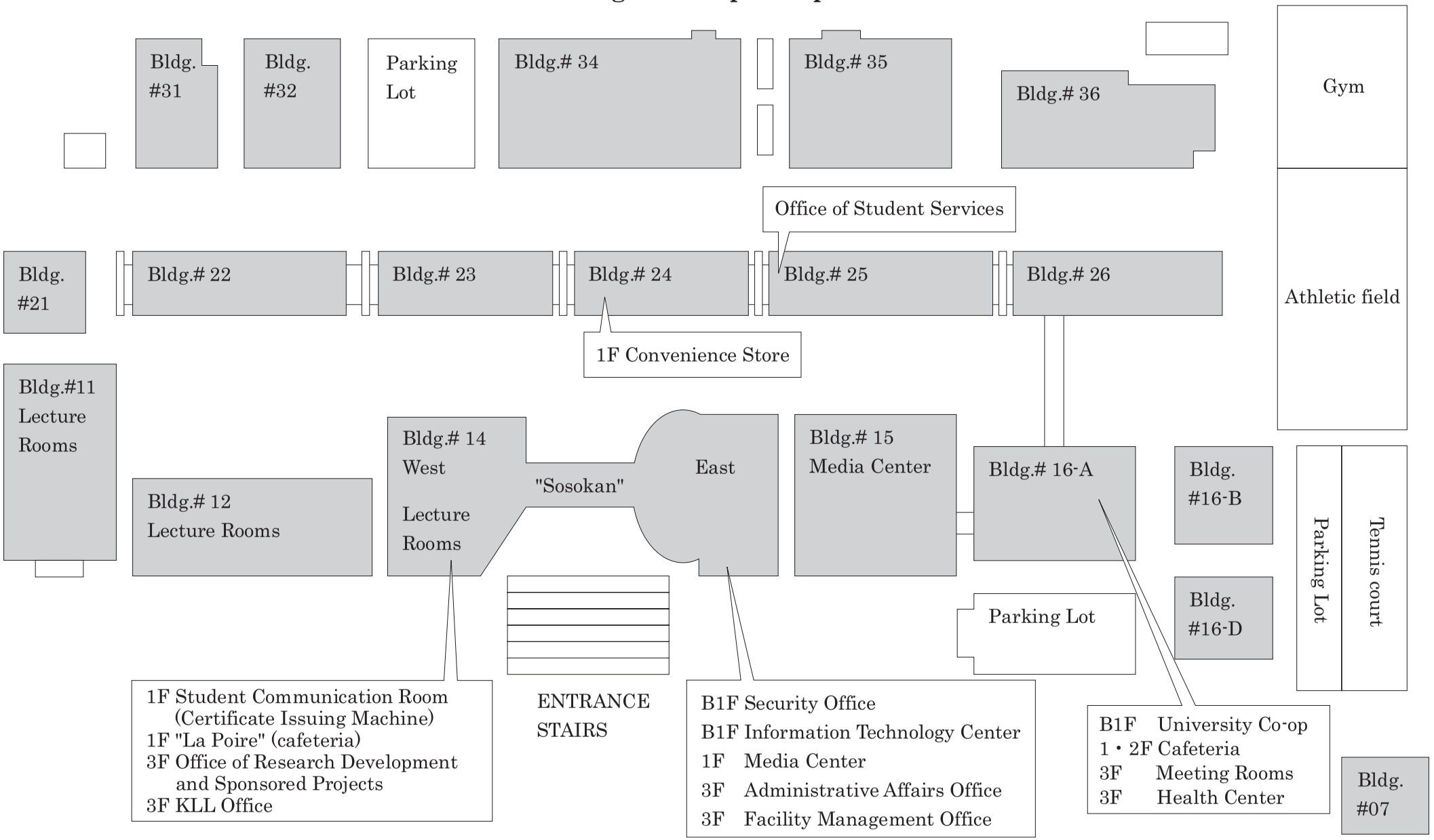
Course Guidebook and Syllabus

Graduate School of Science and Technology

Keio University, 2018

Yagami Campus Map



Course Guidebook and Syllabus

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Graduate School of Science and Technology 2018 Staff List

