



# Degree Completion Guide

Graduate School of Advanced Science and Technology  
(Division of Advanced Science and Technology)

**2022-2023**

JAPAN ADVANCED INSTITUTE OF  
SCIENCE AND TECHNOLOGY

## **JAIST Founding Principle and Education Policy**

Japan Advanced Institute of Science and Technology (JAIST) celebrated its 30th anniversary in October, 2020. Since its establishment, JAIST has made effort to develop excellent human resources and contribution to society through advancing world top-level research achievements in a wide range of the fields of advanced science and technology, and showed new image of graduated school as a leading model of university reforms.

Based on the principle "foster leading human resources who can pioneer a new world through the creation of science and technology", taking advantage of the integrated graduate school, JAIST now welcomes motivated students widely from all over the world and fosters them to become global leaders who hold solid expertise in advanced science and technology with "Resilience and Co-creativity " to lead the new era. JAIST settles this idea as "JAIST Future Vision", which can be the basic of university operations.

In order to involve each one student into "the creation of science and technology", it is necessary to provide a systematic education consisting of the wide range of knowledge and methodology for its practical application. In JAIST, credits required for graduation can be earned from all the fields flexibly and student can obtain wide range of knowledge by taking various fields of classes, regardless of his/her specialty.

The fulfilling curriculum as integrated graduate school will help a lot to research while enrollment and take active roles in society after completion. When graduating, students receive a transcript showing the list of the courses they have taken and their grades. By selecting courses voluntarily, students will be able to fully explain their reason for the selection of courses and their relevance to their career goal to their supervisor at JAIST and future employers.

JAIST has recently changed its goal on education. We put more emphasis on what ability students have obtained than on what they have understood. Reflecting this idea, every course evaluates students' performance in terms of the level of ability acquisition. This idea is also shared in the supervision of students in every laboratory.

We hope every student makes the best use of education opportunities at JAIST through their positive commitment in order to prepare for their bright future.

President

TERANO Minoru

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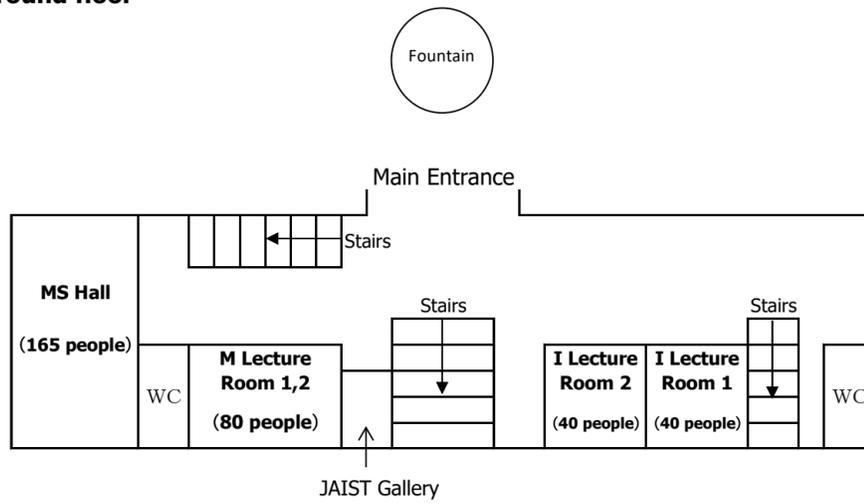
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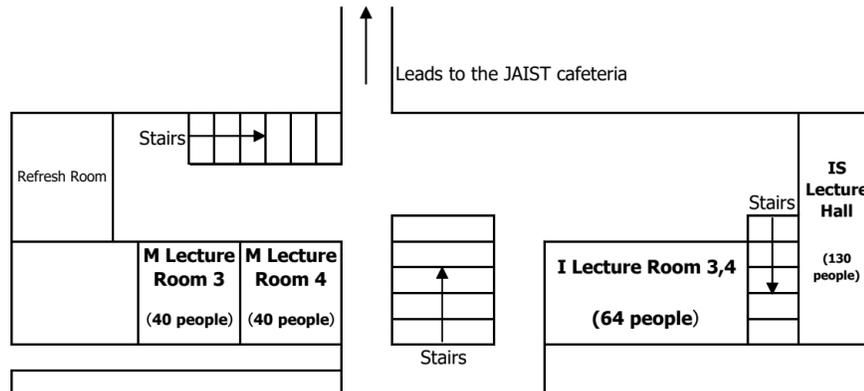
# Lecture room map (JAIST)

## ○IS Lecture Hall, MS Lecture Hall

### Ground floor

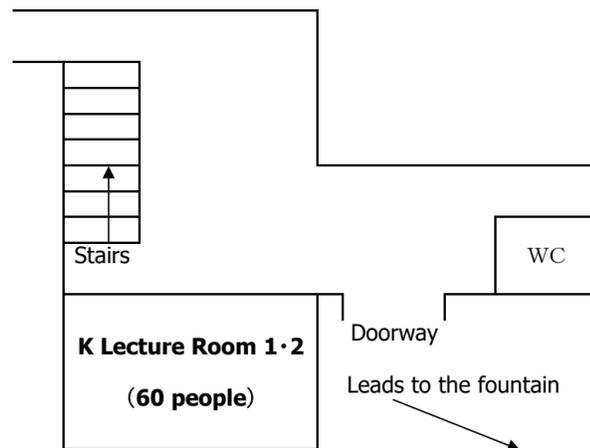


### First floor

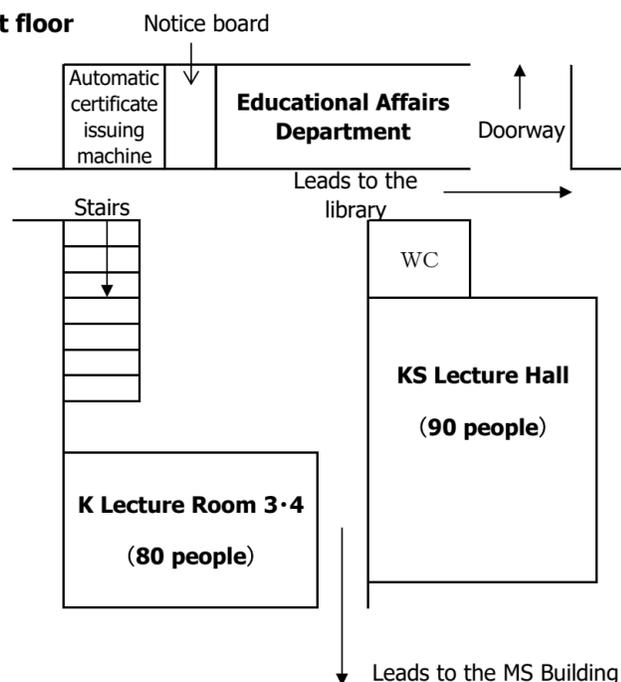


## ○KS Lecture Hall

### Ground floor



### First floor



## **I. Mission, Goals, Human Resource Development, and Policies of JAIST**

### **● Mission of JAIST**

JAIST endeavors to foster leaders capable of contributing to the making of a future world by creation of science and technology, through its most advanced education and research in an ideal academic environment.

### **● Goals of JAIST**

- JAIST develops leaders in society or industry who hold credible expertise in the frontier science and technology, broad perspectives, high level of autonomy and communication skills, through its systematic advanced graduate education.
- JAIST, to contribute to societies with research outcomes, creates a center of excellence for advancement of researches for solving problems of our world and society and develops new fields through a variety of basic researches.
- JAIST fosters active human resources by promoting faculty and student exchanges with leading institute overseas and globalizing its education and research.

### **● Human Resource Development of JAIST**

JAIST develops leaders in a society or industry who hold credible expertise in the frontier science and technology, broad perspective, high level of autonomy and communication skills. In the master's program, JAIST endeavors to fulfill the role of fostering human resources capable of understanding a variety of fundamental theories and applying them to problem solving. In the doctoral program, we aim to fulfill the role of fostering researchers or engineers capable of identifying and solving problems with their global-standard research ability and comprehensive perspective.

### **● Policies of JAIST**

JAIST sets the following policies to advance the education for our students.

## **Diploma Policy (Division of Advanced Science and Technology)**

The Division of Advanced Science and Technology in the Graduate School of Advanced Science and Technology at JAIST sets its educational goal in cultivating innovative talents in advanced science and technology who can take active roles as leaders in society or industrial world with broad vision required in a sustainable society and communication ability in addition to specialization in advanced science and technology.

In the master's program, a master's degree in Knowledge Science, Information Science or Materials Science based on student's main academic fields will be conferred to those who have acquired the abilities listed below and have passed either the Master Thesis Examination and the Final Examination, or the Ph.D. Qualifying Examination after having obtained all the required credits.

### **Abilities to be acquired during the Master's Program**

- Ability to understand fundamental concepts of advanced science and technology in the major field
- Ability to identify and solve problems by the application of specialized knowledge
- Ability to carry out academically and socially valuable research on their own initiative
- Ability to challenge a different field from the major or an unexplored field
- Ability to comprehend diverse cultures and ability to communicate
- High ethical perspectives as a researcher or an engineer

In the doctoral program, a doctoral degree in Knowledge Science, Information Science or Materials Science based on student's main academic fields will be conferred to those who have acquired the abilities listed below in addition to the abilities listed above, produced excellent research achievements in the major field and have passed the Doctoral Dissertation Examination and the Final Examination after having obtained all the required credits.

### **Abilities to be acquired during the Doctoral Program**

- Ability to extensively understand theories and systems of advanced science and technology in the major field
- Ability to design a new and original research and produce world-class research achievements
- Ability to hold a comprehensive view and take leadership in the field of advanced science and technology

### **Main Academic Fields**

**Knowledge Science:** An academic field that integrates knowledge of design methodology, business management, system science and others related to issues of human, organizations or society, proposes attractive solutions to the issues, and contemplate how to materialize the solutions

**Information Science:** An academic field that aims to solve problems for humanity and society, pioneer unexplored fields, and produce new innovative basic theories, basic technologies and applications with regard to information processing and communication that supports the information society

**Materials Science:** An academic field that produce new and innovative materials by aiming at solving problem for humanity and society and pioneering unexplored fields on the basis of physics, chemistry, biology and their relevant science and technology

## **Curriculum Policies (Division of Advanced Science and Technology)**

The Division of Advanced Science and Technology in the Graduate School of Advanced Science and Technology at JAIST carries out lectures and laboratory education corresponding to main academic fields for each degree as shown below, in order to acquire the abilities that are specified in the Diploma Policy.

### **[Lectures]**

- Offered hierarchically and systematically groups of lectures consisting of courses for students from a different major and beginner students (Introductory Courses), basic courses of graduate school (Basic Courses), high-level specialized courses (Technical Courses) and developmental and advanced specialized courses (Intermediate and Advanced Courses). Conducted in either English or Japanese language.
- Set the target of each lecture at acquiring abilities to understand and utilize serialized knowledge.
- Introduce active learning methods positively.
- Carry out strict grading based mainly on examinations.
- Educate students to obtain an ability to conduct group research by utilizing methodologies of knowledge science and an ability to aim at improving themselves based on rubrics.
- Recommend that student take languages courses, liberal arts courses and courses of the other fields actively.

### **[Laboratory Education]**

- Makes students deepen their understanding of basic concepts in their major field through laboratory education.
- Carries out high-quality laboratory education by taking account of each student's talent and study targets and supervising the level of their goal attainment.
- Makes students obtain abilities of problem identification and problem solving with application of their specialized knowledge through methods including individual guidance, small-class education, and collaborative learning.
- Makes students acquire necessary abilities for a series of research process from making a research plan based on review of relevant researches, executing the research by using acquired knowledge and skills, examining research outcomes, to presenting the outcomes.
- Provides research guidance and evaluation from different viewpoints by assigning supervisors from different fields.
- By assigning a research topic of the adjacent or relevant field related to the specialized field or an internship, makes students acquire abilities to carry out research in different field and environment. In addition, provides opportunities to receive guidance from the viewpoints of different field or industry.
- In the laboratory environment abound with diversity in goals, backgrounds, nationalities and the like, aims at improving understanding of diverse cultures and communication ability.
- Through research activities, makes students comprehend their social responsibility and nurture high sense of ethics as a researcher or an engineer.
- In the doctoral program, aims at enhancing abilities of leadership through the opportunities to work as a teaching assistant or a research assistant.
- Conducts evaluation of the level of achievements based on the laboratory education stated above.

## **Main Academic Fields**

Knowledge Science: An academic field that integrates knowledge of design methodology, business management, system science and others related to issues of human, organizations or society, proposes attractive solutions to the issues, and contemplate how to materialize the solutions

Information Science: An academic field that aims to solve problems for humanity and society, pioneer unexplored fields, and produce new innovative basic theories, basic technologies and applications with regard to information processing and communication that supports the information society

Materials Science: An academic field that produce new and innovative materials by aiming at solving problem for humanity and society and pioneering unexplored fields on the basis of physics, chemistry, biology and their relevant science and technology

## **Laboratory Education Policy (Division of Advanced Science and Technology)**

JAIST considers the research education based in the laboratory as important as the coursework in graduate education. Laboratories provide students a versatile educational environment that can enhance their various qualities and serve diverse goals of their study. The laboratory education provides students with abilities necessary for a series of research processes from designing and implementation of research based on acquisition of expert knowledge and survey of relevant researches, to production of research theses, and eventually to presentation of research. It also aims to foster researchers or expert engineers necessitated by society by empowering students' social competencies through the laboratory environment containing diverse goals, backgrounds and nationalities.

### **● Master's program**

In the master's program, in order for students to obtain ability to apply their expert knowledge to problem solving in addition to comprehension of fundamental concepts in the area of advanced science and technology, we carry out one-on-one or small group research guidance in accordance with the need of each student. Simultaneously, we train students to obtain knowledge of diverse cultures, communication skills, and high ethical awareness.

### **● Doctoral program**

In the doctoral program, we provide research guidance on a one-on-one base in order for students to acquire abilities to identify a special issue in a research field without losing a comprehensive viewpoint and to apply scientific solution to it. We foster their ability to achieve excellence in the research processes up to the presentation of research outcomes at international conferences or in academic journals, while respecting and developing their individuality. Simultaneously, we develop their ability to lead advance research projects.

## II .Academic Calendar 2022-2023

【JAIST】

First Semester (April 1 - September 30)	<p>April 1 (Fri) - April 3 (Sun)            April 4 (Mon)            April 2 (Sat)            April 5 (Tue) - April 11 (Mon)            April 12 (Tue) - June 3 (Fri)            June 6 (Mon) - June 8 (Wed)</p> <p>June 9 (Thu)            June 10 (Fri)            June 13 (Mon) - August 1 (Mon)            August 2 (Tue) - August 3 (Wed)            June 24 (Fri)</p> <p>August 4 (Thu) - September 30 (Fri)            August 4 (Thu) - August 31 (Wed)            August 12 (Fri) - August 16 (Tue)            September 22 (Thu)</p>	<p>Spring Break            Entrance Ceremony            Orientation at Tokyo Satellite            Orientation at Ishikawa Campus            Class Term 1-1            Examination Term 1-1</p> <p>Safety Guidance            No Class Day            Class Term 1-2            Examination Term 1-2            Degree Conferment Ceremony</p> <p>Summer Intensive            Summer Break            School Office Closed (Summer Break)            Degree Conferment Ceremony</p>
Second Semester (October 1 - March 31)	<p>October 1 (Sat)            October 3 (Mon)            October 1 (Sat)            October 4 (Tue) - October 11 (Tue)            October 12 (Wed) - December 1 (Thu)            December 2 (Fri) - December 6 (Tue)</p> <p>December 7 (Wed)            December 8 (Thu) - February 7 (Tue) <b>NOTE*</b>            February 8 (Wed) - February 9 (Thu)            December 23 (Fri)            December 24 (Sat) - January 4 (Wed)            December 29 (Thu) - January 3 (Tue)</p> <p>February 10 (Fri) - March 31 (Fri)            March 24 (Fri)</p>	<p>School Office Closed (JAIST Anniversary)            Entrance Ceremony            Orientation at Tokyo Satellite            Orientation at Ishikawa Campus            Class Term 2-1            Examination Term 2-1</p> <p>No Class Day            Class Term 2-2            Examination Term 2-2            Degree Conferment Ceremony            Winter Break            School Office Closed (Winter Break)</p> <p>Winter Intensive            Degree Conferment Ceremony</p>
<div style="border: 1px solid black; padding: 5px; display: inline-block;"> <p><b>NOTE* December 23 follows the Monday schedule.            January 5 follows the Wednesday schedule.</b></p> </div>		

### Period for Registration and Change of Courses at Ishikawa Campus

Terms	Period for Registration and Course Change
Term 1-1	April 12 (Tue) - April 25 (Mon)
Term 1-2	June 13 (Mon) - June 24 (Fri)
Term 2-1	October 12 (Wed) - October 25 (Tue)
Term 2-2	December 8 (Thu) - December 21 (Wed)

**The terms at Tokyo Satellite**

April - June: Term I  
July - September: Term II  
October - December: Term III  
January - March: Term IV

Check the web <<https://www.jaist.ac.jp/satellite/sate/outline/facility/>> for the Tokyo Satellite operating hours since it occasionally varies.

**Period for Registration and Change of Courses at Tokyo Satellite**

<b>Terms</b>	<b>Period for Rregistration and Course Change</b>
Term I	April 12 (Tue) - April 25 (Mon)
	NOTE: April 12 (Tue) - April 18 (Mon) for courses which begin in April
Term II	June 13 (Mon) - June 24 (Fri)
Term III	October 12 (Wed) - October 25 (Tue)
	NOTE: October 12 (Wed) - October 18 (Tue) for courses which begin in October
Term IV	December 8 (Thu) - December 21 (Wed)

### III. Study outline

#### 1 Campus

JAIST's campus is in Nomi City, Ishikawa Prefecture. The program for Working Professionals in Tokyo is offered at Tokyo Satellite (Minato-ku, Tokyo).

#### 2 Programs

The Graduate School of Advanced Science and Technology at JAIST, consists of Division of Advanced Science and Technology and Division of Transdisciplinary Sciences. Division of Advanced Science and Technology offers a doctoral program which is divided into an initial two-year program and a subsequent three-year program. The initial two-year program is called the master's program and the subsequent three-year program is called the doctoral program. This guide describes on Division of Advanced Science and Technology, the guide for Division of Transdisciplinary Sciences specified separately.

#### 3 Academic calendar

JAIST academic calendar shows the dates of classes, vacations, institute-wide activities, course registration periods, and so on. Students must check the academic calendar which is displayed on the notice board next to the automatic certificate issuing machine and is published on JAIST's website (Education → Academic calendar).

#### 4 Semesters and class terms/periods

Semesters and class terms/periods at JAIST are shown in the Table below. Each class is 100-minute long, and a class meets 14 times in one term to complete a course bearing 2 credits. Refer to the syllabus for details of each course. One credit is awarded for the study amounts of 45 hours in self-study periods in addition to class periods (for the Required courses A, one credit is awarded for the study amounts in accordance with the necessary workload for appropriate results as defined by the supervisor). Students are expected to plan their coursework and keep their study record, accordingly using a study/plan record (See the section VI.4.2 for details) under the guidance of their supervisor so that they can have sufficient time for their efficient academic work toward a degree acquisition.

