First Name	
	Furigana			
	Former Family Name			

(Example)

Name	Furigana	• • • •	Furigana	• • • •
	Current Family Name	○ ○	First Name	□ □
	Furigana	• • • •		
	Former Family Name	▲ ▲		

*If the student requests both his/her current and former family names to be displayed, it shall be rendered as the following: ○○ (▲▲) □□

Note:

1. The Certificate of Degree Conferral (Certificate of Completion) shall be issued with the student's university-registered family name (family name as it appears on the family register). If an outside organization requests to confirm the consistency of a student's family register name and his/her former family name, the University can issue a document to state that the institution grants the use of the former family name or both current and former family names. The University shall not bear any responsibility beyond the issuance of this document.
2. If the request is granted, ensure that all documents related to diploma review request to be submitted to the University shall state both the applicant's current and former family names.
3. When a doctoral diploma is issued, confirm that the name is stated correctly.

Concerning the Name on the Doctoral Diploma

The Graduate School of Engineering and Science granted the applicant's request to display not the full name as it appears on the family register, but both the current and former family names on the doctoral diploma.

Former family name:

Current family name:

Full name on doctoral diploma:

Date: _____

Dean, Graduate School of Engineering and Science
University of the Ryukyus

○ ○ ○ ○

Agreement Regarding the Enrollment Period of the Doctoral Program of the University of the Ryukyus Graduate School of Engineering and Science

October 18, 2000

Decision by the Graduate School of Engineering and Science Committee

The following is agreed with regard to the Enrollment period under Article 43 provisional clause 1 of the University of the Ryukyus Graduate School Regulations.

- 1 Upon obtaining the specified credits and the necessary research instruction, those students with outstanding performance may be permitted to complete the Program in less than the specified three-year period (hereafter referred to as “early completion”).
- 2 The classification of "outstanding performance" in the preceding clause shall be those who fulfil the following;
 - (1) Those commended as outstanding academically (note 1), obtaining the specified credits and the necessary research instruction, and having fulfilled the requirements as set forth under clause 2 of the agreement regarding conferral of degrees in the Doctoral Program of the University of the Ryukyus Graduate School of Engineering and Science (hereafter referred to as the agreement for degree conferral). However, at least one of the published papers must be in English with lead authorship.
 - (2) Those that have earned the specified number of credits and received the necessary research instruction, and have at least twice as many paper publications in academic journals as the number set forth under clause 2 of the requirements regarding conferral of degrees, with lead authorship on at least two of them. Published papers that merit consideration are limited to those that never been used for the degree applications of other co-authors, and at least one of them must be in English.
- 3 Those hoping for early completion must, after submitting an application to their Supervisor and the chair of the major, attach the aforementioned application form to the documents necessary for preliminary review and apply to the Dean of the Graduate School.
- 4 After deliberation of the Major, the Doctoral Dissertation Preliminary Reviewing

Committee shall confirm the performance of applicants for outstanding research commendation.

- 5 In the case that early completion is deemed appropriate by the Doctoral Dissertation Preliminary Reviewing Committee during preliminary review, an explanation as to the reason for the decision shall be attached to the preliminary review report.
- 6 The Dean of the Graduate School shall be responsible for ensuring that the words “early completion” appear on the documents of Program completion prepared by the Graduate Course Committee.

(note 1) Outstanding academic commendations shall be in the form of awards of commendation from National or International Symposiums. Regional symposiums and local public entity commendations are not acceptable.

Supplementary Provision

This document is enforced from March 7, 2018, and applied from April 1, 2018.

Application for Early Completion

/ /

To Dean of the Graduate School of Engineering and Science

Doctoral Course _____

Name _____

Student Number _____ Year _____

Date of Birth (dd/mm/yy) _____ / _____ / _____

Based upon my initial research results I hereby apply to reduce the specified period of Enrollment and complete my programme of studies on / /

Head of Doctoral Course	Supervisor
Name _____ Signature	Name _____ Signature

Implementation Requirements for the Long-term Academic Stay Program for the University of the Ryukyus Graduate School of Engineering and Science

January 27, 2010

Accepted by the Graduate School of Engineering and Science Committee

(Aim)

Article 1. This document, based on Article 18 of the University of the Ryukyus Graduate School Regulations as well as the Implementation Guideline for the Long-term Academic Stay Program for the University of the Ryukyus Graduate School, defines requirements to implement the long-term academic stay program at the University of the Ryukyus Graduate School of Engineering and Science (hereafter referred to as the Graduate School).

