JEMARO Course Guidebook 2021

Master's Program

The curriculum for the Master's Program is divided into four categories: **General Courses**, **Specialized Courses**, **Independent Study Course**, and **Graduate Research Course**. Regardless of their majors, students are free to take any of the General and Specialized courses to fulfill part of the 30 (32) credits required for the Master's degree. Many of the courses are offered based on a semester system consisting of the spring (April-July) and fall (September-January) terms. However, some courses are offered twice a week based on a quarter system or are offered in a short term intensive format.

General Courses（総合科目）

General courses aim to train not only professionals in various fields of science and technology, but also future leaders who will continue to propose and bring about better relationships between science and technology and human society. The courses that are being offered can be roughly divided into the following three groups: 1) subjects such as Life Ethics and Environmental Law through which one re-affirms his/her knowledge of science and technology acquired through social relationships; 2) courses in business administration that will be useful in future business practices: such as Intellectual Properties, Technical Contracts, and Management of Venture Capital; and 3) subjects such as Technical Communication that improve research and communication skills, both necessary to work in the global arena.

Specialized Courses（専門科目）

Specialized courses are designed to teach advanced fundamentals of science and engineering. They help students to establish a solid foundation as scientists and engineers, and gain an overview of the research topics, or master the knowledge or methodology related to their specializations. Study programs will be set up according to instructions given by advisors.

Independent Study Course（課題研究科目） -In Fall semester

Independent Study course is designed to impart a deep understanding of a specific specialized field, with a view to preparing the content and methodology of Master's thesis research, on themes set by the academic advisor. Credits will be given based on the evaluation by each center. The advisor, together with other members of the teaching staff, rigorously check whether suitable targets have been set, methodology established, and related knowledge obtained for starting Master's thesis research. Obtaining credits in this course is a prerequisite for studying in Graduate Research course.

Graduate Research 1（特別研究第１） -In Spring semester

Graduate Research course is designed to provide students with opportunities to perform individual research projects leading to the completion of their Master's theses. Students are expected to select a research topic of their own, based not on the faculty member's interests but on their individual interests and future goals. The level of these Master's theses is expected to be very high; and the contents should be presentable at internationally recognized scientific journals and meetings.

(1) Requirements for Completion of the Master's program

The following are the requirements for completing a Master's degree: at least two academic years of study in the graduate program, acquisition of at least 30 (32) academic credits, including 4 credits for Independent Study, 6 for Graduate Research 1, and approval of the Master's thesis. Each course is usually worth 2 credits, i.e., one will typically take at least 10 courses in order to fulfill the requirement of 20 credits needed, aside from the 10 credits required for the Independent Study and Graduate Research 1.

Approving credits from EU course program		
Robotics I	Fall semester	2 credits
Robotics II	Fall semester	2 credits
Robotics III	Fall semester	2 credits
Robotics IV	Fall semester	2 credits
Compulsory		
Independent Study（課題研究科目）	Fall semester	4 credits
Japanese Culture and Science/Technology	Fall semester	2 credits
Graduate Research 1（特別研究第１）	Spring semester	6 credits
Japanese 1(A+B) * -Non-Japanese students only	Fall semester	2 credits*
Elective		
Specialized Courses（専門科目） **More than 10 credits in total**	Fall semester	More than 6 credits
	Spring semester	More than 4 credits
Total	More than **30** (32) credits	
Free Elective Courses（自由科目）	Credits for these courses cannot be counted towards your degree requirement.	

* Credits for these courses cannot be counted towards your degree requirement for Keio University.