Appendix Table

Location	Terms	Class Periods
Ishikawa	First Semester: Term 1-1, Term 1-2 (8 weeks each) Summer Intensive (August, September) Second Semester: Term 2-1, Term 2-2 (8 weeks each) Winter Intensive (February, March) *The Examination Term is set after the lectures in each term. The examinations of Intensive Courses are basically conducted after finishing 14 lectures.	1st Period 9:00 - 10:40 2nd Period 10:50 - 12:30 3rd Period 13:30 - 15:10 (Tutorial hours) 4th Period 15:20 - 17:00 5th Period 17:10 - 18:50
Tokyo	First Semester: Term I (classes starting in April to June) Term II (classes starting in July to September) Second Semester: Term III (classes starting in October to December) Term IV (classes starting in January to March) * The examinations are basically conducted after finishing 14 lectures.	1st Period 9:20 - 11:00 (Sat, Sun) 2nd Period 11:10 - 12:50 (Sat, Sun) 3rd Period 13:50 - 15:30 (Sat, Sun) 4th Period 15:40 - 17:20 (Sat, Sun) 5th Period 17:30 - 19:10 (Sat, Sun) 6th Period 18:30 - 20:10 (Mon to Fri) 7th Period 20:15 - 21:55 (Mon to Fri) Note: Video streaming classes in Ishikawa follows the Ishikawa class periods.

## **IV. Matters related to tuition fees and enrollment**

### **1 Tuition fees**

Tuition fees are collected separately for the full amount for each semester (first semester: April 1st - September 30th, second semester: October 1st - March 31st), and as a rule are to be paid by bank transfer (see details in *HANDBOOK for Students*). Note that if the tuition fees are revised while in school, the new fees will be applied upon the revision.

### **2 Leaves of absence**

When students are not able to progress in their study for more than two consecutive months due to illness or other special reasons, they may apply for a leave of absence. The maximum period of leave in total for each of the programs, the master's and the doctoral, is 12 months. Please note that as the leave of absence is not counted in the total period required to complete a degree, study progression including course registration and research mentoring will not be recognized during the leave of absence, but there are no restrictions on use of the JAIST library or intra-school email.

The start date of a leave of absence should be the first of each month, and it will not be permitted midway through a month. If you wish to apply for a leave of absence, you must collect an Application for Leave of Absence from the Educational Service Section (hereafter, Kyoumu) and get approval from the supervisors, and submit the application to Kyoumu by the end of the month two months prior to the month in which the leave of absence begins. If leave of absence is due to bad health, you must submit a doctor's statement also.

Please note that if the tuition payment is not completed before the desired leave of absence start date, the application will not be accepted.

If you wish to have a leave of absence midway through either semester, and you submit an application by April 10th (for the first semester) or October 10th (for the second semester), tuition will not be charged for the leave of absence. If the application is made after these dates, the full amount of tuition must be paid before the application is accepted. Check details of tuition fee payment during leaves of absence on the JAIST website (Education → Academic Procedures → Absence and Withdrawal).

### **3 Returning**

You return when the leave of absence ends. If you wish to return to school before the end of the leave of absence, you must collect an Application for Returning at Kyoumu and submit it to Kyoumu by the end of the month two months prior to the month of returning. Returning status starts on the first day of the month.

### **4 Withdrawal**

A date for withdrawal should be the last day of the month, and withdrawal midway through the month is not permitted. Students who wish to withdraw must collect an Application for Withdrawal from Kyoumu and obtain comments from the supervisors, and submit the application to Kyoumu by the end of the month two months prior to the month of withdrawal.

Regardless of the date of withdrawal, if the tuition and other fee payments required by JAIST are not completed, the application will not be accepted.

### **5 Disenrollment (loss of student status)**

Students falling under any one of the following categories will result in the loss of student status:

(1) Those who have spent more than the permitted maximum periods (four years for the master's program, six years for the doctoral program)

\*Students who wish to withdraw must complete the withdrawal procedures.

(2) Those whose leave of absence exceeds the period specified in Paragraph 4, Article 27 of the JAIST School Regulations (two years).

(3) Those who have not paid their entrance fee by the specified date and fall into one of the categories below:

- Students who have not been granted an entrance fee reduction or deferment.

- Students who have not been granted a half entrance fee reduction or deferment.

- Students whose entrance fee reduction or deferment has been revoked.

(4) Those who have neglected to pay their tuition fees and have not paid even at urging.

Note that if course credits have been earned during the period in which the tuition was unpaid for those who fall under either (3) or (4), the credits will also be cancelled.

## **6 Supplemental student status**

Doctoral students who have spent more than three years in the doctoral program may be allowed to keep student status for a maximum period of two years only if they have met all the following requirements:

(1) Have obtained all the required credits for degree completion, except for credits from S601 "Advanced Science and Technology Dissertation".

(2) Have submitted the outline of doctoral dissertation with the necessary research guidance from supervisor by the designated date.

(3) Have been judged by the dean that the students will be able to apply for a degree conferment within two years.

Supplemental student status can start only on April 1, July 1, October 1 or January 1. It cannot start subsequently right after leave of absence. Those who wish to apply for this status must request a form at Kyoumu, consult the supervisor to be given a comment on the form, and submit it to Kyoumu by the end of the month two months prior to the month in which the status begins. This status restricts you to conduct any academic work on campus, thus JAIST does not sponsor you to apply/extend/renew your student visa for the period.

## **7 Name changes**

If you have changed your name, you must submit a Notification of Change of Name with evidential documents attesting to the change (e.g. a new resident's registration) to Kyoumu. After acceptance of the notification, all certificates and documents of JAIST will be issued with your new name. If you wish to continue using the old name at JAIST, notify it to Kyoumu when submitting the notification, and your name will remain unchanged even after the acceptance of your notification. Certificates will be issued only with the name registered in JAIST records.

## V. Educational system

JAIST provides a detailed and unique educational system that adjusts to the ambitions, experiences, and abilities of students with the goal of helping each one realize their career targets.

### 1 Educational programs

JAIST offers five different educational programs that can be chosen according to each individual's career goal. Students choose one of the educational programs below and take courses accordingly. Students in the program for Working Professionals in Tokyo who are in the master's program will be in the M program and those in the doctoral program will be in the 3D program. Therefore, they do not select an educational program.

Regarding selection of the Ma, and 5D programs, an inquiry is conducted after a formal laboratory assignment (three months after enrollment), and selection is determined according to academic grades, English proficiency, reason for application, and other factors.

#### 1.1 Types of educational programs

##### (1) SD program (master's program • doctoral program)

This educational program is designed to identify students with top-level abilities at an early stage and to train scientists who can tackle new research challenges and open up new fields from a global perspective through a consistent doctoral education. Only those who have been admitted through the entrance examination for scholarship students for the SD program can take this program.

SD program students are given guidance by faculty groups organized by specialist area, and aim to complete the master's program in 1.5 years and the doctoral program in 2.5 years, completing the entire program in four years. They may be recommended to change to another educational program if they have low academic performance.

##### (2) 5D program (master's program • doctoral program)

This educational program provides a consistent five-year doctoral education through the master's program and the doctoral program.

##### (3) 3D program (doctoral program)

This educational program provides a three-year doctoral education in the doctoral program.

Points common to both the 5D (doctoral program) and 3D programs (only for Ishikawa Campus students):

Students in the programs are strongly encouraged to participate in research activities at other research institutes in Japan or overseas, and try out long-term advanced internships at companies in accordance with their choice of career paths.

In order to give yourself opportunities to consider your future desired careers, you will choose one of two career tracks after enrollment. The tracks are; type S, for those who wish to become creative scientists who can plan and implement advanced research at education and research institutes, or wish to become university professors; and type E, for those who wish to become advanced specialist engineers who can lead and manage the latest research and development at companies. After you choose a track, you must record it in the Study Plan/Record.

Students have equal opportunities for the Grant System for Off-campus Activity (see *HANDBOOK for Students* for details) and for taking courses.

##### (4) M program (master's program)

This educational program is designed to provide a master's-level education for two years in the master's program to train practical specialist engineers who can play a leading role at companies or in other areas based on specialist knowledge and skill.

##### (5) Ma program (master's program)

This educational program provides a master's education as the same as M program. But it is

designed especially for students who wish to learn properly from the basics or who have changed their major after obtaining their bachelor's degree. Ma program can be completed in from two to three years and the tuition fee would be waived for the period (up to one year) longer than two years.

Students who have selected Ma program can apply for shortening the completion period (minimum two years) only at the time of submitting the research proposal or applying for degree conferment. You cannot cancel the application for shortening once been approved. Note that unless the application for shortening, the expected date on the certificate of expected completion shall be accordance with the study period of Ma program.

## **1.2 Changing educational programs**

Application for changing educational programs may be approved only in the following cases when it is necessary for educational reason. Those who wish to change programs must notify the Kyoumu.

- Changing from the SD program to the 5D program / M program
- Changing from the 5D program to the M program
- Changing from the M program to the 5D program (Application for this change can be accepted anytime till the end of the first year; the end of March for students enrolled in April, and the end of September of the following year for whom in October)
- Changing from the Ma program to the 5D program (Application for this change can be accepted only at the end of the first year; the end of March for students enrolled in April, and the end of September of the following year for whom in October. In advance of this change, an applicant must have submitted "Application Form for Change of Ma Program Completion Period" with choosing "2 years" in "New period for completion" column.

Note that the program will be changed as soon as it is recognized that the SD program or the 5D program cannot be completed within the allotted time in following cases:

- When a student does not submit a research proposal or an application for conferment of degree by the designated submission due date in the master's program
- When a student does not submit a dissertation outline or an application for preliminary defense /conferment of degree by the designated submission due date in the doctoral program

Changing the programs will disqualify the SD program students from receiving SD program scholarships.

## **2 Study Programs**

Several study programs are offered at JAIST. Students can choose one according to your study interests. A certificate of completion will be granted to those who have completed the required program work. For details, see the chapter entitled "Study Programs".

## **3 Innovation Theory and Methodology for Social Competencies**

### **Innovation Theory and Methodology for Creativity**

S101 "Innovation Theory and Methodology for Social Competencies", S102 "Innovation Theory and Methodology for Creativity" in the master's program and S503 "Innovation Theory and Methodology for Total Capability Development" in the doctoral program are required courses. They are designed for students to strengthen human resources and creativity based on knowledge science methodology. For the course details, see the chapter entitled "Courses and Class Schedules" and the courses' syllabi.

## **VI. Matters related to taking courses**

### **1 Degree completion requirements**

JAIST's curriculum, which is based on the university's mission statement, is designed to help students systematically progress from the basics of knowledge science to its cutting-edge frontiers while acquiring fundamental academic skills that will enable them to make significant contributions to the development of state-of-the-art technologies and the resolution of current and future problems faced by society.

It is insufficient for you merely to take lectures with a passive attitude. To acquire abilities that will benefit you in the future, JAIST expects you to actively sow and nurture the seeds of social, organizational, or technical innovation for the next era toward a thorough understanding of advanced science and technology, and social and organizational problems through your learning process.

### **2 Course divisions**

Each course bears a course division which might vary according to the kind of degree students plan to pursue. For example, when a student in the master's program aiming for a degree in Knowledge Science completes I2xx, it will be treated as a Technical course which can be counted for program completion, while a student in the master's program aiming for a degree in Information Science and completes I2xx, it will be a Basic course.

The details of each course divisions are below. Read it through carefully. Check the chapter entitled "Courses and Class Schedules" for more details.

#### **2.1 Common course divisions of the master's program and doctoral program**

##### **Optional course (Opt)**

A course group that contributes to supplementary reinforcement of one's academic work.

- Credits from the courses cannot be counted as completion credits

#### **2.2 Course divisions for the master's program**

##### **1 Global Communication course (GC)**

A course group that contributes to the reinforcement of global languages while giving exposure to different cultures.

- Up to 2 credits can be counted as completion credits

##### **2 Global Liberal Arts course (GLA)**

A course group that contributes to widening one's specialty by giving understanding in a wide range of interdisciplinary fields.

- Up to 4 credits can be counted as completion credits in addition to required 1 credit from S101 "Innovation Theory and Methodology for Social Competencies"

##### **3 Introductory course (Intr)**

A course group that contributes to providing a foundation for one's specialty by giving understanding of the borders of interdisciplinary fields.

<Reinforcement of master's-level specialized foundation>

- Up to 4 credits can be counted as completion credits in addition to required 1 credit from S102 "Innovation Theory and Methodology for Creativity"

##### **4 Basic course (Bsc)**

A course group that contributes to the spiralization of one's specialty by crossing the boundaries of interdisciplinary fields.

<Reinforcement of core knowledge and methodology, etc., in specialized fields>

- 6 credits or more are required as completion credits in addition to one of the following required elective courses:

S201 Science and Technology Thesis (8 credits)

S202 Science and Technology Project Report (2 credits)

S203 Science and Technology Survey for Doctoral Research Plan (2 credits)

## 5 Technical course (Tech)

A course group that promotes advancement of one's specialty by giving an understanding of the development of science technology.

<Establishing ability to understand wide, basic, specialized knowledge and apply it for solving problems>

- Credits from the courses can be counted as completion credits in addition to required 2 credits from S401 "Science and Technology Minor Research Project" or S402 "Science and Technology Internship"

## 2.3 Course divisions for the doctoral program

### 1 Intermediate course (Imd)

A course group that deepens one's specialty by giving an understanding of the development of advanced science technology.

<Course group that promotes reinforcement of doctoral-level specialty application, conducted in Japanese and English>

- Credits from the courses can be counted as completion credits in addition to required 1 credit from S503 "Innovation Theory and Methodology for Total Capability Development" and required 2 credits from elective S501 "Advanced Science and Technology Minor Research Project" or S502 "Advanced Science and Technology Internship"

### 2 Advanced course (Adv)

A course group that promotes the establishment of one's specialty by giving an understanding of the depth of advanced science technology.

<Courses are conducted mainly in English>

<To obtain global advanced study ability and to have a panoramic perspective to discover and resolve problems>

- 4 credits or more are required as completion credits in addition to required 6 credits from S601 "Advanced Science and Technology Dissertation"

## 3 Degree completion requirements

Degree completion requirements are shown below. All the academic activities should be planned with the advice of the assigned supervisor and other advisors. Students are responsible for reviewing their course registration carefully to satisfy the requirements of degree completion.

### 3.1.1 Degree completion requirements of the master's program

- (1) In principle, students are required to spend a minimum of two years in the master's program. If a prior application for fast-track degree completion is made and granted, and the plan for degree completion in a shorter period (one year minimum) is carried out with the academic grades deemed sufficiently high by faculty, in according to Article 36 of the JAIST School Regulations, one will be able to finish in less than two years. Information on fast-track degree completion will be provided at enrollment.
- (2) Students must submit a master's thesis or a research project report after receiving sufficient research guidance, and pass the defense on the thesis and the final examination. Those who select a Survey for Doctoral Research Plan must submit a report of Survey for Doctoral Research Plan, and pass the Ph.D. Qualifying Examination.
- (3) Students must satisfy the requirements for course credits shown in both of the following Appendix Tables 1 and 2.

Appendix Table1 Credit acquisition requirements according to Major Research Project

Major research projects	Required credits		Elective credits (See Appendix Table 2)	Total number of credits
	Required courses A*	Required courses B **		
Master's Thesis Project	S201 Science and Technology Thesis (8 credits)	S101 Innovation Theory and Methodology for Social Competencies (1 credit)	20 credits or more	32 credits or more
Research Project	S202 Science and Technology Project Report (2 credits)	S102 Innovation Theory and Methodology for Creativity (1 credit)	26 credits or more	
Survey for Doctoral Research Plan	S203 Science and Technology Survey for Doctoral Research Plan (2 credits)	S401 Science and Technology Minor Research Project OR S402 Science and Technology Internship } (2 credits)	28 credits or more	34 credits or more

\*A supervisor will give guidance on a major research project.

\*\* S101 and S102 are courses designed to strengthening the human resource and creativity. Advisers will give guidance on a minor research project or an internship. (Same in Appendix Table 2)

Appendix Table 2 Credit acquisition requirements according to course divisions

Course Division	Required courses A*	Required courses B**	Counted as elective credits in Appendix Table 1	Total number of credits
GC course (Global Communication)	—	—	Up to 2 credits can be counted	At least 32 or 34 credits according to Appendix Table 1
GLA course (Global Liberal Arts)	—	1 credit (S101)	Up to 4 credits excluding Required courses B can be counted	
Intr course (Introductory)	—	1 credit (S102)	Up to 4 credits excluding Required courses B can be counted	
Bsc course (Basic)	8 or 2 credits (S201,S202,S203)	—	6 credits or more excluding Required courses A must be obtained	
Tech course (Technical)	—	2 credits (S401,S402)	Possible to count (No maximum)	

Note: There are courses with special completion conditions which may not be possible to be counted as degree completion requirements. For details, check the note for the course list in the chapter entitled "Courses and Class Schedules".

**<Example>**

A case of a master student pursuing a degree in Knowledge Science (with a master's thesis at the Ishikawa Campus)

- 1 Global Communication course
  - E211 Writing Research (2 credits)

## 2 Global Liberal Arts course

- S101 Innovation Theory and Methodology for Social Competencies / Required course B (1 credit)
- L221 Ethical Issues in Science (2 credits)

## 3 Introductory courses

- S102 Innovation Theory and Methodology for Creativity / Required course B (1 credit)
- K111 Introduction to Management (2 credits)
- I114 Fundamental Mathematics for Information Science (2 credits)

## 4 Basic courses

- S201 Science and Technology Thesis / Required course A (8 credits)
- K213 Methodology for Systems Science (2 credits)
- K214 Methodology for Knowledge Media (2 credits)
- K236 Basis of Data Analytics (2 credits)

## 5 Technical courses

- S401 Science and Technology Minor Research Project / Required course B (2 credits)
- K411 Theory of Knowledge Management (2 credits)
- K413 Comparative Study of Knowledge Institutions (2 credits)
- I235 Game Informatics (2 credits)

Total 32 credits

### **3.1.2 Progression within JAIST: internal admission requirements for 5D program students**

In order to advance to the doctoral program as 5D students, in addition to the degree completion requirements described in 3.1.1 above, the following requirement must also be met.

- 18 credits (9 courses) or more must be obtained from the Introductory courses, the Basic courses, and the Technical courses (excluding Required courses). Only 2 credits (1 course) from the Introductory courses can be included in the 18 credits (9 courses).

### **3.2 Degree completion requirements for the doctoral program**

- (1) In principle, to be eligible for a doctoral degree from JAIST, students are required to spend a minimum of five years in a graduate institute (including the time spent in the master's program). If an application for fast-track degree completion is made by the specified time, and it is recognized at a faculty meeting that there are excellent research achievements, one will be able to complete a doctoral program in a shorter time after spending three years (including the time spent in the master's program) in according to Article 37 of the JAIST School Regulations. See the section VIII.2.1 for details on fast-track degree completion.
- (2) Students must submit a doctoral dissertation after receiving sufficient research guidance, and pass the defense on the dissertation and the final examinations.
- (3) Students must satisfy the requirements for course credits shown in the following Appendix Table. Note that credits earned or evaluated while in the master's program at JAIST cannot be counted toward requirements for the doctoral degree completion except for the credits recognized by transfer credit evaluation (details are explained in the section 7 below). Even if you obtain these credits in the doctoral program, they're uncountable for degree completion.