Dean	**Professor**	**ITOH, Kohei M.**
Chief Academic Coordinator	**Professor**	**MURAKAMI, Toshiyuki**

Director

School of Fundamental Science and Technology	**Professor**	**TAKANO, Hiroshi**
School of Integrated Design Engineering	**Professor**	**OKADA, Eiji**
School of Science for Open and Environmental Systems	**Professor**	**AMANO, Hideharu**

Chief of Center

School of Fundamental Science and Technology		
Center for Mathematics	**Professor**	**MINAMI, Mihoko**
Center for Physics	**Professor**	**ETO, Mikio**
Center for Molecular Chemistry	**Professor**	**KONDOH, Hiroshi**
Center for Applied Physics and Physico-Informatics	**Professor**	**TANAKA, Toshiyuki**
Center for Chemical Biology	**Professor**	**FUJIMOTO, Yukari**
Center for Biosciences and Informatics	**Professor**	**MIYAMOTO, Kenji**
School of Integrated Design Engineering		
Center for Multidisciplinary and Design Science	**Professor**	**SUGIURA, Toshihiko**
Center for System Integration Engineering	**Professor**	**NAMERIKAWA, Toru**
Center for Electronics and Electrical Engineering	**Professor**	**ISHIKURO, Hiroki**
Center for Material Design Science	**Professor**	**EINAGA, Yasuaki**
School of Science for Open and Environmental Systems		
Center for Space and Environment Design Engineering	**Professor**	**KOHIYAMA, Masayuki**
Center for Science of Environment and Energy	**Professor**	**HOTTA, Atsushi**
Center for Applied and Computational Mechanics	**Professor**	**MATSUO, Akiko**
Center for Information and Computer Science	**Professor**	**FUJISHIRO, Issei**
Center for Open Systems Management	**Professor**	**SUZUKI, Hideo**

Vice Academic Coordinator

School of Fundamental Science and Technology		
Center for Mathematics	**Professor**	**TANEMURA, Hideki**
Center for Physics	**Professor**	**OKA, Tomoharu**
Center for Molecular Chemistry	**Associate Professor**	**SAIKAWA, Yoko**
Center for Applied Physics and Physico-Informatics	**Associate Professor**	**HOSHINO, Kazuo**
Center for Chemical Biology	**Associate Professor**	**TAKAHASHI Daisuke**
Center for Biosciences and Informatics	**Professor**	**SAKAKIBARA, Yasubumi**
School of Integrated Design Engineering		
Center for Multidisciplinary and Design Science	**Assistant Professor**	**KATO, Takeo**
Center for System Integration Engineering	**Associate Professor**	**YAKOH, Takahiro**
Center for Electronics and Electrical Engineering	**Associate Professor**	**YUKAWA, Masahiro**
Center for Material Design Science	**Associate Professor**	**OAKI, Yuya**
School of Science for Open and Environmental Systems		
Center for Space and Environment Design Engineering	**Associate Professor**	**NAKAZAWA, Kazuo**
Center for Science of Environment and Energy	**Associate Professor**	**YOKOMORI, Takeshi**
Center for Applied and Computational Mechanics	**Professor**	**FUKAGATA, Koji**
Center for Information and Computer Science	**Professor**	**NISHI, Hiroaki**
Center for Open Systems Management	**Associate Professor**	**SHIDA, Keisuke**
Vice Academic Coordinator for General Courses	**Associate Professor**	**KINOSHITA, Takeshi**
Vice Academic Coordinator for International Students	**Professor**	**OGUNI, Kenji**

2018 Class Schedule

Spring Semester

*Circled numbers are the class days (class number)
①–⑭ : The number of class days on a semester system
❶–⓮, (1)–(14) : The number of class days on a quarter system

April

SUN	MON	TUE	WED	THU	FRI	SAT
1	2 Graduate School Entrance Ceremony	3 Graduate School Guidance	4	5	6	7 ①❶❷
8	9 ①❶❷	10 ①❶❷	11 ①❶❷	12 ①❶❷	13 ①❶❷	14 ②❸❹
15	16 ②❸❹	17 ②❸❹	18 ②❸❹	19 ②❸❹	20 ②❸❹	21 ③❺❻
22	23 Keio Foundation Day ③❺❻	24 ③❺❻	25 ③❺❻	26 ③❺❻	27 ③❺❻	28 ④❼❽
29 Day of Showa Holiday	30 Substitute Holiday					