(Purpose)

Article 2. The purpose of the program is to enable students that have difficulty graduating in standard years of enrollment due to employment, among other reasons, to stay enrolled beyond the standard years of enrollment for a prescribed period in order to complete their educational curriculum and receive their degrees on a schedule.

(Maximum Duration of Stay)

Article 3. The maximum duration of stay under the long-term academic stay program is as follows:

- (1) Three or four years for a Master's student
 - (2) Four, five, or six years for a Doctoral student
2. Under the long-term academic stay program, the period of stay shall be counted by year.
3. The period of a leave of absence from school shall not be counted as part of a period of stay under the long-term academic stay program. However, the standard years of enrollment cannot be exceeded.

(Eligibility)

Article 4. One of the following must be applicable for a student to be eligible for the program. However, a student in his final year of study is not eligible.

- (1) A student has difficulty graduating in standard years of enrollment due to employment.
- (2) A student has difficulty graduating in standard years of enrollment due to

childbirth, childcare, or long-term nursing care.

(3) A student deemed by the Graduate School Committee to have difficulty graduating in standard years of enrollment due to unavoidable circumstances.

(Application Procedure)

Article 5. A student who wishes to extend his stay under the program shall first consult his supervising instructor to discuss whether the program is truly necessary, and if so, a study plan, and obtain the instructor's acceptance.

2. A student who wishes to apply to the program shall submit the following to the Office of Academic Affairs.

- (1) Application form (Form 1)
- (2) Study (long-term research guidance) plan (Form 2)
- (3) Employment certificate or a documentary proof of employment (if employed)
- (4) Petition form (for those with childcare or domestic care duties)

3. The application period shall be, in principle, as follows:

- (1) Registration period for new students
- (2) February 1 to the end of February for returning students who enrolled in April
August 1 to the end of August for returning students who enrolled in October.

(Eligibility Review)

Article 6. Eligibility review shall be conducted by the applicant's major taking into account the application form and other documents stated in Article 5-2.

2. Chairman of the major shall submit the eligibility review in written form along with the application and other documents to the Dean of the Graduate School.

3. Specific standard and other particulars required for the review shall be separately defined by the Dean of the Graduate School.

(Notice to Student)

Article 7. The Dean of the Graduate School shall post the name of the successful applicant on the bulletin board and notify the student in writing. The Dean shall also notify the unsuccessful applicant and inform the reason for the decision.

(Tuition)

Article 8. Tuition of a student in the long-term academy stay program shall be governed by Article 2-2 of the University of the Ryukyus Tuition Regulations.

(Shortening the Duration of Program)

Article 9. If a student in the program no longer has reason to stay in the program, and is expected to complete his study within standard years of enrollment, the duration of the program may be shortened by submitting a specified form (Form 3).

2. The duration of the program shall be shortened by the unit of one year. If granted, the tuition of the student shall be governed by Article 2-2 of the University of the Ryukyus Tuition Regulations.

(Report)

Article 10. Once a student a student is accepted into the long-term academic stay program, the Dean of the Graduate School shall report in writing information concerning the student to the Department of Finance.

Supplementary Provision

This document is enforced from January 27, 2010, and applied from April 1, 2010.

Supplementary Provision

This document is enforced from April 24, 2013.

Supplementary Provision

This document is enforced from March 7, 2018, and applied from April 1, 2018.

Form 1

Long-term Academic Stay Application Form

To: Dean of the Graduate School of Engineering and Science

Date:

Major:

Name:

Signature:

I hereby submit my application to enter into the long-term academic stay program.

ID (Student) Number		
Date of Enrollment	Expected Date of Completion	Expected Years of Study
Current Address	TEL:	
Work Address	Company Name (Job Type)	
	TEL:	
Reason for Application Necessity:		
Long-term Study Plan:		
Comment by Instructor		
Name of Instructor:		Signature:

*This is not applicable for Monbukagakusho Scholarship students.

Form 2

The University of the Ryukyus Graduate School Long-term Academic Stay Program
(Long-term Academic Research Guidance) Plan

To: Dean of the Graduate School of Engineering and Science

Date:

Name of Instructor (must be written by the instructor):

Signature:

I hereby submit the planned long-term academic stay program for the following student:

Name of Applicant:	Graduate School:
Student ID Number:	Major:
Original Period of Enrollment From to	Expected Period of Enrollment under the Program: From to
Research Guidance Plan (be specific)	

Note: The instructor, upon receiving an application form from a student, shall present a specific long-term study (research guidance) plan on this form, provide his comment on the Application Form, and submit them to the Administrative Office of the Graduate School.