Appendix Table Credit acquisition requirements according to course division

Course Division	Required credits (9 credits)		Elective credits (11 credits or more)	Total number of credits
	Required courses A*	Required courses B**		
Imd course (Intermediate)	—	S503 Innovation Theory and Methodology for Total Capability Development (1 credit)  S501 Advanced Science and Technology Minor Research Project OR S502 Advanced Science and Technology Internship } (2 credits)	Possible to count	20 credits or more
Adv course (Advanced)	S601 Advanced Science and Technology Dissertation (6 credits)	—	4 credits or more excluding the required courses A must be obtained	

\*A supervisor will give guidance on a dissertation.

\*\*S503 is a course designed to strengthen the human resource and creativity. Advisors will give guidance on a minor research project and an internship.

Note: There are courses with special completion conditions which may not be possible to be counted as degree completion requirements. For details, check the note for the course list in the chapter entitled "Courses and Class Schedules".

### <Example>

A case of a doctoral student pursuing a degree in Materials Science

#### 1 Intermediate course

- S503 Innovation Theory and Methodology for Total Capability Development / Required courses B (1 credit)
- S501 Advanced Science and Technology Minor Research Project / Required courses B (2 credits)
- K213 Methodology for Systems Science (2 credits)
- I212 Analysis for Information Science (2 credits)

#### 2 Advanced course

- S601 Advanced Science and Technology Dissertation / Required courses A (6 credits)
- M617 Molecular and Functionality Design of Polymers (2 credits)
- M618 Materials Design (2 credits)
- M619 Materials Morphology (2 credits)
- M622 Advanced Biomolecular Science (2 credits)

Total 21 credits

## 4 Course-related procedures

### 4.1 Gakumu System and course syllabi

#### 4.1.1 Gakumu System (Academic Affairs System)

JAIST uses the Gakumu System for all procedures related to course registration, grade checking, and so on. Make sure that you fully understand how to use the system and that do not have any

problems with registration or other actions. If there are any points that you do not understand after reading the manual, contact the Kyoumu.

[Logging in to the Gakumu System]

<JAIST top page → Education → Taking Courses → Gakumu System (Academic Affairs System)>

Note that the user ID for login is the same one assigned at enrollment, and the password is the same as for JAIST Mail.

#### **4.1.2 Syllabi**

Syllabi can be viewed on the Gakumu System and on the JAIST website (Education → Taking Courses→ Syllabi). Copies of the syllabus booklet are not available.

### **4.2 Study Plan/Record and course registration**

#### **4.2.1 Study Plan/Record**

The Study Plan/Record refers to the plans and records of academic work from student's enrollment to completion. You are expected to record the details of guidance from supervisors for later reviewing of your academic work. The entries should be checked carefully and be kept up to date. The Study Plan/Record is managed entirely through the Portfolio System. Check the section entitled "Study Plan/Record" (JAIST website → Education → Taking Courses→ Study Plan/Record) for details.

#### **4.2.2 Course registration**

Plan your course registration properly by checking the class schedule and the course syllabi carefully. Neither registration of two courses which have overlapping schedules (even if only partially), nor registration of courses from which you have obtained credits will be allowed. Note that the courses earned the credits after enrollment and with the same code but provided in different languages (e.g. K211 and K211E) are regarded just as the same.

Ishikawa Campus students must take courses held at the Ishikawa Campus, and students in the program for Working Professionals in Tokyo must take courses held at the Tokyo Satellite. You must also register online for non-credit courses in order to attend them.

Make course registration through the Gakumu System. Check the system manual for how to register for courses online (JAIST top page → Education → Taking Courses → Gakumu System (Academic Affairs System) → student manual → Course Registration/Grades).

All the academic activities should be planned with the advice of your supervisor. Register online for courses through the Gakumu System during the designated period for each term after a consultation with your supervisor. You can add, change, and cancel courses freely during the designated registration period, however once the registration period ends, no course can be added/removed without exception. You are responsible for reviewing your registration carefully, correcting any mistakes and making sure the course registration is properly done. Confirm the course registration period for each term on the academic calendar.

Notification of intensive courses and other irregular courses will be made to students once the schedules have been set.

#### **4.2.3 Maximum number of credits in course registration credits**

At JAIST, an approximate maximum number of credits in course registration is set as shown below in order to ensure the proper number of hours for academic work related to the registered courses. The following maximum numbers do not limit your course registration, but you are recommended to plan your course registration based on this maximum. This is only applicable to Ishikawa Campus students.

(1) Approximate maximum number of credits in course registration

10 credits for each term

(2) Target courses

All courses except for the following:

- Required courses (Required courses A and B)

- Courses offered by Global Communication Center
- Summer and winter intensive courses

## **5 Examinations, grade assessments, etc.**

- (1) A final exam will generally be given to complete a course. When exams are difficult to be given, research reports or similar tasks will be required for grade assessment.
- (2) Grades are assessed by the result of a final examination and student's achievement using a 100 point scale with 60 points or higher being considered "Passing", and 59 points or less being considered "Failing" based on the view point, method, and criteria listed in the syllabus. Courses which are difficult to score with points will be assessed as either "Pass" or "Fail". The specified credits will be awarded to those who receive a "Passing" evaluation.
- (3) Credits that have already been obtained cannot be cancelled.
- (4) Grades can be confirmed on the Gakumu System around two weeks after the end of each term for Ishikawa Campus students, and once notification for grade reports has been received from Kyoumu for students in the program for Working Professionals in Tokyo. Contact Kyoumu for any questions regarding grade assessments.
- (5) If there is any doubt about the grade assessments, confirm it with the instructor of the course within 14 days (excluding holidays) from the date the grade was disclosed. If you still have an objection after receiving an explanation from the instructor, you may file an objection within 14 days (excluding holidays) from the date you received the explanation.
- (6) Please contact Kyoumu for the procedure for filing an objection. If there are any improprieties related to taking courses or examinations, all credits for that semester will be withdrawn.
- (7) JAIST may calculate an objective academic performance index based on (1) and (2) so that it might be used for certain procedures that JAIST deems necessary.

## **6 Course evaluations**

To help improve class quality, JAIST asks you to provide an evaluation for each course you have attended at the end of the course. The results are notified to the course instructors after grades are reported.

## **7 Recognition of credits obtained prior to admission**

Credits obtained prior to admission can be recognized as credits obtained at JASIT by credits transfer. If you wish to apply for credits transfer, obtain approval from your supervisor and submit an application form "Request for Transfer Credit Evaluation" to Kyoumu within three weeks of enrollment. Download the application form from the JAIST website (JAIST top page → Education → Academic Procedures → Request for Transfer Credit). To transfer credits obtained at other graduate institutes, the official transcript and syllabi for the courses must be submitted as well. The result of application for credit transfer will turn up on the Gakumu system around two months after matriculation, you are responsible to confirm it. It is not allowed to change or withdraw any approved application. The grade of the transferred course is recorded as "T" (Transferred), however by taking the same course at JAIST after enrollment, the grade will be changed into numerical grade. All credits will be counted toward the degree completion requirements.

Check the following details.

- (1) Credits obtained at other graduate institutes

The maximum number of credits that can be transferred is:

- up to 8 credits for the KS/IS/MS courses (Kxxx/Ixxx/Mxxx) in the master's program
- up to 8 credits for the KS/IS/MS courses except for those from the K1xx/I1xx/M1xx courses in the doctoral program

- (2) Credits obtained in JAIST master's program

To transfer credits to the doctoral program, master's program students must have a minimum of 10 credits. Students who have more than 10 credits may transfer one credit for each credit in excess of 10 credits.

For example, 1 credit in the case of 11 credits, 2 credits in the case of 12 credits, up to a maximum of 8 credits.

Credits can come from KS/IS/MS courses. Credits obtained from KS/IS/MS 1xx level courses cannot be transferred.

Credits from KS/IS/MS courses obtained in JAIST master's program, which no longer offered at the application time due to consolidations, may be transferred according to the new curriculum.

(3) Credits obtained as a JAIST non-degree seeking student.

All credits of the courses successfully obtained in the year you enter as a degree seeking student will be recognized in the master's program.

All credits (except for those from the K1xx/I1xx/M1xx courses) which match the courses offered in the program of the year you enter as a degree seeking student will be recognized in the doctoral program.

(4) Other

Please contact Kyoumu.

**8 Taking courses at other graduate institutes through the course interchange agreement**

To promote exchange and cooperation with the graduate institutes listed in the Appendix Table (hereafter referred to as "Partner Institutes") and to enhance our educational content, JAIST has implemented a course interchange agreement whereby each other's courses can be taken by students. After checking the syllabi of our Partner Institutes, students who wish to take courses there should discuss with your supervisor and follow the procedures. When applying, you must confirm the class schedule to select courses that you can attend. For the first six months after enrollment, courses at JAIST have priority and you are not allowed to take courses at the partner institutes.

(1) Application fees, admission fees, and tuition fees

Students will be classified as "non-degree seeking students from a partner institute" and thus will not have to pay any fees for application, admission, or tuition except the tuition fees for the School of Graduate Studies at the Open University of Japan.

(2) Courses and credits

Courses that you can take at Partner Institutes (except the Open University of Japan) must be ones that can be beneficial for your research and that do not cover topics in the courses offered at JAIST. See the Appendix Table below. During your enrollment at JAIST, you can take up to five courses, a maximum of 10 credits including the credits recognized at the section 7.

Permission for taking courses and the way JAIST will handle the obtained credits are determined at a faculty meeting after receiving your application. Credits obtained from the courses taken at the Open University of Japan will, in principle, only be recognized as credits from Optional/Global Communication/Global Liberal Arts courses.

(3) Application procedure

If you wish to take courses at a Partner Institute, consult with your supervisor and then carry out the procedure within the specified period. The class schedules, syllabi, and procedures for Partner Institutes will be notified once available.

Appendix Table

Partner Institutes	Courses available
Graduate School of Natural Science and Technology, Kanazawa University	Courses taught by full-time faculty members of Partner Institutes. (Laboratory work, practices, exercises, research projects, etc. are not included.) Only for master's students.
Graduate School of Engineering, Kanazawa Institute of Technology	
Graduate School of Arts and Sciences, the Open University of Japan	All the graduate school courses Only for master's students.
School of Multidisciplinary Sciences, the Graduate University for Advanced Studies	Courses announced by Kyoumu

## **VII. Matters related to study and research supervision**

### **1 Study and research supervision**

JAIST has used a supervisory system whereby, in addition to a research theme related to a major field of study (Major Research Project), you are required to take on a secondary research theme (Minor Research Project) to obtain some fundamental concepts, knowledge, and abilities from different research fields from your major field.

Furthermore, you can choose to study at other educational or research institutes in Japan or overseas as a part of a major research project, and undertake internships at companies in place of a minor research project, helping you create a career that allows your specialist skills to benefit society.

#### **1.1 Major research projects**

A major research project is a research project based on the research topic shared with the supervisor and students pursue by receiving guidance from the supervisor and gain research achievements. S201 "Science and Technology Thesis" (8 credits), S202 "Science and Technology Project Report" (2 credits) or S203 "Science and Technology Survey for Doctoral Research Plan" (2 credits) which are required elective courses in the master's program, S601 "Advanced Science and Technology Dissertation" (6 credits) which is a required course in the doctoral program.

Only SD program and 5D program students can select S203 "Science and Technology Survey for Doctoral Research Plan". Thus, students in the Working Professionals program in Tokyo cannot select S203 "Science and Technology Survey for Doctoral Research Plan".

#### **1.2 Minor research projects**

In a minor research project, research is conducted under guidance from an advisor to acquire basic concepts, knowledge, abilities, etc., of neighboring or related fields different from the major research project, which will give students an opportunity to broaden their viewpoint. A minor research project is called S401 "Science and Technology Minor Research Project" (2 credits), a required elective course in the master's program, and S501 "Advanced Science and Technology Minor Research Project" (2 credits), a required elective course in the doctoral program.

#### **1.3 Internship**

An internship is a research activity which can be recognized as a 2 credit course substituted for a minor research project. Students who wish to acquire practical research development ability in an industry can select S402 "Science and Technology Internship" (2 credits), a required elective course in the master's program and S502 "Advanced Science and Technology Internship" (2 credits), a required elective course in the doctoral program.

Students must select either a minor research project or an internship during the specified period. Students in the Working Professionals program in Tokyo cannot choose an internship.

### **2 Multiple supervisory system**

JAIST has a multiple supervisory system in which one student has three faculty members assigned so that students can receive comprehensive supervision and advice for both academic work and daily life in general with various issues students might face. JAIST faculty members are here to help you to develop characteristics that suit the ideal person JAIST strives to educate.

The system uses a supervisor, a second supervisor, and an advisor for Minor Research Project/Internship. Each faculty member plays the following roles. The period of determining each supervisor will be explained later.

#### **(1) Supervisor**

- (a) Plays the main role in supervising a students' academic work and research.
- (b) Provides supervision for the research topic (Major Research Project) related to the student's research field, and for writing a thesis/dissertation.
- (c) Provides guidance for the student's life at the university, and for their career path and career formation.

- (d) Help how to resolve various problems the student may face through collaboration with a second supervisor and other related parties.
- (2) Second supervisor
  - (a) Provides guidance for a student's academic work and research, and gives advice from a different perspective than the supervisor.
  - (b) Provides guidance and advice for the student's life at the university, and for their career path and career formation from a different perspective than the supervisor.
  - (c) Support supervisor to resolve various problems the student may face when necessary.
- (3) Advisor for Minor Research Project/Internship
  - (a) Faculty member from a related field but different from the major research theme that provides supervision for a secondary research topic (minor research project or internship).
  - (b) Provides advice for various academic issues the student may have from a different perspective than the supervisor and second supervisor (including liaising with the internship location).

### **3 Research guidance in the master's program**

Unless otherwise noted, the following items are the same for the Ishikawa Campus, the program for Working Professionals in Tokyo, and all Educational Programs.

#### **3.1 Temporary lab assignments and formal lab assignments**

All students are temporarily assigned to a laboratory upon enrollment (temporary assignment). You will be formally assigned to a lab (formal lab assignment) three months after that. During the first three months, you will be encouraged to visit labs of interest and to take courses to decide which lab you wish to join.

The procedure for applying for a formal lab assignment will be notified two months after enrollment. For students in the SD program, it is possible to receive a formal lab assignment to their desired laboratory immediately upon enrollment.

Also, all students will be asked to confirm the type of degree to pursue at submission of a form of Inquiry on Formal Lab Assignment together.

Change of the pursuing type of degree after the formal lab assignment determined can be granted by notifying Kyoumu of that by March in the first year before submitting a research proposal. The second supervisor will be assigned in the next month of the formal lab assignment.

If you wish to change to another laboratory for some reason after receiving a formal lab assignment, you must contact Kyoumu.

#### **3.2 Major research project**

- (1) In the master's program, students can choose to work on writing a thesis (Master's Thesis Project), or conducting a research (Research Project) or conducting a survey (Survey for Doctoral Research Plan) to complete the program. In order to choose Survey for Doctoral Research Plan you must be in the SD or 5D program. You must notify Kyoumu your intention at the same time you submit a form for choosing an educational program after the formal lab assignment. See the section 3.5 below for details regarding the Ph.D. Qualifying Examination for those who select a Survey for Doctoral Research Plan.

The selection of either a thesis, research project or Survey must be made under guidance of the supervisor and a research proposal must be submitted before the submission deadline shown below to Kyoumu. If the submission of a research proposal is delayed, completion will be delayed.

- (2) Submission deadlines for research proposal

The following are the submission deadlines for each educational program.

M and 5D: End of the first year (the end of March for students who enrolled in April, and end of September for students who enrolled in October)

Ma: One year before the planned date of completion (2 years and 3 months, 2 years and 6 months, 2 years and 9 months, or 3 years after enrollment)

SD: Within six months after enrollment (End of September of the first year for students who enrolled in April, and end of March of the first year for students who enrolled in October)

For students who use the extended study period for completion, it should be submitted at least one year prior to the planned date of completion.

(3) Submission requirements for research proposal

Students at Ishikawa Campus must meet all of the following requirements.

- (i) Completion of S101 "Innovation Theory and Methodology for Social Competencies" and S102 "Innovation Theory and Methodology for Creativity"
- (ii) 6 credits (3 courses) or more obtained from the Basic courses.
- (iii) 10 credits (5 courses) or more including (ii) obtained except for those from the Required courses B and the Optional courses.
- (iv) The research plan should have sufficient contents.

Students in the program for Working Professionals in Tokyo must meet all of the following requirements.

- (i) 6 credits (3 courses) or more obtained from the Basic courses.
- (ii) 10 credits (5 courses) or more including (i) obtained except for those from the Required courses B and the Optional courses.
- (iii) The research plan should have sufficient contents.

(4) Time for beginning research

You can formally begin a major research project after your research proposal is accepted and approved by your three advisers.

(5) Research period

At least one year (seven months for those who select the Survey for Doctoral Research Plan) is required to spend to complete a major research project. Therefore, if the research proposal cannot be submitted by the deadline mentioned in the above (2), it will not be possible to complete the program within the standard completion period for master's/doctoral program.

(6) Notes

- As you must fulfill the requirement in (3) above before submission of a research proposal, you must check as early enough as possible and see whether the requirements are met. In addition, keep in mind that an advisor for Minor Research Project/Internship must be determined before you submit a research proposal (does not apply to the SD program students).
- Bibliographic research related to the research project is required for writing a research proposal, and therefore, you are strongly encouraged to find a research topic as early as possible and start collecting related literature to read while consulting with your supervisor.
- If you wish to change from writing a master's thesis to a research project after submitting a research proposal, contact Kyoumu to confirm the necessary procedure. Take it considered the change may cause the delay of your graduation from the standard in this case.
- Students in Ishikawa campus who selected a master's thesis project or a research project will give a presentation and receive the evaluation at Mid-term presentation for master's program students held in the middle of their second year. Details for Mid-term presentation will be notified separately.

### **3.3 Minor research project**

(1) Time for beginning research

Students enrolled in April will be asked to submit names of their choice for the advisor for Minor Research Project/Internship in July and the advisor will be determined in October. You must start a minor research project by early December. Submit a research title to Kyoumu within one month of starting after consulting with the advisor. For students enrolled in October, the schedule is basically shifted by six months.

(2) Research period

The standard research period for a minor research project is two months. As it requires to be accredited before application for conferment of degree (for those who select the Survey for Doctoral Research Plan, before the Ph.D. Qualifying Examination), achievements as of the end of the minor research project must be submitted to the advisor for Minor Research Project and Kyoumu one month prior to application for conferment of degree (for those who select the Survey for Doctoral Research Plan, one month prior to the Ph.D. Qualifying Examination).

### (3) Notes

It is also possible to conduct a minor research project as group work and receive guidance as a group or as individuals (group minor research). The following are the two cases.