The full list of courses offered in English (including course code, time, lecture type, professor, etc.) are proposed in appendix ("Course List").　Syllabus is available at the following website.

https://gslbs.adst.keio.ac.jp/index.html

Elective (Fall semester) Example of courses		
SPACE EXPLORATION ENGINEERING	Fall semester	2 credits
INTELLIGENT MACHINE SYSTEM	Fall semester	2 credits
ADVANCED SYSTEM ELECTRONICS	Fall semester	2 credits
ADVANCED ACTUATOR ENGINEERING	Fall semester	2 credits
AD HOC AND SENSOR NETWORK	Fall semester	2 credits
MECHANICAL INTERFACE DESIGN	Fall semester	2 credits
ULTRAPRECISION MACHINING AND METROLOGY	Fall semester	2 credits

Elective (Spring semester) Example of courses		
ADVANCED CONTROL SYSTEMS DESIGN	Spring semester	2 credits
COMPUTER VISION	Spring semester	2 credits
DESIGN OF PHYSICALLY GROUNDED COMMUNICATION SYSTEM	Spring semester	2 credits
MIXED REALITY	Spring semester	2 credits
DIGITAL WIRELESS COMMUNICATIONS	Spring semester	2 credits
MEMS: DESIGN AND FABRICATION	Spring semester	2 credits

- Courses on "Course list" will be conducted in English only when international students register for it.
- International students must attend the first class day to confirm that the language of instruction is English.
- Students are required to complete at least 16 credits (including Independent Study and approving credits from EU course program) during the half year of the program in order to register for Graduate Research 1.

JAPANESE CLASSES
- Credits for Japanese classes DO NOT count toward the degree requirement for Keio University (counted for EU universities only).
- Non-Japanese students are required to take both Japanese 1A and Japanese 1B
- Course registration is necessary. You are not allowed to attend Japanese classes without course registration.

(2) Intermediate Research Presentation

The intermediate research presentation based on the Independent Study Course should be done and approved by all members of the JEMARO group. **The evaluation will be given in the end of January.**

(3) Master's Thesis

The Master's thesis based on the Independent Study and Graduate Research 1 should be submitted to and approved by all members of the JEMARO group based on the following criteria:

1) Academic knowledge in the field
2) Scholastic ability to understand the latest and important progress in the field
3) Capability to make contributions to society as a Master's degree holder.
For those completing the program in September, **the evaluation will be given in the middle of August.**

Master's Thesis Assignment

All students enrolling in the master's program must submit a thesis for master's degree at the end of the program. Thisis the final assignment of *Graduate Research 1* and with the approval and presentation of the thesis, the successful candidate will be awarded a master's degree.

Related documents and sample format are available at the Keio University Science and Technology website: https://www.students.keio.ac.jp/en/yg/gsst/procedure/thesis/master.html

1. **Submission Procedures**

    Please follow your supervisor's instruction and submit materials below during the submission period specified.

    1) **Thesis Title**

    Please submit your thesis title by logging into "Keio University Class Support" via "keio.jp".

    Period for submission

    September 2022 completion: **the beginning of June, 2022**

    2) **PDF version thesis**

    Create a PDF file of your thesis and upload the file by logging into "Keio University Class Support" via"keio.jp".

    Submission Deadline

    September 2022 completion: **the end of July, 2022**

2. **Corrections of the Thesis Title**

    If there are some typographical errors or omissions in your thesis title which need correction, please correct the

    thesis title through "Keio University Class Support" by:

    September 2022 completion: **the middle of August, 2022**

    *The dates may be subject to change.

NOTE

1. The thesis title must be EXACTLY identical with the one declared via "keio.jp".
2. Students must present their thesis in person.

Sample Format for Master's Thesis

A Spine

B Front cover (stick on the folder)
C Title page (same as the format of front cover)

Fill out the items No. 1 to 8.

X—X

1. Course No.
Please refer to the course numbers listed below.

XXXXXXXX

2. Thesis Title

Academic Year 2021

XXXXXX

3. Your Name

Master's Thesis   Academic Year 2021

2. Thesis Title

XXXXXXX

3. Your Name

XXXXXXX   4. ID No.