Form 3

Application to Shorten the Duration of Long-term Academic Stay Program

To: Dean of the Graduate School of Engineering and Science

Date:

Majoring in _____ at the Graduate School of Engineering and Science

Name:

Signature:

I hereby submit my request to shorten the duration of my long-term academic stay program.

Student ID Number	
Month and Year of Enrollment	
Originally Scheduled Month and Year of Completion	
Originally Scheduled Period of Stay under the Program	
Scheduled Month and Year of Completion after Shortening	
Scheduled Period of Stay after Shortening	
Reason (why the program is no longer necessary)	
Comment by Instructor	
Name of Instructor: _____ Signature: _____	

Agreement Regarding the Enrollment Period of the Master's Program (Engineering course) of the University of the Ryukyus Graduate School of Engineering and Science

March 5, 2008

Adopted by the Graduate School of Engineering and Science Committee

(Aim)

Article 1 This agreement sets forth the necessary items for shortening the enrollment period required for completing the Master's Program for students with outstanding performance (hereafter referred to as "early completion") under Article 42 of the University of the Ryukyus Graduate School Regulations (hereafter referred to as "the regulations").

(Qualification of Early Completion)

Article 2 The classification of "outstanding performance" based on Article 42 of the regulations include those who have achieved research level for thesis papers equal to or above levels necessary to be certified as having completed the Program of 2 years as the standard course length.

(Possible period of time for being shortened)

Article 3 The standard course length for 2 years may be reduced by half a year or 1 year.

(Qualifying Requirements for Early Completion)

Article 4 For early completion, the completion requirements under Article 42 are necessary.

2 Regarding the earning of 30 or more credits, which is one of the completion requirements under Article 42 of the regulations, a total of 6 credits or part of the credits for Master's thesis III, IV & Special Seminars III, IV offered for 2nd year students in each major, may be replaced with at least one original paper published or to be published in a judged academic journal recognized by each major.

3 After deliberation by each major, the head of the major shall decide detailed or additional qualifying requirements in the preceding clauses.

4 In the case of determining detailed or additional qualifying requirements in the preceding clause, the head of each major must announce to students in the major in appropriate ways.

(Application)

Article 5 Those hoping for early completion, after obtaining consent from their supervisors, shall apply by submitting the application form for early completion (appendix form) along with the necessary documents stated in Article 3 of Detailed Degree Conferral Regulations for the University of the Ryukyus Graduate School of Engineering and Science and those documents required by their majors, to the head of each major by the prescribed date.

(Acknowledgement of early completion)

Article 6 Recognition of early completion shall be conducted under Articles 5 through 9 of the Detailed Degree Conferral Regulations for the University of the Ryukyus Graduate School of Engineering and Science, in the same manner as regular Master course completion.

(Miscellaneous regulations)

Article 7 Any items necessary for early completion other than those set forth in these regulations shall be specified separately.

Supplementary regulations

- 1 The revised version shall be enacted on April 1, 2008.
- 2 The revised version shall be available at the Master's Program (Engineering course) of the University of the Ryukyus Graduate School of Engineering and Science.

Supplementary Provision

This document is enforced from March 7, 2018, and applied from April 1, 2018.

Application for Early Completion

/ /

To Head of Graduate (Master) Course

Master's Course _____

Name _____

Student Number _____ Year _____

Date of Birth (dd/mm/yy) _____ / _____ / _____

With attachment of an original paper, I hereby apply for early completion under the Agreement Regarding the Enrollment Period of the Master's Program (Engineering course) of the University of the Ryukyus Graduate School of Engineering and Science.

Supervisor
Name

Signature

University of the Ryukyus Graduate School of Engineering and Science Student Award
Regulations

February 22, 2007

Adopted by the Graduate School of Engineering and Science Committee

(Aim)

Article 1 This policy set forth necessary particulars relating to the Graduate School of Engineering and Science Dean's Award, in accordance with Article 57 of the University of the Ryukyus Graduate School Regulations.

(Award)

Article 2 The award shall be presented to an individual who meets any one of the following requirements:

- (1) A person who demonstrated outstanding achievement in academic research or with his/her technical ability.
- (2) A person who made great contribution to bring honor and prestige to this graduate school through academic research or with his/her technical ability.
- (3) One who is deemed to have achievements equivalent of those specified in the preceding clause.