\*A student recruits several other students with the same interests and finds an advisor for Minor Research Project/Internship.

\*An advisor proposes a group work topic for a minor research project and recruits members. Students earn credits after the advisor for Minor Research Project evaluates the reports written by each individual member. An additional report written as a group might be requested.

### 3.4 Internship

- (1) Internships generally include high-level research and study at a company. Note that the duration of an internship with unit of accreditation, which means to obtain credits by internship instead of minor research, must be approximately more than two weeks at a company/Institute, to add-up the durations with a few Internships cannot be approved .
- (2) If you wish to obtain credits by an internship, consult with your supervisor, submit "Application for Science and Technology Internship" to Kyoumu at least 2 weeks prior to the first day when you intend to start internship and determine an advisor for Internship. You must also contact the Career Support Section for procedures beforehand. Note that if you apply after the deadline or if there is a deficiency in the procedure, your application for unit of accreditation will be rejected.
- (3) Since all the internship(s) must be accredited before application for conferment of degree (for those who select the Survey for Doctoral Research Plan, before the Ph.D. Qualifying Examination), complete it and submit achievement reports to the advisor for internship and Kyoumu one month prior to application for conferment of degree (for those who select the Survey for Doctoral Research Plan, one month prior to the Ph.D. Qualifying Examination).

### 3.5 Ph.D. Qualifying Examination (QE)

If you wish to select a Survey for Doctoral Research Plan, you must plan a doctoral research for the doctoral program, prepare and conduct a survey, and take the Ph.D. Qualifying Examination. You are expected to aspire to be a highly effective researcher and to exercise advanced research skills with firm fundamental knowledge acquired through a consistent five-year doctoral education. The following are the guidelines for the Ph.D. Qualifying Examination.

- (1) The preliminary examination and the Internal Entrance Examination for Doctoral Program  
You must have submitted an application for the Ph.D. Qualifying Examination with approval of your supervisor and taken a preliminary exam by the time of Ph.D. Qualifying Examination. In addition, you need to apply for the Internal Entrance Examination for Doctoral Program in designated period to take its exam. The details for the Internal Entrance Examination for Doctoral Program are available on the web (Education > [Application Guide for Internal Entrance Examination for Doctoral Program at JAIST] ).
- (2) The final examination and requirements  
Those who have passed the preliminary exam must take the final examination (Ph.D. Qualifying Examination) which will be conducted twice a year in April and October (students enrolled in April must take the exam 18 months later in October in the second year, those enrolled in October, take the exam in April in the second year). You must submit "Survey for Doctoral Research Plan" to the Educational Service Section by the designated date after obtaining the approval of your supervisor and distribute it to the examination committee including your supervisor. The committee members shall be notified separately in conjunction with the examination schedule. The exam will test fundamental understanding and ability for a doctoral research, and English proficiency, consists of two phases; Written examination - not open to public - testing of expertise and competence, and Oral Presentation/examination - open to public - screening the recognition of background, objections, and prospects of studies related to the field of doctoral dissertation research and the ability to set up assignments and promote research. You must earn 32 credits or more excluding S203 "Science and Technology Survey for Doctoral Research" and submit a report of the Survey for Doctoral Research Plan to your supervisor and Kyoumu before the final

exam.

If you decide not to continue on to the doctoral program after passing the final examination, your educational program will be changed to the M program.

If you fail in the examination, you can select one of the following.

A. To take the exam again (the second time) in six months after the first examination.

This means the master's program cannot be completed within two years (the standard completion period) and the program will be changed from the 5D program to the M program.

B. To change from taking the Ph.D. qualifying exam to conducting a research project.

If you pass an oral defense for a project report and the exam in February (for those enrolled in April), it may be possible to complete the master's program in two years and continue on to the doctoral program at JAIST. You remain in the 5D program.

(3) Changing from Survey for Doctoral Research Plan to Master's Thesis Project or Research Project

If you decide not to pursue the Ph.D. qualifying exam and wish to finish the program in two years, you can choose to work on a thesis or a research instead of a survey following the instructions below.

A. Before submission of a research proposal (within 12 months after enrollment)

You can choose either Master's Thesis Project or Research Project and have to submit a proposal before the designated submission deadline.

B. It is possible to change to Research Project after submitting a research proposal and before the preliminary exam (before October in the second year for students enrolled in April)

C. When failed in the final exam, it is possible to change to Research Project.

Students who wish for B or C must confirm the necessary procedures with Kyoumu. You will be able to remain in the 5D program if you complete the master's program in two years even after changing to Research Project.

### 3.6 Degree conferment schedule for the master's program

The standard schedule for those enrolled in April to complete the program in two years is below. For students enrolled in October, the schedule is shifted by six months. The schedule shows approximate period for some main items. You must check the detailed information in other pages of this guide and other announcements and notifications made by JAIST.

#### ○ For students selected Master's Thesis Project/Research Project

Month	First Year	Second Year
April	- Temporary lab assignment - Take both courses in Term 1-1/Term I: S201 Innovation Theory and Methodology for Social Competencies S202 Innovation Theory and Methodology for Creativity	
May	- Laboratory inquiry/Degree inquiry	
June	- Formal lab assignment - Educational program (Ma, 5D) inquiry (Ishikawa students only)	
July	- Determination of Second Supervisor - Determination of educational program (Ma, 5D) (Ishikawa students only) - Minor research inquiry	
August		
September		- Mid-term presentation
October	- Determination of Advisor for Minor Research Project/Internship - Start Minor Research Project (By early December) and complete accreditation before degree application so that submit the achievement by late December in 2nd Year.	
November		
December		
January		- Submit an application for conferment of degree
February		- Submit master's thesis/research project report - Defense of thesis/project report
March	- Submit a research proposal	- Degree conferment

#### [Main tasks and time by completion time]

	March completion	June completion	September completion	December completion
Submission of research proposal	By the end of March of the previous year	By the end of June of the previous year	By the end of September of the previous year	By the end of December of the previous year
Minor research project or internship	Accreditation before application for conferment of degree (The achievement must be submitted one month prior to application for conferment of degree)			
Submission of application for conferment of degree	Late January of the 2nd year	Late April of the 2nd year	Late June of the 2nd year	Late October of the 2nd year
Submission of master's thesis/research project report	Early February	Early May	Early August	Early November
Thesis/report defense	February	May	August	November
Conferment of degree	March	June	September	December

Note: SD program students can complete only in September. March/June completion is possible for fast-track degree completion.

○ **For students selected Survey for Doctoral Research Plan**

Month	First Year	Second Year
April	- Temporary lab assignment - Take both courses in Term 1-1/Term I: S201 Innovation Theory and Methodology for Social Competencies S202 Innovation Theory and Methodology for Creativity	
May	- Laboratory inquiry/Degree inquiry	
June	- Formal lab assignment - Educational program (Ma, 5D) inquiry (Ishikawa students only): Select 5D Notify selection of Survey for Doctoral Research Plan	
July	- Determination of second supervisor - Determination of educational program (5D) (Ishikawa students only) - Minor research inquiry	- Submission of application for Ph.D. Qualifying Examination - Application for the Internal Entrance Examination for Doctoral Program
August		- Preliminary examination of Ph.D. Qualifying Examination - Internal Entrance Examination for Doctoral Program
September		
October	- Determination of Advisor for Minor Research Project/Internship - Start Minor Research Project (By early December) and complete accreditation before Ph.D. qualifying examination so that submit the achievement by late August in 2nd Year.	- Submit a report of Survey for Doctoral Research Plan - Ph.D. Qualifying Examination
November		
December		
January		- Submit an application for degree conferment
February		
March	- Submit a research proposal	- Conferment of degree

**[Main tasks and time by completion time]**

	March completion	September completion
Submission of research proposal	By the end of March of the previous year	By the end of September of the previous year
Minor research projects or Internship	Accreditation before the Ph.D. Qualifying Examination (The achievement must be submitted one month prior to Ph.D. Qualifying Examination)	
Preliminary examination	Complete together with the Internal Entrance Examination for Doctoral Program	
Submission of a report of Survey for Doctoral Research Plan report	Early October	Early April
Ph.D. Qualifying Examination	October	April
Submission of application for conferment of degree	Late January	Late June
Conferment of degree	March	September

Note: SD program students can complete only in September.

## **4 Research guidance for the doctoral program**

Unless otherwise noted, the following items are the same for the Ishikawa Campus, the program for Working Professionals in Tokyo, and all Educational Programs.

### **4.1 Formal lab assignment**

Students in the 5D and SD programs will be assigned to the laboratory which they were assigned in the master's program. The 3D program students will be assigned upon enrollment to the laboratory after consultation with the proposed supervisor prior to enrollment.

Also, new students will be asked to confirm the pursuing type of degree at matriculation. Change of the degree type after the enrollment can be granted by notifying Kyoumu of that by March in the first year before submitting a research proposal.

The second supervisor will be determined in the month of enrollment.

If you wish to change to another laboratory after the formal lab assignment, contact Kyoumu.

### **4.2 Major research project**

(1) After consulting with the supervisor, students must submit a research proposal for a doctoral dissertation to Kyoumu by the specified deadline mentioned below.

(2) Submission deadlines for research proposal

3D/5D program: Within one year of enrollment in the doctoral program.

SD program: Within six months of enrollment in the doctoral program.

The above submission deadlines do not apply to students who have extended study period for completion, but it is recommended they submit a research proposal as early as possible to make sure of completion within the designated period.

(3) Submission requirements for research proposal

The research plan have sufficient contents.

(4) Time for beginning research

Research begins after a research proposal is accepted and approved by the three advisors.

(5) Dissertation outline

After gaining the approval of all three advisors, you can submit a dissertation outline to Kyoumu at least six months before application for a degree.

(6) Fast-track degree completion

Students who wish for fast-track degree completion should first consult with your supervisor and set an earlier outline submission time. Then notify your plan to the dean via the supervisor to apply for fast-track degree completion.

(7) Notes

- Keep in mind that an advisor for Minor Research Project/Internship must be determined before the submission of a research proposal.

- The 3D students who have not decided a research theme prior to enrollment should choose one as early as possible. You should consult with their supervisor to choose a theme and conduct a bibliographic review while fulfilling course requirements. Many reviews on the research theme are indispensable before a good research proposal can be written.

- Students in Ishikawa campus will give a presentation on your research theme and receive the evaluation at Mid-term presentation held in the middle of first year. Details for Mid-term presentation will be notified separately.

### **4.3 Minor research project**

(1) Time for beginning research

You must first ask a proposed advisor for Minor Research Project to agree with your research theme and accept to be your advisor. Then submit a research title for Minor Research Project to Kyoumu by the end of February in the first year if enrolled in April (by the end of August in the first year for the SD program students) to determine your advisor for Minor Research Project/Internship. For students enrolled in October, the schedule is basically shifted by six months. A minor research project should start as soon as possible after your advisor for Minor

Research Project/Internship is determined.

(2) Research period

The standard research period for a minor research project is six months. As it requires to be accredited before preliminary defense, students must submit achievements as of the end of the minor research project to the advisor for Minor Research Project and Kyoumu before submitting application for the preliminary defense.

(3) Notes

- Doctoral students are encouraged to present your minor research project report at conferences and submit it as an article for publication in refereed academic journals.

- It is also possible to conduct a minor research project as group work and receive guidance as a group or as individuals (group minor research). The followings are the two types.

\*A student recruits several other students with the same interests and finds an advisor for Minor Research Project/Internship.

\*An advisor proposes a group work topic for a minor research project and recruits members. Students earn credits after the advisor for Minor Research Project evaluates the reports written by each individual member. An additional report written as a group might be requested.

#### **4.4 Internship**

(1) Internships generally include high-level research and study at a company for at least three months (or total duration of short internships must be at least three months) .

(2) If you wish to obtain credits by an internship, consult with your supervisor in advance and submit a proposal for an internship to Kyoumu at least 2 weeks prior to the first day when you intend to start internship. For April enrollment students, submission must be done at latest by the end of February in the first year, for SD program students, by the end of August in the first year. After that an Advisor for Internship will be determined. You also must contact the Career Support Section for the procedures beforehand. For students enrolled in October, the schedule is basically shifted by six months.

(3) Since all the internship(s) must be accredited before preliminary defense, complete it and submit achievement reports to the advisor for internship and Kyoumu before submission of an application for preliminary defense.

#### 4.5 Degree conferment schedule for the doctoral program

The standard schedule for those enrolled in April to complete a program in three years is shown below. For students enrolled in October, the schedule is shifted by six months. The schedule shows approximate period for main information. You must check the detailed information in the related pages of this guide and announcements and notifications made by JAIST.

Month	First Year	Second Year	Third Year
April	- Formal lab assignment - Determination of second supervisor - Take course in Term 1-1/Term I: S503 Innovation Theory and Methodology for Total Capability Development		
May	[Determination of advisor for Minor Research Project/Internship and start minor research project between here and the end of February.] Complete submission of achievement of minor research project before application for preliminary defense, to be accredited before preliminary defense		
June			
July			- Submit dissertation outline
August			
September	- Mid-term presentation		
October			- Submit application for preliminary defense
November			
December			- Preliminary defense
January			- Submit an application for conferment of degree - Submit doctoral dissertation
February			- Final defense and examination
March	- Submit a research proposal		- Conferment of degree

#### [Main tasks and time by completion time]

	March completion	June completion	September completion	December completion
Submission of research proposal	Within one year of enrollment (Within six months for SD program students)			
Submission of dissertation outline	Early July of 3rd year	Early October of 3rd year	Early January of 3rd year	Early April of 3rd year
Minor research projects OR Internship	Accreditation before preliminary defense (The achievement must be submitted prior to Application for preliminary defense)			
Submission of application for preliminary defense	Early October	Early January	Early April	Early July
Preliminary defense	December	March	June	September
Submission of application for degree/dissertation/abstract	Early January	Early April	Early July	Early October
Formal hearing/ final defense and final examination	February	May	August	November
Conferment of degree	March	June	September	December

Note: SD program students can complete only in March. June/September/December completion is for fast-track degree completion.

## **5 Research guidance at other graduate institutes**

### **(1) Receiving guidance for a major research project at other graduate institutes**

Under the guidance of the supervisor, you can conduct part of the major research project at another graduate institute.

### **(2) Receiving guidance for a minor research project at other graduate institutes**

If the dean approves, you can conduct the minor research project at another graduate institute outside JAIST with a JAIST faculty member as an advisor for Minor Research Project.

### **(3) Research period**

A research period at other graduate institutes should be no longer than 12 months for the master's program and 18 months for the doctoral program.

### **(4) Procedures**

If you wish to receive research guidance at another graduate institute outside JAIST, you must submit an "Entrustment of Research Guidance Outside JAIST" form at least two months prior to the start of research to Kyoumu through your supervisor. SD program students in the doctoral program are required to conduct study at other educational or research institutes overseas.

## **VIII. Matters related to conferment of degree**

The conferment of a degree will be conducted on specified dates in March, June, September, and December.

### **1 Degree defense for the master's program**

The procedures related to a defense and a final examination are laid out in the "Degree Regulations" and the "Bylaws Related to the Defense for Granting the Master's Degree" and other arrangements.

#### **1.1 Application for conferment of degree**

For those who select master's research project / research project, when you have met all the degree completion requirements except for the Required course A and wish to apply for a degree conferment, first you must carefully read the *Application Guide for the Award of Master's Degrees*. Then with your supervisor's approval, submit an Application for Conferment of Degree and the necessary documents to Kyoumu. And those who select Survey for Doctoral Research Plan will apply for a degree conferment after you have passed the Ph.D. qualifying examination and internal entrance examination for doctoral program at JAIST.

The deadline for submitting the Application for Conferment of Degree will be two months before the scheduled completion month. For those who wish to graduate in September, the deadline will be a specified date about three months before the scheduled completion month.

#### **1.2 Submission of master's thesis or research project report**

Degree applicants in Master's Thesis Project or Research Project must submit the master's thesis or research project report through the prescribed submission method on the date specified by JAIST to Kyoumu. Note that names of the examination committee will be announced accordingly along with the thesis presentation schedule. Degree applicants will undergo a private thesis defense and final examination once you have publically presented their thesis/report.

Those who choose Survey for Doctoral Research Plan must check VII.3.5 in this guide and announcements made by JAIST regarding this matter.

#### **1.3 Conferment of degree**

The decision of degree conferment will be made by the president after a deliberation by the degree awarding committee. Successful candidates will be notified by email.

### **2 Degree defense for the doctoral program**

The procedures related to a defense and a final examination are laid out in the "Degree Regulations" and the "Bylaws Related to the Defense for Granting the Master's Degree" and other arrangements.

#### **2.1 Dissertation outline**

After gaining the approval of all three advisors, a dissertation outline must be submitted to Kyoumu at least six months before application for a degree.

Students who wish for fast-track degree completion should first consult with your supervisor and set an earlier outline submission time. Then notify your plan to the dean via their supervisor to apply for fast-track degree completion.

#### **2.2 Preliminary defense**

If you have obtained all the required credits except for Required course A, with your supervisor's approval, you must submit an application for the doctoral dissertation preliminary defense to Kyoumu three months before your degree application. Your supervisor will carry out the procedures for holding a preliminary defense based on this request. You must provide drafts of your doctoral dissertation to each prospective examination committee members two weeks before the preliminary defense.

#### **2.3 Application for conferment of degree and conferment of degree**

Those who pass the preliminary defense must carefully read the *Application Guide for the Award of*

*Doctoral Degrees.* Then with the approval of all three supervisors, submit an Application for Conferment of Degree and doctoral dissertation with the necessary documents to Kyoumu by the designated date. Degree applicants will first present your work publically at a formal hearing and then you will undergo a private defense of the dissertation and final examination.

The decision of degree conferment will be made by the president after a deliberation by the degree awarding committee. The results will be notified by email. Please note that the successful candidates must check the necessary procedures in the *Application Guide for Awarding Doctoral Degrees* and must ensure them done before the conferment of degree.

## **IX Education and Training Programs offered by Global Communication Center**

### **1 Outline of Global Communication Center**

JAIST has one of the highest percentages of international students of any national university in Japan. Global Communication Center operates education and training programs to make the most of this international environment in academia.

### **2 Educational Programs of Global Communication Center**

Global Communication Center offers English language education courses (Exxx courses) for non-native English speaking students, Japanese language education courses (Jxxx courses) for international students, and global courses (Gxxx courses) for all students to study world issues. For details on each class, please refer to the Class Schedule and Syllabus.

### **3 Global Communication Center Training Programs**

Global Communication Center offers a variety of training programs. Please check the schedule of the training program in the campus notice.

#### **3.1 Writing Lab**

Students who wish to present their research results in English will be given individual instruction.

#### **3.2 JAIST-Nomi City Collaborative Japanese Language Course**

Based on the "Agreement on Cooperation between Academia and Government" signed between JAIST and Nomi City on March 27, 2006, Japanese language classes will be held for international students, international researchers, international faculty members, and their families who wish to learn Japanese.

##### **(1) Japanese Language Classes**

Nomi City International Association staff, citizen supporters, and assistant students will hold Japanese language classes on the JAIST campus to teach Japanese in a practical manner. The classes will be held once a week for 90 minutes, and will be held throughout the year except for summer vacation and year-end and New Year vacations.