(Student ID No.: XXXXXXXXX)

5. Advisor's Title

Advisor XXXXX XXXXXXX

6. Advisor's Name

September 2021

Keio University
Graduate School of Science and Technology
School of XXXXXXXX

7. Name of Sub-school you belong

D Thesis Abstract (free-form)

Thesis Abstract

8. Abstract about 400 Words

*File the items in A4-size paper folder in order of C, D, Table of contents and Body of text.

*Any items such as names of program and laboratory, date of submission and Keio logo should not be mentioned in A, B, C and D.

Course Registration

Course registration is done online through "Web System" during the registration period in the beginning of each semester. Also, to use the "Class Support" "Canvas LMS", you must have a Keio ID, and the activation key will be distributed individually through e-mail.

Fall semester course registration period:

1st : September 27 (Mon) 12:30 JST (am5:30 CET) – 29 (Wed) 16:45 JST (am9:45 CET)

※Be sure to "register" the courses you wish to take at 1st period.

2nd: September 30 (Thu) 18:00 JST (am11:00 CET) – October 8 (Fri) 10:00 JST (am3:00 CET)

We strongly recommend you to register the course at the 1st registration period.
Classes start on October 1st. There is a possibility that on-demand materials and messages from instructor for the class will be delivered through "Class Support" or "Canvas LMS" before the first class day. In this case, only students who have already registered for the class will be able to access it.
Any course cancellation during the registration period for both 1st and 2nd is allowed.

-You must register for all courses you want to take in the semester including Japanese class.
- You can find the course detail at "Canvas LMS", only after the next day you finished registration.
-When you have confirmed that "Registration complete" is indicated in the status column for all courses, save the page by PDF, then send it by e-mail to your advisor.

If there is an error in the registration data, you must correct it at the Academic Services during the course registration amendment period from October 14 (Thu)10:00 – 15 (Fri) 16:45

<Procedures for Course Registration>
1.Login to keio.jp Portal, then select "Course Registration" in the "Class" category.
  Select "Course Registration (Additional Course Registration)" in the menu. keio.jp:
https://portal.keio.jp/koid/
2. Register course which you can take
3. Press the [CHECK] button, and confirm whether an error message is not displayed in the "Correction Required" area.
4. Correct errors if error messages are displayed in the "Correction Required" area.
5. Print the contents of your course registration

<Course Registration System User Manual>
https://www.students.keio.ac.jp/en/com/class/system/course-reg-manual.html

<Course Cancellation System >

Registered courses may be cancelled online in the designated cancellation period if you find that the course content is not what you expected, realize that you don't have enough knowledge to follow the classes, or just want to decrease the number of courses you have registered.

Cancellation period for fall semester courses:
October 21 (Thu)10:00 JST (am3:00 CET) – 22 (Fri) 16:45 JST (am9:45 CET)

Courses indicated below may not be cancelled.
- Mandatory courses (Independent Study, Graduate Research 1, 2)
- Limited-enrollment courses decided by lottery
- Limited-enrollment courses decided by course lecturer

【**Type of Classes**】 See details on next page.
①: Classes held in Yagami Campus onsite

②: Classes held online and face-to-face in Yagami Campus (Combination)

③: Classes held online

For more information, please check the guidance page of "Canvas LMS".

Change of class schedule and other important announcements will be posted on the keio.jp Portal.