Online Course Registration Period

May

SUN	MON	TUE	WED	THU	FRI	SAT
		1 *Substitute class day for Thursday classes ④❼❽	2 *Substitute class day for Friday classes ④❼❽	3 Constitution Memorial Day Holiday	4 Greenery Day Holiday	5 Children's Day Holiday
6	7 ④❼❽	8 ④❼❽	9 ④❼❽	10 ⑤❾❿	11 ⑤❾❿	12 ⑤❾❿
13	14 ⑤❾❿	15 ⑤❾❿	16 ⑤❾❿	17 ⑥⓫⓬	18 ⑥⓫⓬	19 ⑥⓫⓬
20	21 ⑥⓫⓬	22 ⑥⓫⓬	23 ⑥⓫⓬	24 ⑦⓭⓮	25 ⑦⓭⓮	26 ⑦⓭⓮
27	28 ⑦⓭⓮	29 ⑦⓭⓮	30 ⑦⓭⓮	31 Exam Period		

June

SUN	MON	TUE	WED	THU	FRI	SAT
					1 Exam Period	2 ⑧(1)(2)
3	4 ⑧(1)(2)	5 ⑧(1)(2)	6 ⑧(1)(2)	7 ⑧(1)(2)	8 ⑧(1)(2)	9 ⑨(3)(4)
10	11 ⑨(3)(4)	12 ⑨(3)(4)	13 ⑨(3)(4)	14 ⑨(3)(4)	15 ⑨(3)(4)	16 ⑩(5)(6)
17	18 ⑩(5)(6)	19 ⑩(5)(6)	20 ⑩(5)(6)	21 ⑩(5)(6)	22 ⑩(5)(6)	23 ⑪(7)(8)
24	25 ⑪(7)(8)	26 ⑪(7)(8)	27 ⑪(7)(8)	28 ⑪(7)(8)	29 ⑪(7)(8)	30 ⑫(9)(10)

May 31 and June 1: Examination period of the first half of spring semester (*only for courses adopting a quarter system)
May 1 : Substitute class day for Thursday classes / May 2: Substitute class day for Friday classes

First class day of the courses held in the second half of spring semester

Monday	June 4
Tuesday	June 5
Wednesday	June 6
Thursday	June 7
Friday	June 8
Saturday	June 2

Please check the bulletin and web bulletin for class information.

July

SUN	MON	TUE	WED	THU	FRI	SAT
1	2 ⑫(9)(10)	3 ⑫(9)(10)	4 ⑫(9)(10)	5 ⑫(9)(10)	6 ⑫(9)(10)	7 ⑬(11)(12)
8	9 ⑬(11)(12)	10 ⑬(11)(12)	11 ⑬(11)(12)	12 ⑬(11)(12)	13 ⑬(11)(12)	14 ⑭(13)(14)
15	16 ⑭(13)(14) Marine Day	17 ⑭(13)(14)	18 ⑭(13)(14)	19 ⑭(13)(14)	20 ⑭(13)(14)	21 Additional class makeup day
22	23 Exam Period	24 Exam Period	25 Exam Period	26 Exam Period	27 Exam Period	28 Exam Period
29	30 Exam Period	31 Exam Period				

August

SUN	MON	TUE	WED	THU	FRI	SAT
			1 Summer Recess	2	3	4
5	6	7	8	9	10	11 Mountain Day Holiday
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

July 16 (Marine Day): Class day
July 21: Additional class makeup day
Please check the bulletin and web bulletin for class information.