##### **(2) Japanese Culture Experience**

As an opportunity for learners to directly experience Japanese society and culture, we offer Japanese culture classes such as tours of public facilities and institutions in Nomi City (irregular).

## **X. Systems in place**

### **1 Extended study period for completion**

Students may be granted extension of your study period when you face difficulty in completing the degree within the standard study period due to fair reasons related to their work or some personal affairs. Students who wish to extend study period must check the JAIST website (Education → Academic Procedures → Extended Study Period for Completion) and contact Kyoumu to apply by the designated deadline.

### **2 Progression within JAIST**

Students who have completed a master's program at JAIST and wish to continue onto the doctoral program must check the Application Guide or the JAIST website (Education → Application Guide for Internal Entrance Examination for Doctoral Program) to apply for the Internal Entrance Examination.

### **3 Study and training benefit plans**

Check the details in the relevant pages with the Japanese-language version of *Degree Completion Guide*.

### **4 Academic rules**

Check the website (<https://education.joureikun.jp/jaist/>) in regards to the details of the general academic rules, the regulations and bylaws on degree completion, course taking, collaborative education and research facility courses, and matters relevant to conferment of Master's and Doctoral degree.

# **Courses and Class Schedules**

**The courses for Working Professionals in Tokyo offered at the Tokyo Satellite are conducted mainly in Japanese and Japanese language proficiency is required to attend them. See the chapter entitled “授業科目・授業時間割 (Courses and Class Schedules)” in the Japanese language edition for details of them.**

# Courses and Class Schedules

## 1 Overview

At the Ishikawa Campus, a course may be offered in Japanese and English within the same academic year. In the program for Working Professionals in Tokyo, education programs which target working adults who are already on the front lines of research and business are offered mainly conducted in Japanese.

Each course has its course number which has either K (Knowledge Science course group), I (Information Science course group), M (Materials Science course group) etc. preceding three digits. The letter E at the end of the course number indicated the course is conducted in English (K/I/MxxxE). The N/E/J/G/Lxxx courses are not offered in the program for Working Professionals in Tokyo.

### 1.1 Courses

Tables shown in the section 2 and 4 below list the courses, language, terms and instructors. The number of credits is 2 unless otherwise except Required courses (Sxxx) indicated in the "Note" row. Check the syllabi for details about the courses.

(1) The J, E, EJ codes in the language row indicate the language of instruction: J indicates the course is conducted in Japanese; E, English; EJ in both English and Japanese. If a course has multiple instructors, either "," or "." are used between the names. "," indicates each instructor teaches the course and "." indicates the course is taught by all the instructors in turns (course in relay). See the faculty profiles page on the web for more information about the course instructors(JAIST top page → Research → Faculty Profiles).

(2) The course divisions of each course corresponding to the degree of choice are shown in the rows of degree kinds (KS: Knowledge science, IS: Information science, MS: Material science).

The following are the abbreviations for each course divisions. For details, check VI.2 Course divisions.

- "Opt": The Optional course
- "GC": The Global Communication course
- "GLA": The Global Liberal Arts course
- "Intr": The Introductory course
- "Bsc": The Basic course
- "Tech": The Technical course
- "Imd": The Intermediate course
- "Adv": The Advanced course

#### <Example>

I211 "Mathematical Logic" was completed by a student who is in the master's program pursuing:  
a master's degree in Knowledge Science –I211 will be treated as the Technical course (Tech)  
a master's degree in Information Science –I211 will be treated as the Basic course (Bsc)  
a master's degree in Materials Science –I211 will be treated as the Global Liberal Arts course (GLA)

I211 "Mathematical Logic" was completed by a student who is in the doctoral program pursuing:  
a doctoral degree in Knowledge Science –I211 will be treated as the Intermediate course (Imd)  
a doctoral degree in Information Science –I211 will be treated as the Intermediate course (Imd)  
a doctoral degree in Materials Science –I211 will be treated as the Optional course (Opt)

### 1.2 Class schedules

At Ishikawa Campus, each course is held twice a week except for intensive courses and the courses with irregular timetables. KS/IS/MS courses are held in the morning (1st and 2nd period) and 4th period of Tuesday and Thursday. 3rd period is for the tutorial hours for the 1st period class on that day. Students can ask questions or discuss with the instructor during the tutorial hours and the time can be used for exercises, supplemental instruction etc. Note that K·I·Mxxx Courses held at 4th period of Tuesday and Thursday have no tutorial hours. Afternoons (4th and 5th periods) basically offer other courses. The Examination Terms ordinary come after the end of each lecture term,

however the examinations of intensive courses are exceptionally conducted after finishing all the lectures in general. Class schedules with the assigned rooms will be displayed on the bulletin board next to the automatic certificate issuing machine and on the JAIST website (Education → Taking Courses → Class Schedule). You must check the schedule before the start of classes each term. At the Tokyo Satellite, classes are held in the evening during weekdays and on Saturdays and Sundays (including holidays). Classes held at the Tokyo Satellite have no tutorial hours. In general, the final examinations of the courses will be conducted after finishing all the lectures.

The KS courses are mainly given as a one-week intensive from Monday through Saturday.

The IS courses meet

- four times through Friday evening, Saturday and Sunday for four weeks.
- twice a week or four times every two weeks for two months.
- eight times on two weekends as intensive.

## 2 Courses for 2022-2023 (Ishikawa Campus)

### 2.1 Required courses (Sxxx courses (Ishikawa) )

#### ○ For the master's program

Course Number	Master's Degree			Doctoral Degree			Course Title	Language	Course Term		Instructor(s)	Note
	KS	IS	MS	KS	IS	MS			1-1 1-2	2-1 2-2		
Required courses A												
S201	Bsc	Bsc	Bsc	/	/	/	Science and Technology Thesis	/	/	/	Supervisor	8 credits, Required elective course
S202	Bsc	Bsc	Bsc	/	/	/	Science and Technology Project Report	/	/	/	Supervisor	2 credits, Required elective course
S203	Bsc	Bsc	Bsc	/	/	/	Science and Technology Survey for Doctoral Research Plan	/	/	/	Supervisor	2 credits, Required elective course
Required courses B												
S101	GLA	GLA	GLA	/	/	/	Innovation Theory and Methodology for Social Competencies	J E	1-1	2-1	KOHDA et al.	1 credit, Required course
S102	Intr	Intr	Intr	/	/	/	Innovation Theory and Methodology for Creativity	J E	1-1	2-1	KOHDA et al.	1 credit, Required course
S401	Tech	Tech	Tech	/	/	/	Science and Technology Minor Research Project	/	/	/	Advisor for Minor Research Project	2 credits, Required elective course
S402	Tech	Tech	Tech	/	/	/	Science and Technology Internship	/	/	/	Advisor for Internship	2 credits, Required elective course

Note 1: S101 and S102 are simultaneously offered in both Japanese and English (in separate rooms).

Note 2: Students enrolled before April 2016 cannot take S101 and S102.

#### ○ For the doctoral program

Course Number	Master's Degree			Doctoral Degree			Course Title	Language	Course Term		Instructor(s)	Note
	KS	IS	MS	KS	IS	MS			1-1 1-2	2-1 2-2		
Required courses A												
S601	/	/	/	Adv	Adv	Adv	Advanced Science and Technology Dissertation	/	/	/	Supervisor	6 credits, Required course
Required courses B												
S501	/	/	/	Imd	Imd	Imd	Advanced Science and Technology Minor Research Project	/	/	/	Advisor for Minor Research Project	2 credits, Required elective course
S502	/	/	/	Imd	Imd	Imd	Advanced Science and Technology Internship	/	/	/	Advisor for Internship	2 credits, Required elective course
S503	/	/	/	Imd	Imd	Imd	Innovation Theory and Methodology for Total Capability Development	J E	1-1	2-1	KOHDA et al.	1 credit, Required course

Note 1: S503 is simultaneously offered in both Japanese and English (in separate rooms).

Note 2: Students enrolled before April 2016 cannot take S503.

## 2.2 Knowledge Science courses (Kxxx courses (Ishikawa) )

### ○ K1xx courses

Course Number	Master's Degree			Doctoral Degree			Course Title	Language	Course Term		Instructor(s)	Note
	KS	IS	MS	KS	IS	MS			1-1 1-2	2-1 2-2		
K111	Intr	GLA	GLA	Opt	Opt	Opt	Introduction to Management	J	1-1		SHIRAHADA	
								E		2-1	Zelaya	
K114	Intr	GLA	GLA	Opt	Opt	Opt	Introduction to Social Research Methods	J	1-2		SATO N	
								E		2-2	Javed	
K121	Intr	GLA	GLA	Opt	Opt	Opt	Introduction to Cognitive Science	J	1-2		TORII·HIDAKA	
K125	Intr	GLA	GLA	Opt	Opt	Opt	Introduction to Systems Development for Knowledge Science Experiment / Survey	J	1-1		TAKASHIMA	
K126	Intr	GLA	GLA	Opt	Opt	Opt	Basics of Knowledge Science	J	*	*	FUJINAMI	1 credit
								E	*	*		

Note 1: \* indicates the course is not offered in the 2022 academic year.

Note 2: Students enrolled before April 2020 who have completed K464 cannot take K121.

### ○ K2xx courses

Course Number	Master's Degree			Doctoral Degree			Course Title	Language	Course Term		Instructor(s)	Note
	KS	IS	MS	KS	IS	MS			1-1 1-2	2-1 2-2		
K211	Bsc	GLA	GLA	Adv	Imd	Opt	Methodology for the Social Sciences	J	1-1		SHIKIDA·SATO T·TAKASHIMA·TORII	
								E	1-1		Kim	
K213	Bsc	GLA	GLA	Adv	Imd	Imd	Methodology for Systems Science	J		2-1	HAYASHI·GOKON	
								E		2-2	Huynh·Lam	
K214	Bsc	GLA	GLA	Adv	Imd	Opt	Methodology for Knowledge Media	J	1-2		SATO T	
								E	*	*	KANAI	
K228	Bsc	GLA	GLA	Adv	Imd	Imd	Introduction to Knowledge Science	J	1-1		HASHIMOTO·Dam	
								E		2-1	Dam·HASHIMOTO·Huynh	
K229	Bsc	GLA	GLA	Adv	Imd	Opt	Innovation Design	EJ	Summer		MIYATA K·YUIZONO·SATO T·Xie·Wang T	
K236	Bsc	GLA	Intr	Adv	Imd	Opt	Basis of Data Analytics	EJ	1-2		Dam·GOKON·Nguyen N	
K238	Bsc	GLA	GLA	Adv	Imd	Opt	Introduction to Experimental Philosophy	J	*	*	MIZUMOTO	
								E		2-1		

Note 1: \* indicates the course is not offered in the 2022 academic year.

Note 2: When students enrolled before April 2018 take K238, it will be treated as L212. Those who have completed L212 cannot take K238.

Note 3: Students enrolled before April 2020 who have completed K421 cannot take K213.

○ **K4xx courses**

Course Number	Master's Degree			Doctoral Degree			Course Title	Language	Course Term		Instructor(s)	Note
	KS	IS	MS	KS	IS	MS			1-1 1-2	2-1 2-2		
K411	Tech	GLA	GLA	Imd	Opt	Opt	Theory of Knowledge Management	J	*	*	ITO	
								E		2-2	Zelaya·Kim	
K412	Bsc	GLA	GLA	Adv	Opt	Opt	Anthropology of Knowledge	J	1-1		ITO	
K413	Tech	GLA	GLA	Imd	Opt	Opt	Comparative Study of Knowledge Institutions	J	*	*	NAGATA	Offered in alternate years
K414	Bsc	GLA	GLA	Adv	Opt	Opt	Complex Systems Analysis	J		2-2	HASHIMOTO·KUROKAWA	
K417	Bsc	GLA	Intr	Adv	Opt	Opt	Data Analytics	EJ		2-1	Dam·GOKON·Nguyen N	
K427	Bsc	GLA	GLA	Adv	Opt	Opt	Theory on Creative Process in Design	EJ	*	*	NAGAI·MAEKAWA	Offered in alternate years
K433	Tech	GLA	GLA	Imd	Opt	Opt	Practice of Management of Technology Innovations	J	Summer		KONDO	
K444	Bsc	GLA	GLA	Adv	Opt	Opt	Design Cognition	EJ	*	*	NAGAI·MAEKAWA	
K469	Bsc	GLA	GLA	Adv	Opt	Opt	Knowledge Creation Support Media	J	1-1		NISHIMOTO	
K470	Bsc	GLA	GLA	Adv	Opt	Opt	Introduction to Knowledge Creation	J	1-1		YUIZONO	
K471	Bsc	GLA	GLA	Adv	Opt	Opt	Media Creation	J	1-1		MIYATA K·Xie	
K473	Bsc	GLA	GLA	Adv	Opt	Opt	Management of Innovation	J	1-2		UCHIHIRA	
K479	Bsc	GLA	GLA	Adv	Opt	Opt	Service Management	J		2-1	SHIRAHADA	
K480	Bsc	GLA	GLA	Adv	Opt	Opt	Methodology for Regional Revitalization	J	Summer		KUNIFUJI	
K482	Bsc	GLA	GLA	Adv	Opt	Opt	Community Management Strategy	J	Summer		SHIKIDA·SUZUKI K	
K485	Bsc	GLA	GLA	Adv	Opt	Opt	Public Economics for Community Management	J	Summer		YAMAMOTO T·SHIN	
K487	Bsc	GLA	GLA	Adv	Opt	Opt	Network Science	J	1-2		HAYASHI·MIZUTAKA	
K492	Tech	GLA	GLA	Imd	Opt	Opt	Entrepreneurship and Innovation	J	Summer		Kang	
K495	Tech	GLA	GLA	Imd	Opt	Opt	Advances of Knowledge Science	E	*	*	FUJINAMI·Xie·TAKASHIMA·TORII	1 credit

Note 1: \* indicates the course is not offered in the 2022 academic year.

Note 2: Students enrolled before April 2019 who have completed K472 cannot take K469.

○ **K6xx courses**

Course Number	Master's Degree			Doctoral Degree			Course Title	Language	Course Term		Instructor(s)	Note
	KS	IS	MS	KS	IS	MS			1-1 1-2	2-1 2-2		
K611	Bsc	GLA	GLA	Adv	Opt	Opt	Next-Generation Management of Technology	E	*	*	KOHDA·Javed	Offered in alternate years
K612	Bsc	GLA	GLA	Adv	Opt	Opt	Next-Generation Knowledge Management	E	1-2		SHIKIDA·GOKON	Offered in alternate years
K613	Bsc	GLA	GLA	Adv	Opt	Opt	Social-Technical Complex Systems	E	*	*	Huynh	Offered in alternate years
K619	Bsc	GLA	Tech	Adv	Opt	Imd	Advanced Data Analytics	E		2-2	Dam·GOKON·Nguyen L	Offered in alternate years
K626	Bsc	GLA	GLA	Adv	Opt	Opt	Advanced Topics in Media Design	E		2-1	NISHIMOTO·NISHIMURA T·MIYATA K·KANAI· GOKON·SATO T·HIDAKA· Lam·Xie·TAKASHIMA· TORII·UTSUMI	Offered in alternate years

Note : \* indicates the course is not offered in the 2022 academic year.

## 2.3 Information Science courses (Ixxx courses (Ishikawa) )

### ○ I1xx courses

Course Number	Master's Degree			Doctoral Degree			Course Title	Language	Course Term		Instructor(s)	Note
	KS	IS	MS	KS	IS	MS			1-1 1-2	2-1 2-2		
I111	Intr	Intr	GLA	Opt	Opt	Opt	Algorithms and Data Structures	J	1-1		IKEDA K·Hsueh	
								E		2-1	Schwartzman·Viglietta	
I112	Opt	Opt	Opt	Opt	Opt	Opt	Basics of Computer Systems	J	1-1		HONGO	
I114	Intr	Intr	GLA	Opt	Opt	Opt	Fundamental Mathematics for Information Science	J	1-1		TOMITA	
I115	Intr	Intr	GLA	Opt	Opt	Opt	Digital Logic and Computer Design	J	1-1		KANEKO M·TANAKA	
I116	Intr	Intr	Intr	Opt	Opt	Opt	Fundamentals of Programming	E	1-1		HIROKAWA·Elibol	
								J	1-2		HIROKAWA	
I119	Intr	Intr	Intr	Opt	Opt	Opt	Statistics for Data Analytics	J	1-1		UNOKI·KIDANI	
I120	Intr	Intr	GLA	Opt	Opt	Opt	Fundamentals of Logic and Mathematics	J	1-1		ISHIHARA	

### ○ I2xx courses

Course Number	Master's Degree			Doctoral Degree			Course Title	Language	Course Term		Instructor(s)	Note
	KS	IS	MS	KS	IS	MS			1-1 1-2	2-1 2-2		
I211	Tech	Bsc	GLA	Imd	Imd	Opt	Mathematical Logic	E	1-1		ISHIHARA·KAWAI	
								J		2-1	OGAWA	
I212	Tech	Bsc	GLA	Imd	Imd	Imd	Analysis for Information Science	J	1-1		KOTANI	
								E		2-1	OKADA S	
I213	Tech	Bsc	GLA	Imd	Imd	Imd	Discrete Signal Processing	J	1-2		ASANO	
								E		2-2	Sakti	
I214	Tech	Bsc	GLA	Imd	Imd	Opt	System Optimization	J	1-1		KANEKO M·HIRAISHI	
								E		2-2	Kurkoski	
I217	Tech	Bsc	GLA	Imd	Imd	Opt	Functional Programming	J	1-2		OGATA	
								E		2-1	HIROKAWA	
I218	Tech	Bsc	GLA	Imd	Imd	Opt	Computer Architecture	J	1-1		INOGUCHI	
								E		2-2	TANAKA	
I219	Tech	Bsc	GLA	Imd	Imd	Opt	Software Design Methodology	J	1-2		AOKI·ISHII	
								E		2-2		
I223	Tech	Bsc	GLA	Imd	Imd	Opt	Natural Language Processing	E	1-2		Nguyen L	
								J		2-1	SHIRAI	

Course Number	Master's Degree			Doctoral Degree			Course Title	Language	Course Term		Instructor(s)	Note
	KS	IS	MS	KS	IS	MS			1-1 1-2	2-1 2-2		
I225	Tech	Bsc	GLA	Imd	Imd	Imd	Statistical Signal Processing	E	1-1		MAEZONO·NAKANO	
								J		2-1	HONGO	
I226	Tech	Bsc	GLA	Imd	Imd	Opt	Computer Networks	J	1-2		TAN	
								E		2-1	Lim	
I232	Tech	Bsc	GLA	Imd	Imd	Imd	Information Theory	E	1-1		Kurkoski·Liu	
								J		2-1	FUJISAKI H	
I233	Tech	Bsc	GLA	Imd	Imd	Opt	Operating Systems	J	1-1		SHINODA·UDA	
								E		2-1		
I235	Tech	Bsc	GLA	Imd	Imd	Opt	Game Informatics	J	1-1		IKEDA K·IIDA·Hsueh	
								E		2-2	IKEDA K·Khalid·Hsueh	
I237	Tech	Bsc	GLA	Imd	Imd	Opt	Formal Languages and Automata	J	1-1		TOJO	
								E		2-1	OGAWA	
I238	Tech	Bsc	GLA	Imd	Imd	Opt	Computation Theory	E	1-2		Schwartzman·Viglietta	
								J		2-1	UEHARA	
I239	Tech	Bsc	GLA	Imd	Imd	Opt	Machine Learning	J	1-2		OKADA S·HASEGAWA	
								E		2-2	Nguyen L·Racharak	
I240	Tech	Bsc	GLA	Imd	Imd	Opt	Cryptography	E	*	*	FUJISAKI E	
								J	*	*		

Note 1: \* indicates the course is not offered in the 2022 academic year.