Course List for Fall Semester 2021 (September 2021 - March 2022)
JEMARO Programs

Program	Code	Subject	Sem.	Cr.	Time	Room	Lecture Type	Professor
General Courses	09970	MACROECONOMIC DEVELOPMENTS AND ECONOMIC POLICY IN JAPAN	Fall	2	Wed/2	Online	③	SAITO, JUN
	13251	JAPANESE CULTURE AND SCIENCE/TECHNOLOGY	Fall	2	Mon/5	Online	③	IMOTO, YUKI
	09051	TECHNICAL COMMUNICATION 2	Fall	2	Wed/1	Online	③	OHARA, KYOKO
	03015	TECHNICAL COMMUNICATION 2	Fall	2	Thu/2	Online	③	ISHIDA, MAKO
Fundamental Science and Technology	02186	INTELLIGENT MACHINE SYSTEM	Fall Q1*1	2	Mon/1,2	Online	③	MURAKAMI, TOSHIYUKI
Integrated Design Engineering	00221	ADVANCED SYSTEM ELECTRONICS	Fall	2	Tue/2	online	③	KUBO,RYOGO
	07943	INTELLIGENT MACHINE SYSTEM	Fall Q1*1	2	Mon/1,2	online	③	MURAKAMI, TOSHIYUKI
	11627	LASER PROCESSING	Fall	2	Mon/3	11/16	②	TERAKAWA, MITSUHIRO
	01983	MECHANICAL INTERFACE DESIGN	Fall	2	Thu/3	online	③	MORITA, TOSHIO
	08131	NANO-ELECTRONICS	Fall	2	Tue/4	Online	③	MATSUHISA, NAOJI
	09453	OPTICAL NETWORK SYSTEM	Fall	2	Fri /2	online	③	TSUDA, HIROYUKI
	00202	SPACE EXPLORATION ENGINEERING	Fall	2	Fri/2	14/201	②	ISHIGAMI, GENYA
	02114	ULTRAPRECISION MACHINING AND METROLOGY	Fall	2	Mon/2	online	③	YAN, JIWANG
Science for Open and Environmental Systems	02956	AD HOC AND SENSOR NETWORK	Fall	2	Mon/3	14/201	②	OTSUKI, TOMOAKI
	02019	ADVANCED ACTUATOR ENGINEERING	Fall	2	Tue/2	online	③	TAKEMURA, KENJIRO
	11373	ADVANCED COURSE ON APPLICATION OF EXPERIMENTAL DESIGN	Fall	2	Fri/5	12/209	②	YAMADA, SHU
	00752	ADVANCED COURSE IN APPLIED AND COMPUTATIONAL MECHANICS 2	Fall	2	Mon/1	14/202	②	OGIHARA, NAOMICHI TAKEMURA, KENJIRO MATSUO, AKIKO FUKAGATA, KOJI ANDO, KEITA PENG, LINYU MURAMATSU, MAYU
	09669	ADVANCED COURSE OF MOLECULAR DYNAMICS	Fall	2	Thu/2	online	③	YASUOKA, KENJI
	08624	ADVANCED COURSE ON NATURAL LANGUAGE PROCESSING	Fall	2	Wed/2	online	③	OHARA, KYOKO SAITO, HIROAKI
	03350	ADVANCED COURSE ON NETWORK ENGINEERING	Fall	2	Mon/4	12/106	②	TERAOKA, FUMIO
	00480	ADVANCED COURSE ON NETWORK SERVICES	Fall	2	Fri/2	12/105	②	KANEKO, KUNITAKE
	00331	ANALYSIS OF ARCHITECTURAL FORM	Fall	2	Fri/5	Online	③	ALMAZAN CABALLERO, JORGE
	08294	APPLIED STATISTICAL ANALYSIS	Fall	2	Mon/2	12/209	②	SUZUKI, HIDEO
	00729	COMPUTER SCIENCE: EXERCISES	Fall	2	*3			TAKADA, SHINGO
	08969	DISTRIBUTED SYSTEMS	Fall	2	Fri/5	online	③	MATSUTANI, HIROKI
	09449	FINITE ELEMENT MODELING AND SIMULATION	Fall	2	Tue/1	Online	③	MURAMATSU, MAYU TAKANO. NAOKI
	02277	INTRODUCTION TO TURBULENCE MODEL AND ITS APPLICATION	Fall	2	Tue/5	Online	③	OBI, SHINNOSUKE
	02588	MICROPROCESSOR ARCHITECTURE	Fall	2	Thu/3	12/103	①	YAMASAKI, NOBUYUKI
	08882	MODELING AND ANALYSIS OF STOCHASTIC SYSTEMS	Fall	2	Fri/4	Online	③	MASUDA, YASUSHI
	13141	NON-LINEAR DYNAMICS	Fall	2	Thu/5	12/206	②	PENG, RINYU
	01797	OPEN SYSTEMS MANAGEMENT: LECTURE AND EXERCISES	Fall	2	Thu/4,5 *4	14/211	②	IMAI, JUNICHI SUZUKI, HIDEO HIBIKI, NORIO MASUDA,YASUSHI MATSUKAWA, HIROAKI YAMAGUCHI, TAKAHIRA YAMADA, SHU KURIHARA, SATOSHI MATSUURA, SHUN
	01782	OPERATIONS MANAGEMENT	Fall	2	Mon/2	14/203	②	MATSUKAWA, HIROAKI
	07795	PUBLIC SPACE AND COMMUNICATION	Fall	2	Mon/5	12/106	②	INOUE, KYOKO
	08328	REAL WORLD INTERACTIVE SYSTEM	Fall	2	Tue/2	14/204	②	SUGIURA, YUTA
Japanese	05568	JAPANESE 1A	Fall	1				Please see the Japanese Class Schedule for the latest information
	03034	JAPANESE 1B	Fall	1				
	03240	JAPANESE 2A	Fall	1				
	05630	JAPANESE 3A	Fall	1				
	05644	JAPANESE 4A	Fall	1				
	01012	JAPANESE ELEMENTARY CONVERSATION	Fall	1				
	00695	JAPANESE ELEMENTARY CONVERSATION 2	Fall	1				