(Nomination)

Article 3 A candidates shall be a student in the Master's or Doctoral program; nomination shall be made by the Chair to the Dean in the form of a letter of recommendation.

2 All nominations shall be deliberated and confirmed in a meeting of the Chair Committee.

(Deliberation)

Article 4 In principle, a candidate to be recommended is selected in a meeting of the Chair Committee.

(Decision)

Article 5 The Dean of the Graduate School shall forward the selection result submitted by the Chair Committee to the Graduate School Committee, and a winner is decided by the said Committee upon further deliberation.

(Timing of award presentation)

Article 6 In principle, the award ceremony shall take place on the day of commencement.

(Method)

Article 7 The Dean of the graduate school shall present the winner with a Dean's Award.

2 The Award may be complemented by a commemorative gift.

(Supplementary Regulations)

Article 8 Other particulars not stipulated in this regulations including particulars in regard to award presentation shall be defined by the Dean of the Graduate School separately.

(Agreement)

1. Award ceremony implementation should apply correspondingly to the University of the Ryukyus Implementation Guidelines for Student Award Ceremony.
2. In principle, the Chair of each of the major field in both Master's and Doctoral Programs should nominate one student from his/her program, however, the recipient-to-be of the President's Award shall not be nominated.
3. The cost of the award ceremony implementation and commemorative gift shall be incurred by the Faculty that the Dean of the Graduate School is affiliated with.

Supplementary Provision

This document is enforced from March 7, 2018, and applied from April 1, 2018.

Agreement Concerning Filing Grading Complaints at
the University of the Ryukyus Graduate School

January 23, 2007
University Committee

Article 1 This Agreement shall define necessary particulars concerning filing grading complaints at the University of the Ryukyus Graduate School.

Article 2 If students are not content with their grading for an academic term (including the first and second half of the term), such students may submit a Grading Confirmation Request Form (Form 1) to the Graduate School Administrative Affairs Department (hereunder “Administrative Affairs Department”), in principle, during a period beginning on the day the grades were disclosed, and ending five (5) days after the end of the academic term (weekends and holidays are excluded).

2 The Administrative Affairs Department, upon receiving a Grading Confirmation Request Form, shall promptly send the form to the class instructors.

Article 3 Class instructors shall provide their response regarding student inquiries on grading, or Grading Confirmation Request Forms, to the Administrative Affairs Department within five (5) days after they are received by the Administrative Affairs Department (weekends and holidays are excluded).

2 The Administrative Affairs Department shall, upon receiving the class instructor’s response on grading, promptly notify the student.

Article 4 If the student is unsatisfied with the class instructor’s response, the student may submit a Grading Complaint Form (Form 2) to the Dean of the Graduate School within five (5) days after receiving the response (weekends and holidays are excluded).

Article 5 The Dean of the Graduate School shall, upon receiving a Grading Complaint Form from a student, promptly examine the case in a Graduate School Committee (Faculty Council for the Graduate School of Medicine. Hereunder referred to as the “Graduate School Committee”) meeting, or in a review committee meeting under the Graduate School Committee, and notify the result to the student and the pertinent class instructors.

Article 6 Grades shall be disclosed on the day defined on the academic calendar. However, the Graduate School Committee shall define separately the date of grade disclosure and the grading complaint filing period for those completing their program in September and March, respectively.

Article 7 In addition to the provisions defined in this Agreement, the Graduate School Committee may define separately other necessary items regarding the implementation of grading complaint filing.

Article 8 This Agreement shall be revised or abolished by the President of the University upon approval by the University Committee.

Supplementary Provisions

- 1 This Agreement shall be enforced on January 23, 2017.
- 2 Notwithstanding the provisions in Article 2, If students are not content with their grading for the academic term of 2016, such students may notify the class instructor by April 10, 2017.

Supplementary Provision (January 5, 2018)

This Agreement shall be enforced on April 1, 2018.

Grading Confirmation Request Form

TO: Dean of Graduate School

Graduate School: _____

Major: _____

Year: _____

Student ID#: _____

Name: _____

I hereby request that my following grade for [semester], [year], be reviewed and confirmed.

Class Number: _____

Class Name: _____

Class Lot: _____

Class Instructor: _____

Reason: _____

*Student will submit this form to the Administrative Affairs Department of the Graduate School.