Note 2: Students enrolled before April 2018 who have completed I118 cannot take I237.

Note 3: Students enrolled before April 2018 who have completed I216 cannot take I238.

### ○ I4xx courses

Course Number	Master's Degree			Doctoral Degree			Course Title	Language	Course Term		Instructor(s)	Note
	KS	IS	MS	KS	IS	MS			1-1 1-2	2-1 2-2		
I411	Tech	Tech	GLA	Opt	Adv	Opt	Pattern Analysis and Recognition	J	1-2		KOTANI·Siritanawan	Offered in alternate years
I413	Tech	Tech	GLA	Opt	Adv	Opt	Theoretical Computer Science	E	*	*	HIROKAWA·OGAWA	Offered in alternate years
I416	Tech	Tech	GLA	Opt	Adv	Opt	Parallel Processing	J		2-2	INOGUCHI	Offered in alternate years
I419	Tech	Tech	GLA	Opt	Adv	Opt	Image Information Science	J	*	*	YOSHITAKA	Offered in alternate years
I427	Tech	Tech	GLA	Opt	Adv	Opt	System Control Theory	J	*	*	ASASNO	Offered in alternate years
I432	Tech	Tech	GLA	Opt	Adv	Opt	Theory of Discrete-State Systems	J		2-2	HIRAISHI	Offered in alternate years
I437	Tech	Tech	GLA	Opt	Adv	Opt	Coding Theory	E		2-1	Kurkoski	
I438	Tech	Tech	GLA	Opt	Adv	Opt	Exercises on Graph Theory	EJ	*	*	KANEKO M	Offered in alternate years

Course Number	Master's Degree			Doctoral Degree			Course Title	Language	Course Term		Instructor(s)	Note
	KS	IS	MS	KS	IS	MS			1-1 1-2	2-1 2-2		
I439	Tech	Tech	GLA	Opt	Adv	Opt	Speech Information Processing	J	*	*	UNOKI・Sakti	Offered in alternate years
I440	Tech	Tech	GLA	Opt	Adv	Opt	Enhanced Operating Systems	J	*	*	TANAKA	Offered in alternate years
I441	Tech	Tech	GLA	Opt	Adv	Opt	Advanced Computer Networks	J	*	*	SHINODA	Offered in alternate years
I443	Tech	Tech	GLA	Opt	Adv	Opt	Foundation of Software Verification	J		2-1	AOKI・KAWAI	Offered in alternate years
I448	Tech	Tech	GLA	Opt	Adv	Opt	Distance Learning System	J	*	*	HASEGAWA・OTA	Offered in alternate years
I450	Tech	Tech	GLA	Opt	Adv	Opt	Network Design Laboratory	J		2-2	Lim・Javaid	
I466	Tech	Tech	GLA	Opt	Adv	Opt	Introduction to International Standardization	J		2-1 & 2-2	ONISHI et al.	
I467	Tech	Tech	GLA	Opt	Adv	Opt	Processor Design Laboratory	J		2-1	INOBUCHI・TANAKA	Offered in alternate years
I468	Tech	Tech	Tech	Opt	Adv	Imd	Modeling of Dynamics	J		2-2	MAEZONO	Offered in alternate years
I470	Tech	Tech	GLA	Opt	Adv	Opt	Theory of Advanced Algorithms	J		2-1	UEHARA	Offered in alternate years
I471	Tech	Tech	GLA	Opt	Adv	Opt	Study on Practical Architectures for IoT Systems	J		2-2	SUZUKI M	Offered in alternate years
I472	Tech	Tech	GLA	Opt	Adv	Opt	IoT Systems	J	*	*	TAN	1 credit, Offered in alternate years
I489	Tech	Tech	GLA	Opt	Adv	Opt	Advanced Lectures on Public-Key Cryptography	J		2-1	FUJISAKI E	Offered in alternate years

Note 1: \* indicates the course is not offered in the 2022 academic year.

Note 2: The class schedule of I466 will be irregular. Check the class schedule for detailed schedule.

Note 3: Students enrolled before April 2018 who have completed I431 or I469 cannot take I470.

Note 4: Students enrolled before April 2018 who have completed I435 cannot take I471.

## ○ Specialized Technical courses for Highly-Dependable IoT Systems Program

Course Number	Master's Degree			Doctoral Degree			Course Title	Language	Course Term		Instructor(s)	Note
	KS	IS	MS	KS	IS	MS			1-1 1-2	2-1 2-2		
Progressive courses												
I473	Tech	Tech	GLA	Opt	Imd	Opt	Hardware/Software Codesign	J	Summer		WAKABAYASHI	
I478	Tech	Tech	GLA	Opt	Imd	Opt	IT Project Management	J	Summer		OKADA K	
Practical courses												
I481	Tech	Tech	GLA	Opt	Imd	Opt	Software Development Laboratory for Highly Dependable Embedded Systems	J		2-1	SUZUKI M	
I482	Tech	Tech	GLA	Opt	Imd	Opt	Software Process Design for Highly Dependable Embedded Systems	J		2-2	SUZUKI M·AOKI	
I483	Tech	Tech	GLA	Opt	Imd	Opt	Smart Embedded System Development	J	1-1		NAKATA	

## ○ Specialized Technical courses for Information Security Program

Course Number	Master's Degree			Doctoral Degree			Course Title	Language	Course Term		Instructor(s)	Note
	KS	IS	MS	KS	IS	MS			1-1 1-2	2-1 2-2		
Progressive courses												
I465S	Tech	Tech	GLA	Opt	Imd	Opt	Literacy in Information Security Management	J	1-2 &Summer &2-1		FUJISAKI E·Beuran·TAN·Pham·TAKAGI T·KANNO·OMOTE·IZU	
I486S	Tech	Tech	GLA	Opt	Adv	Opt	Multi-Party Computation	J	1-1 &1-2		FUJISAKI E	Offered in alternate years
Practical courses												
I466S	Tech	Tech	GLA	Opt	Imd	Opt	Advanced Information Security Theory and Application	J		2-1 &2-2	MIYAJI·Wang Y	☆

Note 1: ☆ indicates the course is offered at other graduate schools and conducted by remote delivery system in JAIST.

Note 2: The class schedule of I465S, I466S and I486S will be irregular. Check the class schedule for detailed schedule.

## ○ I6xx courses

Course Number	Master's Degree			Doctoral Degree			Course Title	Language	Course Term		Instructor(s)	Note
	KS	IS	MS	KS	IS	MS			1-1 1-2	2-1 2-2		
I615	Tech	Tech	GLA	Opt	Adv	Opt	Robotics and Computer Vision	E	*	*	Chong·Elibol	Offered in alternate years
I620	Tech	Tech	GLA	Opt	Adv	Opt	Foundation of VLSI Design	E	1-2		KANEKO M	Offered in alternate years
I645	Tech	Tech	GLA	Opt	Adv	Opt	Human Perceptual Systems and its Models	E		2-2	UNOKI	Offered in alternate years
I649	Tech	Tech	GLA	Opt	Adv	Opt	Advanced Wireless Networks	E	1-2		Lim·He	Offered in alternate years
I657	Tech	Tech	GLA	Adv	Adv	Opt	Quantum/Materials informatics	E	*	*	MAEZONO·HONGO·NAKANO	Offered in alternate years
I658	Tech	Tech	GLA	Opt	Adv	Opt	Fundamentals of Sequence Modeling	E	*	*	Sakti	Offered in alternate years

Note: \* indicates the course is not offered in the 2022 academic year.

## ○ Irregular courses

Course Number	Master's Degree			Doctoral Degree			Course Title	Language	Course Term		Instructor(s)	Note
	KS	IS	MS	KS	IS	MS			1-1 1-2	2-1 2-2		
I456	Tech	Tech	GLA	Opt	Adv	Opt	Information Science Laboratory I	J				1 credit
I457	Tech	Tech	GLA	Opt	Adv	Opt	Information Science Laboratory II	J				1 credit
I628	Tech	Tech	GLA	Opt	Adv	Opt	Information Processing Theory	E	*	*	Racharak·KIDANI·UDA·Javaid	

Note 1: \* indicates the course is not offered in the 2022 academic year.

Note 2: I456 and I457 are seminars offered by invited lecturers. Students can attend them without registration. 1 credit can be given by attending 7 times of the seminars and submitting a report for each seminar attended to the corresponding host faculty member. Check the details in the JAIST website (Education → Seminars (On-campus use only)).

## 2.4 Materials Science courses (Mxxx courses)

### ○ M1xx courses

Course Number	Master's Degree			Doctoral Degree			Course Title	Language	Course Term		Instructor(s)	Note
	KS	IS	MS	KS	IS	MS			1-1 1-2	2-1 2-2		
M111	Intr	GLA	Intr	Opt	Opt	Opt	Introduction to Physics	J	1-1		HORITA	
								E		2-1	MIZUTANI	
M112	Intr	GLA	Intr	Opt	Opt	Opt	Introduction to Chemistry	J	1-1		TANIIKE·MIYAKO·WADA	
M113	Intr	GLA	Intr	Opt	Opt	Opt	Introduction to Bioscience	J	1-1		TAKAGI M	

Note 1: When students enrolled before April 2017 take M111, it will be treated as M111A. Those who have completed M111A or M111B cannot take M111.

Note 2: When students enrolled before April 2018 take M111 in term 1-1, it will be treated as M111A. When students enrolled before April 2018 take M111 in term 2-1, it will be treated as M111B. Those who have completed M111A or M111B cannot take M111.

### ○ M2xx courses

Course Number	Master's Degree			Doctoral Degree			Course Title	Language	Course Term		Instructor(s)	Note
	KS	IS	MS	KS	IS	MS			1-1 1-2	2-1 2-2		
M211	Tech	GLA	Bsc	Imd	Imd	Imd	Quantum Mechanics	J	1-2	2-1	OSHIMA, MURATA	
M212	Tech	GLA	Bsc	Imd	Imd	Imd	Statistical Mechanics	J		2-2	KOYANO	
M213	Tech	GLA	Bsc	Imd	Imd	Imd	Electromagnetic Theory	J	1-1		TOMITORI	
M221	Tech	GLA	Bsc	Imd	Imd	Imd	Organic Chemistry	J	1-1		MATSUMI	
M222	Tech	GLA	Bsc	Imd	Imd	Imd	Computational Material Design	J	1-2		TANIIKE·Dam·MIYATA M	
M223	Tech	GLA	Bsc	Imd	Imd	Imd	Properties of Organic Materials	J		2-1	NAGAO Y·MATSUMI	
M224	Tech	GLA	Bsc	Imd	Imd	Imd	Inorganic Materials Chemistry	J	1-2		MAENOSONO	
M225	Tech	GLA	Bsc	Imd	Imd	Imd	Instrumental Analytical Chemistry	J	1-2		SHINOHARA	
M231	Tech	GLA	Bsc	Imd	Imd	Imd	Bioorganic Chemistry	J	1-1	2-1	HOHSAKA·FUJIMOTO	
M232	Tech	GLA	Bsc	Imd	Imd	Imd	Biophysics and Biophysical Chemistry	J	1-2		HAMADA	
M243	Tech	GLA	Bsc	Imd	Imd	Imd	Solid State Physics I	J	1-2		TAKAMURA YUKIKO	
M245	Tech	GLA	Bsc	Imd	Imd	Imd	Mathematics for Condensed Matter Science and Technology	J	1-1	2-1	An, OHDAIRA	
M251	Tech	GLA	Bsc	Imd	Imd	Imd	Chemistry of Catalyst and Catalysis	J	1-1		NISHIMURA S	
M254	Tech	GLA	Bsc	Imd	Imd	Imd	Polymer Chemistry I	J	1-2		KANEKO T·OKEYOSHI	
M261	Tech	GLA	Bsc	Imd	Imd	Imd	Functional Biomolecules	J		2-1	TSUTSUI H	
M262	Tech	GLA	Bsc	Imd	Imd	Imd	Biomaterial Sensing	J	1-2		TAKAMURA YUZURU	
M273	Tech	Bsc	Bsc	Imd	Imd	Imd	Mechatronics	EJ	1-1		Ho	

Course Number	Master's Degree			Doctoral Degree			Course Title	Language	Course Term		Instructor(s)	Note
	KS	IS	MS	KS	IS	MS			1-1 1-2	2-1 2-2		
M274	Tech	Tech	Bsc	Imd	Imd	Imd	Mechanics of Materials	J	1-2		Ji	
M281	Tech	GLA	Bsc	Imd	Imd	Imd	Solid State Physics and its Application to Electronics I	E		2-2	MURATA·An·UEDA	
M282	Tech	GLA	Bsc	Imd	Imd	Imd	New Materials Design and Synthesis	E		2-2	OKEYOSHI·YAMAMOTO Y·Badam · Chammingkwan	
M283	Tech	GLA	Bsc	Imd	Imd	Imd	Biofunction and Organization	E		2-2	TAKAGI M·KURISAWA·TAKAMURA YUZURU·OHKI	
M284	Tech	GLA	Bsc	Imd	Imd	Imd	Solid State Physics and its Application to Electronics II	E	1-1		OSHIMA·SUZUKI T·An	
M285	Tech	GLA	Bsc	Imd	Imd	Imd	Bioscience and Biotechnology	E	1-1		YAMAGUCHI T·HAMADA·FUJIMOTO·TSUTSUI H·HOHSAKA	

### ○ M4xx courses

Course Number	Master's Degree			Doctoral Degree			Course Title	Language	Course Term		Instructor(s)	Note
	KS	IS	MS	KS	IS	MS			1-1 1-2	2-1 2-2		
M413	Tech	GLA	Bsc	Opt	Opt	Imd	Functional Nanomaterials	E		2-1	MAENOSONO·NAGAO Y·YAMAMOTO Y·NISHIMURA S	
M414	Tech	GLA	Tech	Opt	Opt	Imd	Device Physics	J		2-2	TOKUMITSU	
M415	Tech	GLA	Tech	Opt	Opt	Imd	Medical Biomaterials	J		2-2	TSUKAHARA	
M420	Tech	GLA	Tech	Opt	Opt	Imd	Solid State Physics II	J		2-2	AKABORI	
M421	Tech	GLA	Tech	Opt	Opt	Imd	Electronics	J		2-1	SUZUKI T	
M423	Tech	GLA	Tech	Opt	Opt	Imd	Functional Protein Device	J	1-2		HIRATSUKA	
M424	Tech	GLA	Tech	Opt	Opt	Imd	Polymer Chemistry II	J		2-1	MATSUMURA·YAMAGUCHI MASAYUKI·KIDA	
M425	Tech	Tech	Bsc	Opt	Adv	Imd	Analytical Mechanics	E		2-1	Ho	

### ○ M6xx courses

Course Number	Master's Degree			Doctoral Degree			Course Title	Language	Course Term		Instructor(s)	Note
	KS	IS	MS	KS	IS	MS			1-1 1-2	2-1 2-2		
M611	Tech	GLA	Tech	Opt	Opt	Adv	Electronic Structures of Solids and Surfaces	E	*	*	TOMITORI·MIZUTANI·TAKAMURA YUKIKO·Fleurence	Offered in alternate years
M612	Tech	GLA	Tech	Opt	Opt	Adv	Optical Properties of Solids	E	1-2		MIZUTANI·MURATA·KOYANO	Offered in alternate years
M613	Tech	GLA	Tech	Opt	Opt	Adv	Quantum Phenomena in Condensed Matter	E	2-1 intensive		MIZUTA·MASUDA·Fleurence	Offered in alternate years
M614	Tech	GLA	Tech	Opt	Opt	Adv	Advanced Device Physics	E	*	*	OHDAIRA·TOKUMITSU	Offered in alternate years
M615	Tech	GLA	Tech	Opt	Opt	Adv	Advanced Biofunctions	E	*	*	TAKAGI M·TAKAMURA YUZURU	Offered in alternate years

Course Number	Master's Degree			Doctoral Degree			Course Title	Language	Course Term		Instructor(s)	Note
	KS	IS	MS	KS	IS	MS			1-1 1-2	2-1 2-2		
M616	Tech	GLA	Tech	Opt	Opt	Adv	Advanced Biomaterials	E	*	*	HIRATSUKA · TSUTSUI H · HAMADA	Offered in alternate years
M617	Tech	GLA	Tech	Opt	Opt	Adv	Molecular and Functionality Design of Polymers	E	1-1		KANEKO T · OKEYOSHI · SHINOHARA · YAMAGUCHI MASAYUKI	Offered in alternate years
M618	Tech	GLA	Tech	Opt	Opt	Adv	Materials Design	E	*	*	MATSUMURA · MIYAKO · Rajan · Misra	Offered in alternate years
M619	Tech	GLA	Tech	Opt	Opt	Adv	Materials Morphology	E	1-2 intensive		MATSUMI · TANIIKE · Badam · Kabeer	Offered in alternate years
M620	Tech	GLA	Tech	Opt	Opt	Adv	Electronic Properties of Condensed Matter	E	*	*	OSHIMA · KOYANO · An	Offered in alternate years
M622	Tech	GLA	Tech	Opt	Opt	Adv	Advanced Biomolecular Science	E	1-2		OHKI · YAMAGUCHI T	Offered in alternate years
M623	Tech	GLA	Tech	Adv	Opt	Adv	Intelligent Robotic Systems	E	*	*	Ji · Ho · MIYAKO	Offered in alternate years

Note 1: \* indicates the course is not offered in the 2022 academic year.

Note 2: The class schedule of M613, M619 will be irregular. Check the class schedule for detailed schedule.

### ○ Irregular courses

Course Number	Master's Degree			Doctoral Degree			Course Title	Language	Course Term		Instructor(s)	Note
	KS	IS	MS	KS	IS	MS			1-1 1-2	2-1 2-2		
M431	Tech	GLA	Tech	Opt	Opt	Imd	Evaluation of Properties of Materials	J	Summer		OHKI · HIRATSUKA · NAGAO H · KAWAGUCHI	
M432	Tech	GLA	Tech	Opt	Opt	Imd	Evaluation of Functions of Materials	E	1-2 intensive		EBITANI · IWAMOTO	

Note : The class schedule of M432 will be irregular. Check the class schedule for detailed schedule.