Class Timetable

Period	Standard	Examination period	
	Yagami and Hiyoshi	Yagami	Hiyoshi
1	9:00 - 10:30	9:00 - 10:30	9:30 - 10:30
2	10:45 - 12:15	10:45 - 12:15	10:50 - 11:50
3	13:00 - 14:30	13:00 - 14:30	12:50 - 13:50
4	14:45 - 16:15	14:45 - 16:15	14:10 - 15:10
5	16:30 - 18:00	16:30 - 18:00	15:30 - 16:30
6	18:10 - 19:40	18:10 - 19:40	16:50 - 17:50

Fall Semester

September

SUN	MON	TUE	WED	THU	FRI	SAT
						1 Summer Recess
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17 Respect for the Aged Day Holiday	18 Commencement Ceremony	19 Graduate School Entrance Ceremony	20	21 Graduate School Guidance	22 ①❶❷
23 Autumnal Equinox Day	24 ①❶❷ Substitute Holiday	25 ①❶❷	26 ①❶❷	27 ①❶❷	28 ①❶❷	29 ②❸❹
30						

Online Course Registration Period

September 24 (Subsitute holiday for Autumnal Equinox Day): Class day

October

SUN	MON	TUE	WED	THU	FRI	SAT
	1 → ②❸❹	2 ②❸❹	3 ②❸❹	4 ②❸❹	5 ②❸❹	6 ③❺❻
7	8 Sports Day Holiday	9 ③❺❻	10 ③❺❻	11 ③❺❻	12 ③❺❻	13 ④❼❽
14	15 ③❺❻	16 ④❼❽	17 ④❼❽	18 ④❼❽	19 ④❼❽	20 ⑤❾❿
21	22 ④❼❽	23 ⑤❾❿	24 ⑤❾❿	25 ⑤❾❿	26 ⑤❾❿	27 ⑥⓫⓬
28	29 ⑤❾❿	30 ⑥⓫⓬	31 ⑥⓫⓬			

November

SUN	MON	TUE	WED	THU	FRI	SAT
				1 ⑥⓫⓬	2 ⑥⓫⓬	3 Culture Day Holiday
4	5 ⑥⓫⓬	6 ⑦⓭⓮	7 ⑦⓭⓮	8 ⑦⓭⓮	9 ⑦⓭⓮	10 ⑦⓭⓮
11	12 ⑦⓭⓮	13 Additional class makeup day	14 Exam Period	15 ⑧(1)(2)	16 ⑧(1)(2)	17 ⑧(1)(2)
18	19 ⑧(1)(2)	20 Exam Period	21 ⑧(1)(2)	22	23 Mita Festival Labor Thanksgiving Day	24
25 Mita Festival	26 ⑨(3)(4)	27 ⑧(1)(2)	28 ⑨(3)(4)	29 ⑨(3)(4)	30 ⑨(3)(4)	

December

SUN	MON	TUE	WED	THU	FRI	SAT
						1 ⑨(3)(4)
2	3 ⑩(5)(6)	4 ⑨(3)(4)	5 ⑩(5)(6)	6 ⑩(5)(6)	7 ⑩(5)(6)	8 ⑩(5)(6)
9	10 ⑪(7)(8)	11 ⑩(5)(6)	12 ⑪(7)(8)	13 ⑪(7)(8)	14 ⑪(7)(8)	15 ⑪(7)(8)
16	17 ⑫(9)(10)	18 ⑪(7)(8)	19 ⑫(9)(10)	20 ⑫(9)(10)	21 ⑫(9)(10)	22 ⑫(9)(10)
23 Emperor's Birthday	24 ⑬(11)(12) Substitute Holiday	25 ⑫(9)(10)	26 ⑬(11)(12)	27 ⑬(11)(12)	28 Winter Recess	29
30	31					

December 24 (Substitute holiday for Emperor's Birthday): Class day
November 14 and 20: Examination period of the first half of fall semester (*only for courses adopting a quarter system)
November 13: Additional class makeup day

First class day of the courses held in the second half of fall semester

Monday	November 19
Tuesday	November 27
Wednesday	November 21
Thursday	November 15
Friday	November 16
Saturday	November 17

Please check the bulletin and web bulletin for class information.