*1 Most courses are taught on a semester system, but the courses marked "Q1" or "Q2" are conducted on a quarter system which divides a semester into two halves.
   Fall Q1 courses: September to mid-November
   Fall Q2: first class day of the courses are as follows: Monday November 15, Tuesday Nov 16, Wednesday Nov 17, Thursday Nov 25, Friday Nov 12, Saturday Nov 13
   Please confirm page 6-9 of the "Course Guidebook and Syllabus" for Academic Year class schedule.
*2 "INTERNSHIP": Internship term is generally around three weeks or more. Please check the "Course Guidebook and Syllabus" in detail.
*3 "COMPUTER SCIENCE: EXERCISES": This course does not have lectures.
*4 "OPEN SYSTEMS MANAGEMENT:LECTURE AND EXERCISES" : Lecture days are as follows: Oct.7 (4th Period only), Oct.14,28, Nov.11,25, Dec.9, Jan.13

【Type of Classes】
① : Classes held in Yagami Campus onsite
② : Classes held online and face-to-face in Yagami Campus (Combination)
③ : Classes held online
For more information, please attend the first class and check with the instructor.

2021 Fall Semester: Japanese Class

Starting from October 6, Wednesday

	Wednesday			
3 rd Period 13:00~14:30	**JAPANESE 1(A)** **Elementary** Lecturer: Takeuchi Code: 05568	**JAPANESE** **ELEMENTARY** **CONVERSATION** Lecturer: Taira Code: 01012	**JAPANESE 2(A)** **Higher** **Elementary** Lecturer: Sanai Code: 03240	
4 th Period 14:45~16:15	**JAPANESE 1(B)** **Elementary** Lecturer: Takeuchi Code: 03034	**JAPANESE** **ELEMENTARY** **CONVERSATION 2** Lecturer: Taira Code: 00695	**JAPANESE 3(A)** **Intermediate** Lecturer: Sanai Code: 05630	**JAPANESE 4(A)** **Higher** **Intermediate** Lecturer: Hayashi Code: 05644

-Classes are conducted online.

-Please register Japanese Course in Graduate School of Science & Technology as "Free Elective Courses".