## 2.5 Courses offered by Center for Nano Materials and Technology (Nxxx courses)

### ○ Specialized Technical courses in Nano Materials Technology Program

Course Number	Master's Degree			Doctoral Degree			Course Title	Language	Course Term		Instructor(s)	Note
	KS	IS	MS	KS	IS	MS			1-1 1-2	2-1 2-2		
N001	Intr	GLA	Intr	Opt	Opt	Opt	Fabrication of Nano-Devices with Training Course	J		2-1	AKABORI·SUZUKI T	
N002	Intr	GLA	Intr	Opt	Opt	Opt	Study on Nanobiotechnology with Training Course	J		2-1	HOHSAKA·WATANABE·TAKAMURA YUZURU·HIROSE	
N003	Intr	GLA	Intr	Opt	Opt	Opt	Analysis of Nano-Materials with Training Course	J		2-1	OHKI·YAMAGUCHI MASAYUKI·YAMAGUCHI T	
N004	Intr	GLA	Intr	Opt	Opt	Opt	Structural Analysis of Solids on Nano-Scale with Training Course	J		2-1	MAENOSONO·TOMITORI·TAKAHASHI	
N005	Intr	GLA	Intr	Opt	Opt	Opt	Material Analysis with Training Course	J		2-1	SHINOHARA·KANEKO T·TAKADA·YAMAMOTO Y·OKEYOSHI	

## 2.6 Courses offered by Global Communication Center (E/J/Gxxx courses)

### ○ Exxx courses

Course Number	Master's Degree			Doctoral Degree			Course Title	Language	Course Term		Instructor(s)	Note
	KS	IS	MS	KS	IS	MS			1-1 1-2	2-1 2-2		
E110	Opt	Opt	Opt	Opt	Opt	Opt	Practical English Special Seminar	E	Summer	Winter	MOTOYAMA	1 credit
E113	Opt	Opt	Opt	Opt	Opt	Opt	Reading Research Articles	E	1-1	2-1	Holden	
E211	GC	GC	GC	Opt	Opt	Opt	Writing Research	E	1-1	2-1	Holden	
E212	GC	GC	GC	Opt	Opt	Opt	Presenting Research	E	1-2	2-2	Holden	
E213	GC	GC	GC	Opt	Opt	Opt	Scientific Discussions 1	E	1-2	2-2	Holden	

### ○ Jxxx courses

Course Number	Master's Degree			Doctoral Degree			Course Title	Language	Course Term		Instructor(s)	Note
	KS	IS	MS	KS	IS	MS			1-1 1-2	2-1 2-2		
J011	/	/	/	/	/	/	Introductory Technical Japanese 1	J	1-1	2-1	TSUTSUI M	Non-credit
J012	/	/	/	/	/	/	Introductory Technical Japanese 2	J	1-2	2-2	TSUTSUI M	Non-credit
J111	Opt	Opt	Opt	Opt	Opt	Opt	Basic Technical Japanese 1	J	1-1	2-1	YAMAGUCHI MICHIO	
J112	Opt	Opt	Opt	Opt	Opt	Opt	Basic Technical Japanese 2	J	1-2	2-2	YAMAGUCHI MICHIO	
J211	GC	GC	GC	Opt	Opt	Opt	Intermediate Technical Japanese 1	J	1-1	2-1	TSUTSUI M	
J212	GC	GC	GC	Opt	Opt	Opt	Intermediate Technical Japanese 2	J	1-2	2-2	TSUTSUI M	
J413	GC	GC	GC	Opt	Opt	Opt	Advanced Japanese Expressions	J	1-2		HONDA	

### ○ Gxxx courses

Course Number	Master's Degree			Doctoral Degree			Course Title	Language	Course Term		Instructor(s)	Note
	KS	IS	MS	KS	IS	MS			1-1 1-2	2-1 2-2		
G211	GC	GC	GC	Opt	Opt	Opt	Empathy and Collaboration for Creating Sustainable World	J	1-1		MOTOYAMA	
G212	GC	GC	GC	Opt	Opt	Opt	Writing and Presentation Skills	J	1-1	2-1	TSUJI	
G213	GC	GC	GC	Opt	Opt	Opt	Social Problems in Modern Japan	E		2-2	MOTOYAMA	
G214	Opt	Opt	Opt	Opt	Opt	Opt	Diversity Studies for Sustainable Future	J	1-2		MOTOYAMA	
								E		2-1		

Note: G214 cannot be counted to satisfy the degree completion requirements for students enrolled before April 2016.

## 2.7 Individual courses (Lxxx courses)

### ○ Lxxx courses

Course Number	Master's Degree			Doctoral Degree			Course Title	Language	Course Term		Instructor(s)	Note
	KS	IS	MS	KS	IS	MS			1-1 1-2	2-1 2-2		
L221	GLA	GLA	GLA	Opt	Opt	Opt	Ethical Issues in Science	J	Summer		HIGASHIJIMA	
								E		Winter		

### 3 Class schedules for 2022-2023 (Ishikawa Campus)

**Term 1-1: Class Term ( April 12 – June 3 ) 1st - 3rd**  
**Examination Term ( June 6 – June 8 )**

	1 9:00 – 10:40	2 10:50 – 12:30	3
<b>Mon.</b>	K211E Methodology for the Social Sciences (Kim) K470 Introduction to Knowledge Creation (YUIZONO)  I120 Fundamentals of Logic and Mathematics (ISHIHARA) I237 Formal Languages and Automata (TOJO) I483 Smart Embedded System Development (NAKATA)  M245 Mathematics for Condensed Matter Science and Technology (An) M285E Bioscience and Biotechnology (YAMAGUCHI T·HAMADA·FUJIMOTO·TSUTSUI H·HOHSAKA)	K228 Introduction to Knowledge Science (HASHIMOTO·Dam)  I111 Algorithms and Data Structures (IKEDA K·Hsueh) I115 Digital Logic and Computer Design (KANEKO M·TANAKA) I232E Information Theory (Kurkoski·Liu)  M221 Organic Chemistry (MATSUMI)	<b>Tutorial Hours ( 13:30 – 15:10 )</b>
<b>Tue.</b>	K111 Introduction to Management (SHIRAHADA) K211 Methodology for the Social Sciences (SHIKIDA·SATO T·TAKASHIMA·TORII) K471 Media Creation (MIYATA K·Xie)  I116E Fundamentals of Programming (HIROKAWA·Elibol) I212 Analysis for Information Science (KOTANI) I214 System Optimization (KANEKO M·HIRAISHI) I235 Game Informatics (IKEDA K·IIDA·Hsueh)  M113 Introduction to Bioscience (TAKAGI M) M284E Solid State Physics and its Application to Electronics II (OSHIMA·SUZUKI T·An)	K412 Anthropology of Knowledge (ITO) K469 Knowledge Creation Support Media (NISHIMOTO)  I119 Statistics for Data Analytics (UNOKI·KIDANI) I211E Mathematical Logic (ISHIHARA·KAWAI) I218 Computer Architecture (INOBUCHI) I233 Operating Systems (SHINODA·UDA)  M111 Introduction to Physics (HORITA) M213 Electromagnetic Theory (TOMITORI) M617E Molecular and Functionality Design of Polymers (KANEKO T·OKEYOSHI·SHINOHARA·YAMAGUCHI MASAYUKI)	
<b>Wed.</b>	K125 Introduction to Systems Development for Knowledge Science Experiment / Survey (TAKASHIMA)  I112 Basics of Computer Systems (HONGO) I114 Fundamental Mathematics for Information Science (TOMITA) I225E Statistical Signal Processing (MAEZONO·NAKANO)  M112 Introduction to Chemistry (TANIIKE·MIYAKO·WADA) M251 Chemistry of Catalyst and Catalysis (NISHIMURA S) M273EJ Mechatronics (Ho)	K211E Methodology for the Social Sciences (Kim) K470 Introduction to Knowledge Creation (YUIZONO)  I120 Fundamentals of Logic and Mathematics (ISHIHARA) I237 Formal Languages and Automata (TOJO) I483 Smart Embedded System Development (NAKATA)  M245 Mathematics for Condensed Matter Science and Technology (An) M285E Bioscience and Biotechnology (YAMAGUCHI T·HAMADA·FUJIMOTO·TSUTSUI H·HOHSAKA)	
<b>Thu.</b>	K412 Anthropology of Knowledge (ITO) K469 Knowledge Creation Support Media (NISHIMOTO)  I119 Statistics for Data Analytics (UNOKI·KIDANI) I211E Mathematical Logic (ISHIHARA·KAWAI) I218 Computer Architecture (INOBUCHI) I233 Operating Systems (SHINODA·UDA)  M111 Introduction to Physics (HORITA) M213 Electromagnetic Theory (TOMITORI) M617E Molecular and Functionality Design of Polymers (KANEKO T·OKEYOSHI·SHINOHARA·YAMAGUCHI MASAYUKI)	K111 Introduction to Management (SHIRAHADA) K211 Methodology for the Social Sciences (SHIKIDA·SATO T·TAKASHIMA·TORII) K471 Media Creation (MIYATA K·Xie)  I116E Fundamentals of Programming (HIROKAWA·Elibol) I212 Analysis for Information Science (KOTANI) I214 System Optimization (KANEKO M·HIRAISHI) I235 Game Informatics (IKEDA K·IIDA·Hsueh)  M113 Introduction to Bioscience (TAKAGI M) M284E Solid State Physics and its Application to Electronics II (OSHIMA·SUZUKI T·An)	
<b>Fri.</b>	K228 Introduction to Knowledge Science (HASHIMOTO·Dam)  I111 Algorithms and Data Structures (IKEDA K·Hsueh) I115 Digital Logic and Computer Design (KANEKO M·TANAKA) I232E Information Theory (Kurkoski·Liu)  M221 Organic Chemistry (MATSUMI)	K125 Introduction to Systems Development for Knowledge Science Experiment / Survey (TAKASHIMA)  I112 Basics of Computer Systems (HONGO) I114 Fundamental Mathematics for Information Science (TOMITA) I225E Statistical Signal Processing (MAEZONO·NAKANO)  M112 Introduction to Chemistry (TANIIKE·MIYAKO·WADA) M251 Chemistry of Catalyst and Catalysis (NISHIMURA S) M273EJ Mechatronics (Ho)	

**Irregular class schedule:**

I486S Multi-Party Computation (FUJISAKI E)  
5th period of every Tuesday in Terms 1-1 and 1-2

**NOTE:**

The class schedule of the courses with the assigned lecture rooms will be posted on the notice board next to the automatic certificate issuing machine before each term begins. It can also be viewed on the JAIST website (Education → Taking Courses → Class Schedule).

## Class schedules for 2022-2023 (Ishikawa Campus)

**Term 1-1: Class Term ( April 12 – June 3 ) 4th - 5th**  
**Examination Term ( June 6 – June 8 )**

	4 15:20 – 17:00	5 17:10 – 18:50
<b>Mon.</b>	E113 Reading Research Articles (Holden) J011 Introductory Technical Japanese 1 (TSUTSUI M) J111 Basic Technical Japanese 1 (YAMAGUCHI MICHIOYO) G212 Writing and Presentation Skills (TSUJI)	
<b>Tue.</b>	E211 Writing Research (Holden) J211 Intermediate Technical Japanese 1 (TSUTSUI M) G211 Empathy and Collaboration for Creating Sustainable World (MOTOYAMA)  M231 Bioorganic Chemistry (HOHSAKA·FUJIMOTO)	I486S Multi-Party Computation (FUJISAKI E)
<b>Wed.</b>	E113 Reading Research Articles (Holden) J011 Introductory Technical Japanese 1 (TSUTSUI M) J111 Basic Technical Japanese 1 (YAMAGUCHI MICHIOYO) G212 Writing and Presentation Skills (TSUJI)	
<b>Thu.</b>	E211 Writing Research (Holden) J211 Intermediate Technical Japanese 1 (TSUTSUI M) G211 Empathy and Collaboration for Creating Sustainable World (MOTOYAMA)  M231 Bioorganic Chemistry (HOHSAKA·FUJIMOTO)	
<b>Fri.</b>	S101 Innovation Theory and Methodology for Social Competencies (KOHDA et al.) S102 Innovation Theory and Methodology for Creativity (KOHDA et al.) * S102 will follow when S101 ends after 7 class meetings. S503 Innovation Theory and Methodology for Total Capability Development (KOHDA et al.)	S101 Innovation Theory and Methodology for Social Competencies (KOHDA et al.) S102 Innovation Theory and Methodology for Creativity (KOHDA et al.) * S102 will follow when S101 ends after 7 class meetings. S503 Innovation Theory and Methodology for Total Capability Development (KOHDA et al.)

## Class schedules for 2022-2023 (Ishikawa Campus)

**Term 1-2: Class Term ( June 13 – August 1 ) 1st - 3rd  
Examination Term ( August 2, August 3 )**

	<b>1</b> <b>9:00 – 10:40</b>	<b>2</b> <b>10:50 – 12:30</b>	<b>3</b>
<b>Mon.</b>	K612E Next-Generation Knowledge Management (SHIKIDA·GOKON) I223E Natural Language Processing (Nguyen L) I226 Computer Networks (TAN) M211 Quantum Mechanics (OSHIMA) M224 Inorganic Materials Chemistry (MAENOSONO)	K114 Introduction to Social Research Methods (SATO N) I239 Machine Learning (OKADA S·HASEGAWA) I649E Advanced Wireless Networks (Lim·He) M222 Computational Material Design (TANIIKE·Dam·MIYATA M) M423 Functional Protein Device (HIRATSUKA)	<b>Tutorial Hours ( 13:30 – 15:10 )</b>
<b>Tue.</b>	K214 Methodology for Knowledge Media (SATO T) K487 Network Science (HAYASHI·MIZUTAKA) I116 Fundamentals of Programming (HIROKAWA) I238E Computation Theory (Schwartzman·Viglietta) I411 Pattern Analysis and Recognition (KOTANI·Siritanawan) M262 Biomaterial Sensing (TAKAMURA YUZURU) M274 Mechanics of Materials (Ji) M612E Optical Properties of Solids (MIZUTANI·MURATA·KOYANO)	K236EJ Basis of Data Analytics (Dam·GOKON·Nguyen N) K473 Management of Innovation (UCHIHIRA) I213 Discrete Signal Processing (ASANO) I219 Software Design Methodology (AOKI·ISHII) M243 Solid State Physics I (TAKAMURA YUKIKO) M254 Polymer Chemistry I (KANEKO T·OKEYOSHI) M622E Advanced Biomolecular Science (OHKI·YAMAGUCHI T)	
<b>Wed.</b>	K121 Introduction to Cognitive Science (TORII·HIDAKA) I217 Functional Programming (OGATA) I620E Foundation of VLSI Design (KANEKO M) M225 Instrumental Analytical Chemistry (SHINOHARA)	K612E Next-Generation Knowledge Management (SHIKIDA·GOKON) I223E Natural Language Processing (Nguyen L) I226 Computer Networks (TAN) M211 Quantum Mechanics (OSHIMA) M224 Inorganic Materials Chemistry (MAENOSONO)	
<b>Thu.</b>	K236EJ Basis of Data Analytics (Dam·GOKON·Nguyen N) K473 Management of Innovation (UCHIHIRA) I213 Discrete Signal Processing (ASANO) I219 Software Design Methodology (AOKI·ISHII) M243 Solid State Physics I (TAKAMURA YUKIKO) M254 Polymer Chemistry I (KANEKO T·OKEYOSHI) M622E Advanced Biomolecular Science (OHKI·YAMAGUCHI T)	K214 Methodology for Knowledge Media (SATO T) K487 Network Science (HAYASHI·MIZUTAKA) I116 Fundamentals of Programming (HIROKAWA) I238E Computation Theory (Schwartzman·Viglietta) I411 Pattern Analysis and Recognition (KOTANI·Siritanawan) M262 Biomaterial Sensing (TAKAMURA YUZURU) M274 Mechanics of Materials (Ji) M612E Optical Properties of Solids (MIZUTANI·MURATA·KOYANO)	
<b>Fri.</b>	K114 Introduction to Social Research Methods (SATO N) I239 Machine Learning (OKADA S·HASEGAWA) I649E Advanced Wireless Networks (Lim·He) M222 Computational Material Design (TANIIKE·Dam·MIYATA M) M423 Functional Protein Device (HIRATSUKA)	K121 Introduction to Cognitive Science (TORII·HIDAKA) I217 Functional Programming (OGATA) I620E Foundation of VLSI Design (KANEKO M) M225 Instrumental Analytical Chemistry (SHINOHARA)	

### Irregular class schedule:

I465S Literacy in Information Security Management (FUJISAKI E·Beuran·TAN·Pham·TAKAGI T·KANNO·OMOTE·IZU)

Dates to be announced

I486S Multi-Party Computation (FUJISAKI E)

5th period of every Tuesday in Terms 1-1 and 1-2

M432E Evaluation of Functions of Materials (EBITANI·IWAMOTO)

Dates to be announced

M619E Materials Morphology (MATSUMI·TANIIKE·Badam·Kabeer)

Dates to be announced

### NOTE:

The class schedule of the courses with the assigned lecture rooms will be posted on the notice board next to the automatic certificate issuing machine before each term begins. It can also be viewed on the JAIST website (Education → Taking Courses → Class Schedule).