January

SUN	MON	TUE	WED	THU	FRI	SAT
		1 New Year's Day Holiday	2 Winter Recess	3	4	5
6	7 ⑭(13)(14)	8 ⑬(11)(12)	9 ⑭(13)(14)	10 Founder's Birthday Holiday	11 ⑬(11)(12)	12 ⑬(11)(12)
13	14 Coming-of-Age Day Holiday	15 ⑭(13)(14)	16 ⑮(15)	17 ⑭(13)(14)	18 ⑭(13)(14)	19 ⑭(13)(14)
20	21 ⑮(15)	22 Additional class makeup day	23 Exam Period	24	25	26
27	28 Exam Period	29	30	31		

February

SUN	MON	TUE	WED	THU	FRI	SAT
					1 Exam Period	2 Spring Recess
3	4	5	6	7	8	9
10	11 National Foundation Day Holiday	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28		

March

SUN	MON	TUE	WED	THU	FRI	SAT
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21 Vernal Equinox Day Holiday	22	23
24	25	26	27	28 Commencement Ceremony	29	30
31						

January 22: Additional class makeup day
Please check the bulletin and web bulletin for class information.

Class Timetable

Period	Standard	Examination period	
	Yagami and Hiyoshi	Yagami	Hiyoshi
1	9:00 - 10:30	9:00 - 10:30	9:30 - 10:30
2	10:45 - 12:15	10:45 - 12:15	10:50 - 11:50
3	13:00 - 14:30	13:00 - 14:30	12:50 - 13:50
4	14:45 - 16:15	14:45 - 16:15	14:10 - 15:10
5	16:30 - 18:00	16:30 - 18:00	15:30 - 16:30
6	18:10 - 19:40	18:10 - 19:40	16:50 - 17:50

2018 Academic Calendar

Spring Semester (from April 1 to September 21)	
Entrance ceremony	April 2 (Mon)
Guidance for new students	April 5 (Thu)
Start of classes	April 7 (Sat)
Course registration period	April 11 (Wed, 1:00 pm) – 16 (Mon, 11:00 am)
Keio Foundation Day	April 23 (Mon) *Class day
Annual health checkup	April 25 (Wed) – 27 (Fri)
Substitute class day for Thursday classes	May 1 (Tue) *Tuesday classes are cancelled
Substitute class day for Friday classes	May 2 (Wed) *Wednesday classes are cancelled
Course registration amendment period (applicable students only)	May 7 (Mon, 10:00 am) – 8 (Tue, 4:45 pm)
Course cancellation period	May 16 (Wed, 10:00am) – 17 (Thu, 4:45pm)
Deadline for submitting temporary leave of absence for spring semester	May 31 (Thu)
Final exam for the first half of semester (courses on a quarter system only)	May 31 (Thu) and June 1 (Fri)
Start of classes held in the second half of semester (courses on a quarter system only)	June 2 (Sat)
Faculty of Science and Technology Foundation Day	June 17 (Sun)
Notice of grades for the first half of semester (courses on a quarter system only)	June 20 (Wed)
Course cancellation period (courses on a quarter system held in the second half of semester only)	June 25 (Mon, 10:00 am) – 26 (Tue, 4:45 pm)
Marine Day	July 16 (Mon) *Class day
Additional class make up day	July 21 (Sat)
Final examination period	July 23 (Mon) – 31 (Tue)
Summer recess	August 1 (Wed) – September 21 (Fri)
Notice of semester grades	September 5 (Wed)
Announcement of award of master's/Ph.D. degree	September 5 (Wed)
Commencement ceremony	September 18 (Tue)

Fall Semester (from September 22 to March 31)	
Entrance ceremony	September 19 (Wed)
Guidance for new students	September 21 (Fri)
Start of classes	September 22 (Sat)
Substitute holiday for Autumnal Equinox Day	September 24 (Mon) *Class day
Course registration period	September 26 (Wed, 1:00 pm) – October 1 (Mon, 11:00 am)
Yagami campus festival	October 6 (Sat) – 7 (Sun)
Course registration amendment period (applicable students only)	October 10 (Wed) – 11 (Thu)
Course cancellation period	October 24 (Wed, 10:00 am) – 25 (Thu, 4:45 pm)
Additional class make up day	November 13 (Tue)
Final exam for the first half of semester (courses on a quarter system only)	November 14 (Wed) and November 20 (Tue)
Start of classes held in the second half of semester (courses on a quarter system only)	November 15 (Thu)
Mita Festival	November 22 (Thu) – 24 (Sat) *No class
Deadline for submitting temporary leave of absence for fall semester	November 30 (Fri)
Notice of grades for the first half of semester (courses on a quarter system only)	December 7 (Fri)
Course cancellation period (courses on a quarter system held in the second half of semester only)	December 12 (Wed, 10:00 am) – 13 (Thu, 4:45 pm)
Substitute holiday for Emperor's Birthday	December 24 (Mon) *Class day
Winter recess	December 28 (Fri) – January 5 (Sat)
Yukichi Fukuzawa (founder) 's Birthday	January 10 (Thu) *School holiday
Additional class make up day	January 22 (Tue)
Final examination period	January 23 (Wed) – February 1 (Fri)
Anniversary of Yukichi Fukuzawa's death	February 3 (Sun)
Notice of semester grades	March 8 (Fri)
Announcement of award of master's/Ph.D. degree	March 8 (Fri)
Commencement ceremony	March 28 (Thu)