Response by Instructor

Date: _____

Name of Instructor: _____ Seal

(Circle one)

1. The current grade is true and correct.

2. The current grade shall be corrected to: Grade: () Rating: ()

Reason: _____

*Instructor will provide his/her response here and submit this form to the Administrative Affairs Department.

Grading Complaint Form

TO: Dean of Graduate School

Graduate School: _____

Major: _____

Year: _____

Student ID#: _____

Name: _____

The instructor's response to the Grading Confirmation Request Form I submitted, for my grade for [semester], [year], is not satisfactory for the following reason, and I hereby file a complaint.

Class Number: _____

Class Name: _____

Class Lot: _____

Class Instructor: _____

Grade: _____

Grounds for Complaint (be specific regarding your grade and the instructor's response): _____

*Student will submit this form to the Administrative Affairs Department of the Graduate School.

Graduate School of Engineering and Science

Guidelines for Writing and Submission of Master's and Doctoral Thesis

1. Paper

White, good quality paper, A4 size (210 x 297mm) should be used in portrait form.

2. Front Cover and Spine

Either hard or soft cover can be used. The color of covers is not specified; however, depending on a department, a cover color may be specified. Please ask your supervisor about the cover color. Covers should be printed according to the stipulations of these guidelines (see Sample Front Cover and Spine supplied with these guidelines).

3. Thesis contents

- (1) Text is to be written horizontally from left to right.
- (2) Page numbers should be centered at the bottom of each page. Page numbers are not needed on a front cover and spine. Roman numerals (i,ii,iii...) should be used for preliminary pages (i.e. pages for the Committee Member's signature, Abstract, Authors' Publication List, Acknowledgements and Table of Contents). The rest of the pages should be numbered in Arabic numerals (1,2,3...).
- (3) Figures and Tables used in the thesis should be included.
- (4) The contents should be typed and presented in the most readable form. Text should be single/1.5 lines spaced.
- (5) Font style should be in Times New Roman, 10.5 - 12 points for the English version thesis.
- (6) Printing can be done either single or double-sided.
- (7) Page margins should be set at 2.5 cm (1 inch) for the left, right, top and bottom margins.

4. Arrangement of the contents

- (1) Title page (according to the sample)
- (2) Page for committee members' signatures (according to the sample)
- (3) Abstract
- (4) Author's publication list (Papers must not be used for any other degree applications)
- (5) Acknowledgements [before or after (8) References]
- (6) Table of contents
- (7) Main body text (including Figures and Tables)
- (8) References [or after each chapter]
- (9) Others (Appendix, etc.)

5. Illustrations

All illustrations (charts/figures/photos, etc.) should be digitized and visible with a resolution of at least 300 dpi. Captions for figures/graphs are to be placed below while for charts/tables should either be in the text or end of each chapter, all of which are to be clearly legible.

6. Submission

As stipulated in Article 19 of the Regulations of the Graduate School of Engineering and Science, University of the Ryukyus, students must have their thesis submitted in files to the Faculty Office by the appointed date. Fine quality copies are required for both original and duplicate. Photos should be copies of photo print or printed by color copiers of high quality. Each copy must be bound independently in a moderate or fine quality binding and must be submitted to the Faculty Office by the appointed date, before the Graduation Ceremony.

【Submission Documents • Deadlines】

※Consult your supervisor as these dates are subject to change at any time.

(1) Master Course

①Thesis Review

Thesis Review Documents	Thesis Review Request • Thesis and Author's Publication List • Abstract • Thesis • Curriculum Vitae	
Submission Deadline	Sept. Graduation	March Graduation
	Aug. 10	Feb. 10

※If the deadlines falls on Saturday, Sunday or Holiday, it will be shifted to the last preceding non-holiday week day.

②Graduate Course Committee

Submitting Documents	Thesis (original • 1 copy)	
Submission Deadline	Sept. Graduation	March Graduation
	Early Sept.	Middle of Mar.

※If the deadlines falls on Saturday, Sunday or Holiday, it will be shifted to the last preceding non-holiday week day.

(2) Doctoral Course

①Preliminary Review

Submitting Documents	Request for Preliminary Review • Dissertation and Author's Publication List • Abstract • Dissertation	
Submission Deadline	Sept. Graduation	March Graduation
	Apr. 20	Oct. 20

※If the deadlines falls on Saturday, Sunday or Holiday, it will be shifted to the last preceding non-holiday week day.