## Class schedules for 2022-2023 (Ishikawa Campus)

**Term 1-2: Class Term ( June 13 – August 1 ) 4th - 5th**  
**Examination Term ( August 2, August 3 )**

	<b>4</b> <b>15:20 – 17:00</b>	<b>5</b> <b>17:10 – 18:50</b>
<b>Mon.</b>	E213 Scientific Discussions 1 (Holden) J012 Introductory Technical Japanese 2 (TSUTSUI M) J112 Basic Technical Japanese 2 (YAMAGUCHI MICHIO) G214 Diversity Studies for Sustainable Future (MOTOYAMA)	
<b>Tue.</b>	E212 Presenting Research (Holden) J212 Intermediate Technical Japanese 2 (TSUTSUI M) J413 Advanced Japanese Expressions (HONDA)  M232 Biophysics and Biophysical Chemistry (HAMADA)	I486S Multi-Party Computation (FUJISAKI E)
<b>Wed.</b>	E213 Scientific Discussions 1 (Holden) J012 Introductory Technical Japanese 2 (TSUTSUI M) J112 Basic Technical Japanese 2 (YAMAGUCHI MICHIO) G214 Diversity Studies for Sustainable Future (MOTOYAMA)	
<b>Thu.</b>	E212 Presenting Research (Holden) J212 Intermediate Technical Japanese 2 (TSUTSUI M) J413 Advanced Japanese Expressions (HONDA)  M232 Biophysics and Biophysical Chemistry (HAMADA)	
<b>Fri.</b>		

## Class schedules for 2022-2023 (Ishikawa Campus)

**Term 2-1: Class Term ( October 12 – December 1 ) 1st - 3rd**

**Examination Term ( December 2 – December 6 )**

	<b>1</b> <b>9:00 – 10:40</b>	<b>2</b> <b>10:50 – 12:30</b>	<b>3</b>
<b>Mon.</b>	K111E Introduction to Management (Zelaya) I226E Computer Networks (Lim) I470 Theory of Advanced Algorithms (UEHARA) I489 Advanced Lectures on Public-Key Cryptography (FUJISAKI E) M211 Quantum Mechanics (MURATA) M413E Functional Nanomaterials (MAENOSONO·NAGAO·YAMAMOTO Y·NISHIMURA S)	K228E Introduction to Knowledge Science (Dam·HASHIMOTO·Huynh) I232 Information Theory (FUJISAKI H) I437E Coding Theory (Kurkoski) I481 Software Development Laboratory for Highly Dependable Embedded Systems (SUZUKI M) M421 Electronics (SUZUKI T)	<b>Tutorial Hours ( 13 : 30 – 15 : 10 )</b>
<b>Tue.</b>	K417EJ Data Analytics (Dam·GOKON·Nguyen N) K479 Service Management (SHIRAHADA) I111E Algorithms and Data Structures (Schwartzman·Viglietta) I211 Mathematical Logic (OGAWA) I212E Analysis for Information Science (OKADA S) I443 Foundation of Software Verification (AOKI·KAWAI) M261 Functional Biomolecules (TSUTSUI H) M425E Analytical Mechanics (Ho)	K213 Methodology for Systems Science (HAYASHI·GOKON) K238E Introduction to Experimental Philosophy (MIZUMOTO) I223 Natural Language Processing (SHIRAI) I225 Statistical Signal Processing (HONGO) I237E Formal Languages and Automata (OGAWA) I238 Computation Theory (UEHARA) M223 Properties of Organic Materials (NAGAO Y·MATSUMI) M245 Mathematics for Condensed Matter Science and Technology (OHDAIRA)	
<b>Wed.</b>	K626E Advanced Topics in Media Design <small>(NISHIMOTO·NISHIMURA T·MIYATA K·KANAI·GOKON·SATO T·HIDAKA·Lam·Xie·TAKASHIMA·TORII·UTSUMI)</small> I217E Functional Programming (HIROKAWA) I233E Operating Systems (SHINODA·UDA) I467 Processor Design Laboratory (INOBUCHI·TANAKA) M111E Introduction to Physics (MIZUTANI) M424 Polymer Chemistry II (MATSUMURA·YAMAGUCHI MASAYUKI·KIDA)	K111E Introduction to Management (Zelaya) I226E Computer Networks (Lim) I470 Theory of Advanced Algorithms (UEHARA) I489 Advanced Lectures on Public-Key Cryptography (FUJISAKI E) M211 Quantum Mechanics (MURATA) M413E Functional Nanomaterials (MAENOSONO·NAGAO·YAMAMOTO Y·NISHIMURA S)	
<b>Thu.</b>	K213 Methodology for Systems Science (HAYASHI·GOKON) K238E Introduction to Experimental Philosophy (MIZUMOTO) I223 Natural Language Processing (SHIRAI) I225 Statistical Signal Processing (HONGO) I237E Formal Languages and Automata (OGAWA) I238 Computation Theory (UEHARA) M223 Properties of Organic Materials (NAGAO Y·MATSUMI) M245 Mathematics for Condensed Matter Science and Technology (OHDAIRA)	K417EJ Data Analytics (Dam·GOKON·Nguyen N) K479 Service Management (SHIRAHADA) I111E Algorithms and Data Structures (Schwartzman·Viglietta) I211 Mathematical Logic (OGAWA) I212E Analysis for Information Science (OKADA S) I443 Foundation of Software Verification (AOKI·KAWAI) M261 Functional Biomolecules (TSUTSUI H) M425E Analytical Mechanics (Ho)	
<b>Fri.</b>	K228E Introduction to Knowledge Science (Dam·HASHIMOTO·Huynh) I232 Information Theory (FUJISAKI H) I437E Coding Theory (Kurkoski) I481 Software Development Laboratory for Highly Dependable Embedded Systems (SUZUKI M) M421 Electronics (SUZUKI T)	K626E Advanced Topics in Media Design <small>(NISHIMOTO·NISHIMURA T·MIYATA K·KANAI·GOKON·SATO T·HIDAKA·Lam·Xie·TAKASHIMA·TORII·UTSUMI)</small> I217E Functional Programming (HIROKAWA) I233E Operating Systems (SHINODA·UDA) I467 Processor Design Laboratory (INOBUCHI·TANAKA) M111E Introduction to Physics (MIZUTANI) M424 Polymer Chemistry II (MATSUMURA·YAMAGUCHI MASAYUKI·KIDA)	

### Irregular class schedule:

I465S Literacy in Information Security Management (FUJISAKI E·Beuran·TAN·Pham·TAKAGI T·KANNO·OMOTE·IZU)

Dates to be announced

I466 Introduction to International Standardization (ONISHI et al.)

5th period of every Friday in Terms 2-1 and 2-2

I466S Advanced Information Security Theory and Application (MIYAJI·Wang Y)

6:30 p.m. - 8:00 p.m. of every Wednesday in Terms 2-1 and 2-2

M613E Quantum Phenomena in Condensed Matter (MIZUTA·MASUDA·Eurence)

Dates to be announced

### NOTE:

The class schedule of the courses with the assigned lecture rooms will be posted on the notice board next to the automatic certificate issuing machine before each term begins. It can also be viewed on the JAIST website (Education → Taking Courses → Class Schedule).

## Class schedules for 2022-2023 (Ishikawa Campus)

Term 2-1: Class Term ( October 12 – December 1 ) 4th - 5th

Examination Term ( December 2 – December 6 )

	4 15:20 – 17:00	5 17:10 – 18:50
<b>Mon.</b>	E113 Reading Research Articles (Holden) J011 Introductory Technical Japanese 1 (TSUTSUI M) J111 Basic Technical Japanese 1 (YAMAGUCHI MICHIOYO) G212 Writing and Presentation Skills (TSUJI) N001 Fabrication of Nano-Devices with Training Course (AKABORI·SUZUKI T)	N001 Fabrication of Nano-Devices with Training Course (AKABORI·SUZUKI T)
<b>Tue.</b>	E211 Writing Research (Holden) J211 Intermediate Technical Japanese 1 (TSUTSUI M) G214E Diversity Studies for Sustainable Future (MOTOYAMA) M231 Bioorganic Chemistry (HOHSAKA·FUJIMOTO) N002 Study on Nanobiotechnology with Training Course (HOHSAKA·WATANABE·TAKAMURA YUZURU·HIROSE)	N002 Study on Nanobiotechnology with Training Course (HOHSAKA·WATANABE·TAKAMURA YUZURU·HIROSE)
<b>Wed.</b>	E113 Reading Research Articles (Holden) J011 Introductory Technical Japanese 1 (TSUTSUI M) J111 Basic Technical Japanese 1 (YAMAGUCHI MICHIOYO) G212 Writing and Presentation Skills (TSUJI) N003 Analysis of Nano-Materials with Training Course (OHKI·YAMAGUCHI MASAYUKI·YAMAGUCHI T)	N003 Analysis of Nano-Materials with Training Course (OHKI·YAMAGUCHI MASAYUKI·YAMAGUCHI T)
<b>Thu.</b>	E211 Writing Research (Holden) J211 Intermediate Technical Japanese 1 (TSUTSUI M) G214E Diversity Studies for Sustainable Future (MOTOYAMA) M231 Bioorganic Chemistry (HOHSAKA·FUJIMOTO) N004 Structural Analysis of Solids on Nano-Scale with Training Course (MAENOSONO·TOMITORI·TAKAHASHI)	N004 Structural Analysis of Solids on Nano-Scale with Training Course (MAENOSONO·TOMITORI·TAKAHASHI)
<b>Fri.</b>	S101 Innovation Theory and Methodology for Social Competencies (KOHDA et al.) S102 Innovation Theory and Methodology for Creativity (KOHDA et al.) * S102 will follow when S101 ends after 7 class meetings. S503 Innovation Theory and Methodology for Total Capability Development (KOHDA et al.) N005 Material Analysis with Training Course (SHINOHARA·KANEKO T·TAKADA·YAMAMOTO Y·OKEYOSHI)	S101 Innovation Theory and Methodology for Social Competencies (KOHDA et al.) S102 Innovation Theory and Methodology for Creativity (KOHDA et al.) * S102 will follow when S101 ends after 7 class meetings. S503 Innovation Theory and Methodology for Total Capability Development (KOHDA et al.) I466 Introduction to International Standardization (ONISHI et al.) N005 Material Analysis with Training Course (SHINOHARA·KANEKO T·TAKADA·YAMAMOTO Y·OKEYOSHI)

## Class schedules for 2022-2023 (Ishikawa Campus)

**Term 2-2: Class Term ( December 8 – February 7 ) 1st - 3rd  
Examination Term ( February 8, February 9 )**

**NOTE:**  
December 23 follows the Monday schedule.  
January 5 follows the Wednesday schedule.

	<b>1</b> <b>9:00 – 10:40</b>	<b>2</b> <b>10:50 – 12:30</b>	<b>3</b>
<b>Mon.</b>	K619E Advanced Data Analytics (Dam·GOKON·Nguyen L)  I218E Computer Architecture (TANAKA) I450 Network Design Laboratory (Lim·Javaid)  M282E New Materials Design and Synthesis (OKEYOSHI·YAMAMOTO Y·Badam·Chammingkwan)	K213E Methodology for Systems Science (Huynh·Lam)  I214E System Optimization (Kurkoski) I482 Software Process Design for Highly Dependable Embedded Systems (SUZUKI M·AOKI)  M281E Solid State Physics and its Application to Electronics I (MURATA·An·UEDA)	<b>Tutorial Hours ( 13:30 – 15:10 )</b>
<b>Tue.</b>	I213E Discrete Signal Processing (Sakti) I235E Game Informatics (IKEDA K·Khalid·Hsueh) I471 Study on Practical Architectures for IoT Systems (SUZUKI M)  M212 Statistical Mechanics (KOYANO)	K114E Introduction to Social Research Methods (Javed)  I219E Software Design Methodology (AOKI·ISHII) I468 Modeling of Dynamics (MAEZONO) I645E Human Perceptual Systems and its Models (UNOKI)  M420 Solid State Physics II (AKABORI)	
<b>Wed.</b>	K411E Theory of Knowledge Management (Zelaya·Kim) K414 Complex Systems Analysis (HASHIMOTO·KUROKAWA)  I239E Machine Learning (Nguyen L·Racharak) I416 Parallel Processing (INOGUCHI) I432 Theory of Discrete-State Systems (HIRAISHI)  M283E Biofunction and Organization (TAKAGI M·KURISAWA·TAKAMURA YUZURU·OHKI)	K619E Advanced Data Analytics (Dam·GOKON·Nguyen L)  I218E Computer Architecture (TANAKA) I450 Network Design Laboratory (Lim·Javaid)  M282E New Materials Design and Synthesis (OKEYOSHI·YAMAMOTO Y·Badam·Chammingkwan)	
<b>Thu.</b>	K114E Introduction to Social Research Methods (Javed)  I219E Software Design Methodology (AOKI·ISHII) I468 Modeling of Dynamics (MAEZONO) I645E Human Perceptual Systems and its Models (UNOKI)  M420 Solid State Physics II (AKABORI)	I213E Discrete Signal Processing (Sakti) I235E Game Informatics (IKEDA K·Khalid·Hsueh) I471 Study on Practical Architectures for IoT Systems (SUZUKI M)  M212 Statistical Mechanics (KOYANO)	
<b>Fri.</b>	K213E Methodology for Systems Science (Huynh·Lam)  I214E System Optimization (Kurkoski) I482 Software Process Design for Highly Dependable Embedded Systems (SUZUKI M·AOKI)  M281E Solid State Physics and its Application to Electronics I (MURATA·An·UEDA)	K411E Theory of Knowledge Management (Zelaya·Kim) K414 Complex Systems Analysis (HASHIMOTO·KUROKAWA)  I239E Machine Learning (Nguyen L·Racharak) I416 Parallel Processing (INOGUCHI) I432 Theory of Discrete-State Systems (HIRAISHI)  M283E Biofunction and Organization (TAKAGI M·KURISAWA·TAKAMURA YUZURU·OHKI)	

### Irregular class schedule:

- I466 Introduction to International Standardization (ONISHI et al.)  
5th period of every Friday in Terms 2-1 and 2-2
- I466S Advanced Information Security Theory and Application (MIYAJI·Wang Y)  
6:30 p.m. - 8:00 p.m. of every Wednesday in Terms 2-1 and 2-2

### NOTE:

The class schedule of the courses with the assigned lecture rooms will be posted on the notice board next to the automatic certificate issuing machine before each term begins. It can also be viewed on the JAIST website (Education → Taking Courses → Class Schedule).

## Class schedules for 2022-2023 (Ishikawa Campus)

**Term 2-2: Class Term ( December 8 – February 7 ) 4th - 5th  
Examination Term ( February 8, February 9 )**

**NOTE:**  
December 23 follows the Monday schedule.  
January 5 follows the Wednesday schedule.

	<b>4</b> <b>15:20 – 17:00</b>	<b>5</b> <b>17:10 – 18:50</b>
<b>Mon.</b>	E213 Scientific Discussions 1 (Holden)  J012 Introductory Technical Japanese 2 (TSUTSUI M) J112 Basic Technical Japanese 2 (YAMAGUCHI MICHIO)  G213E Social Problems in Modern Japan (MOTOYAMA)	
<b>Tue.</b>	E212 Presenting Research (Holden)  J212 Intermediate Technical Japanese 2 (TSUTSUI M)  M414 Device Physics (TOKUMITSU) M415 Medical Biomaterials (TSUKAHARA)	
<b>Wed.</b>	E213 Scientific Discussions 1 (Holden)  J012 Introductory Technical Japanese 2 (TSUTSUI M) J112 Basic Technical Japanese 2 (YAMAGUCHI MICHIO)  G213E Social Problems in Modern Japan (MOTOYAMA)	
<b>Thu.</b>	E212 Presenting Research (Holden)  J212 Intermediate Technical Japanese 2 (TSUTSUI M)  M414 Device Physics (TOKUMITSU) M415 Medical Biomaterials (TSUKAHARA)	
<b>Fri.</b>		I466 Introduction to International Standardization (ONISHI et al.)

## 4 Time Table of the Examination Term for 2022-2023 (Ishikawa Campus)

**【Term1-1】** Examination schedule for the courses held at the following period is below.

	1st period 9:00-10:40	2nd period 10:50-12:30	3rd period 13:30-15:10	4th period 15:20-17:00	5th period 17:10-18:50
June 6(Mon.)	Monday 1st period	Monday 2nd period	Wednesday 1st period	Monday 4th period	Monday 5th period
June 7(Tue.)	Tuesday 1st period	Tuesday 2nd period		Tuesday 4th period	Tuesday 5th period
June 8(Wed.)	The last class of S102 and S503				

**【Term1-2】** Examination schedule for the courses held at the following period is below.

	1st period 9:00-10:40	2nd period 10:50-12:30	3rd period 13:30-15:10	4th period 15:20-17:00	5th period 17:10-18:50
August 2(Tue.)	Tuesday 1st period	Tuesday 2nd period		Tuesday 4th period	Tuesday 5th period
August 3(Wed.)	Wednesday 1st period	Monday 1st period	Monday 2nd period	Monday 4th period	Monday 5th period

**【Term2-1】** Examination schedule for the courses held at the following period is below.

	1st period 9:00-10:40	2nd period 10:50-12:30	3rd period 13:30-15:10	4th period 15:20-17:00	5th period 17:10-18:50
December 2(Fri.)	The last class of S102 and S503				
December 5(Mon.)	Monday 1st period	Monday 2nd period	Wednesday 1st period	Monday 4th period	Monday 5th period
December 6(Tue.)	Tuesday 1st period	Tuesday 2nd period		Tuesday 4th period	Tuesday 5th period

**【Term2-2】** Examination schedule for the courses held at the following period is below.

	1st period 9:00-10:40	2nd period 10:50-12:30	3rd period 13:30-15:10	4th period 15:20-17:00	5th period 17:10-18:50
February 8(Wed.)	Wednesday 1st period	Monday 1st period	Monday 2nd period	Monday 4th period	Monday 5th period
February 9(Thu.)	Tuesday 2nd period	Tuesday 1st period		Tuesday 4th period	Tuesday 5th period

# **Study Programs**

**Japanese language proficiency is required for all the study programs except for the Program for Leaders in Data Analytics. See the chapter entitled “学修プログラム (Study Programs)” in the Japanese language edition for details of the programs.**

# Study Programs

## 1 Overview

JAIST offers several study programs listed below of which you can choose one according to your study interests. A certificate of completion will be granted to those who complete the required program work.

	Course	Study Program
Ishikawa	Master's Program	<ul style="list-style-type: none"> <li>◇ Education Program for Leaders in Data Analytics</li> <li>◇ Highly-Dependable IoT Systems Program*</li> <li>◇ Information Security Program*</li> <li>◇ Nano Material Technology Program*</li> </ul>
	Doctoral Program	<ul style="list-style-type: none"> <li>◇ Education Program for Leaders in Data Analytics</li> <li>◇ Nano Material Technology Program*</li> </ul>
Tokyo	Master's Program	<ul style="list-style-type: none"> <li>◇ Management of Technology (MOT) Program*</li> <li>◇ Management of Service (MOS) Program*</li> <li>◇ IoT·AI Innovation Program*</li> </ul>
	Doctoral Program	<ul style="list-style-type: none"> <li>◇ Advanced Knowledge Science Program*</li> <li>◇ Advanced Information Technologies Program*</li> <li>◇ Creating Value Program</li> </ul>

\*Japanese language proficiency is required to apply.

### 1.1 Program details

For Ishikawa students: Study Programs are optional.

For Tokyo students: One of the study programs (excluding Creating Value Program) must be required.

### 1.2 Application procedures

Students who wish to take one of the programs must submit an application to Kyoumu by mid-April for those enrolled in April and by mid-October for those in October. Application must be approved at a faculty meeting. Decision will be made after screening the application. Applicants may be asked to take a written or an oral examination depending on a program, if necessary. Details are explained at the orientation and/or before screening.

Students can select only one study program during each of the master's and doctoral program except for the Nano Materials Technology Program and Creating Value Program, which can be chosen with another program. You cannot change programs once it's decided. If students at Ishikawa campus wish to leave the program, Kyoumu must be notified.

The Specialized Technical courses for the programs might be offered differently and separately from the regular courses and there might be prerequisites. You must check the syllabi, class schedule etc. for details.

### 1.3 Study Program Completion Certificate

A certificate of completion of the study program will be granted at the degree conferment to those who have completed the required program work. If you satisfy all the degree completion requirements without completion of the study program requirements, you will be able to complete the master's/doctoral program.

## 2 Study Programs (Ishikawa campus)

### ◇ Education Program for Leaders in Data Analytics

Data-driven approach is playing more important role in most sciences and in solving social problems, and educating leaders with more knowledge and skill of data processing is necessary. In order to meet such social needs, we supply an education program specialized in data analytics based on knowledge science.

This program aims at producing excellent industry-ready talents in various organizations, such as business enterprises, think-tanks, public agencies, NPOs, NGOs, and research institutes, through cultivating abilities to comprehend social and business needs, to solve various social problems with making full use of data in collaboration with specialists, and to coordinate such collaborative works.

#### ● Program completion requirements

Students must satisfy the following requirements.

- (1) Master's students must complete 3 courses (6 credits) or more from the Table below.
- (2) Doctoral students must complete the following 3 courses, K236, K417 and K619.

Appendix Table

<b>Course Number</b>	<b>Course Title</b>	<b>Credit</b>
I119	Statistics for Data Analytics	2
K236	Basis of Data Analytics	2
K417	Data Analytics	2
K619	Advanced Data Analytics	2

**Contact:**

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