②Dissertation Review

Submitting Documents	Dissertation Review Request • Dissertation and Author's Publication List • Abstract • Dissertation • Curriculum Vitae	
Submission Deadline	Sept. Graduation	March Graduation
	Jun. 20	Dec. 20

※If the deadlines falls on Saturday, Sunday or Holiday, it will be shifted to the last preceding non-holiday week day.

③Graduate Course Committee

Submitting Documents	1 Dissertation (either a standard fine quality binding or a moderate binding accepted) Statement of Reason	
Submission Deadline	Sept. Graduation	March Graduation
	End of Aug.	End of Feb.

※If the deadlines falls on Saturday, Sunday or Holiday, it will be shifted to the last preceding non-holiday week day.

④Repository

Submitting Documents	1 Electronic data of a dissertation (ex. CD-R) 2 University of the Ryukyus' Repository Registration 3 Letter of Acceptance 4 Consent letters from publishers* 5 Dissertation (2 bound copies)* 6 University Repository Registration Application* (Submission of the abstract of the doctoral dissertation)	
Submission Deadline	Sept. Graduation	March Graduation
	Early Sept.	Early Mar.

*4 Consent letter: Letters from publishers which published relating articles used in the dissertation to permit presenting the full text of the dissertation.

Dissertation submitter, under the supervision of an advisor, must take the necessary procedures for copyright and personal privacy protection.

*Submission of 5 Dissertation and 6 Application is required for those who cannot present the full text of the dissertation on the university repository immediately.

When the unavoidable reason for being unable to present the full text of the dissertation no longer exists, the dissertation submitter should present his/her entire dissertation on the internet by submitting a University Repository Registration Application (Submission of the full text of the doctoral dissertation).

7. Binding and number of copies

Moderate binding for both original and duplicates are accepted. A fine quality binding for the original thesis is recommended.

〈Standard Fine Quality Binding〉

A standard fine quality binding preferably with back title costs about 6,000 - 8,000 JPY and takes 2 weeks to prepare at the Students' Co-op. An additional expense is charged for data processing.

Size: A4, Quality: paper cloth, hardcover, Title: gold-colored letters, Font style: Times New Roman (bold)

〈Moderate Binding〉

A moderate binding preferably with back title costs 1,000 - 1,500 JPY and takes 1 week to prepare at the Students' Co-op. An additional expense is charged for data processing.

Size: A4, Quality: embossed paper, thick cover, Font style: Times New Roman (bold)

8. Additional information

Students are advised to read the above guidelines in conjunction with the "Detailed Degree Conferral Regulations for the Graduate School of Engineering and Science, University of the Ryukyus" described in the Handbook of Graduate Programs for International Students.

(Sample Front Cover)

**Master's Thesis of Engineering (Science)/
Doctoral Dissertation of Engineering (Science/Philosophy)**
(Times, 16 points, Bold)

Title of Master's Thesis /Doctoral Dissertation
(Times, 18 points, Bold)

March (September) 20xx

(Times, 14 points)

by

(Times, 14 points)

Taro Senbaru

(Times, 16 points, Bold)

Area of Study (Option)

Major (Course)

Graduate School of Engineering and Science

University of the Ryukyus

(Times, 16 points, Bold)

(Sample Title page)

**Master's Thesis of Engineering (Science)/
Doctoral Dissertation of Engineering (Science/Philosophy)
(Times, 16 points, Bold)**

**Title of Master's Thesis /Doctoral Dissertation
(Times, 18 points, Bold)**

March (September) 20xx
(Times, 14 points)
by
(Times, 14 points)

**Taro Senbaru
(Times, 16 points, Bold)**

**Area of Study (Option)
Major (Course)
Graduate School of Engineering and Science
University of the Ryukyus
(Times, 16 points, Bold)**

**Supervisor: Prof. Taro Okinawa
(Times, 14 points, Bold)**

(Sample **Reviewing Committee Member's signature**)

Thesis/Dissertation Title:

Name:

We, the undersigned, hereby, declare that we have read this thesis and we have attended the thesis defense and evaluation meeting. Therefore, we certify that, to the best of our knowledge this thesis is satisfactory to the scope and quality as a thesis for the degree of Master/Doctor of Engineering (Science/Philosophy) in Area of Study (Option) under Major (Course), Graduate School of Engineering and Science, University of the Ryukyus.

THESIS/DISSERTATION REVIEW & EVALUATION COMMITTEE MEMBERS

Signature

(Chairman) Printed Name

Signature

(Committee) Printed Name

Signature

(Committee) Printed Name

(Sample of Front cover and Spine)