Offices and Facilities

Office of Student Services (First Floor, Building 25)

Office Hours

Regular Hours: Monday to Friday 8:45 – 16:45

During Semester Break (no classes or exams): Monday to Friday 8:45 – 11:30, 12:30 – 16:45

Academic Services

Curriculum, Course registration, Grades, Classes, Examinations, Reports, Internship, Certificates, Advancement, Graduation

Email: kym-yagami@adst.keio.ac.jp

International

Scholarships, student exchange programs, double degree programs, assistance for international students in both their academic and daily lives

Email: ic-yagami@adst.keio.ac.jp

Student Life, Career Services

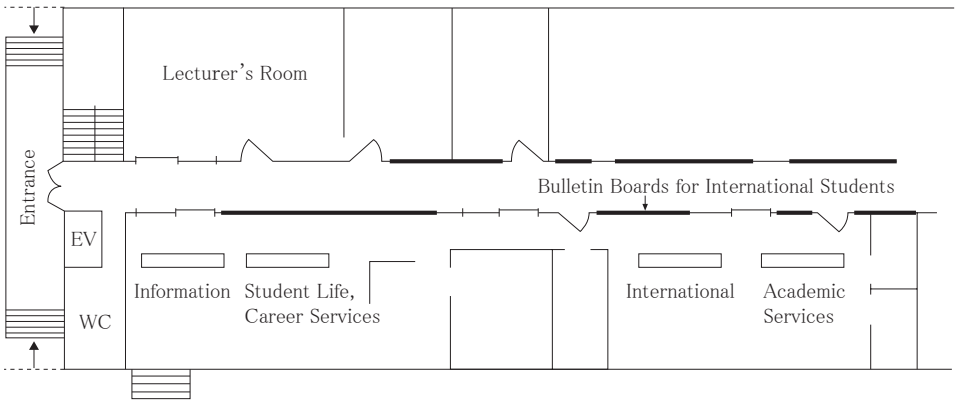
Scholarship programs, student health insurance, personal accident insurance, extra-curricular activities, career services

Email: gakusei-c.yagami@adst.keio.ac.jp (student life)
placement-yagami@adst.keio.ac.jp (career services)

Bulletin Boards

All important communications to international students will be posted on the bulletin boards in front of the Office of Students Services and on the internet at the "For Students" website, or Academic Affairs Web System. It is your responsibility to check these bulletin boards and websites regularly.

Office of Student Services (Building 25)



Media Center (Matsushita Memorial Library) (Basement and First Floor, Building 14)

Office Hours

Regular Hours: Monday to Friday 8:45 – 21:30
Saturdays 8:45 – 20:00

During Semester Break : Monday to Friday: 8:45 – 19:00
Saturdays 8:45 – 18:00

URL: http://eng.scitech.lib.keio.ac.jp/

Email: riko-info@lib.keio.ac.jp

Information Technology Center (ITC) (First basement Floor, West Wing, Building 14)

Office Hours

Regular Hours: Monday to Friday 9:00 – 11:30, 12:30 – 16:30

URL: http://www.st.itc.keio.ac.jp/en/top_st.html

Email: st-itc@itc.keio.ac.jp

Student Lounge (Room 201, Second Floor, Building 12)

There is a student lounge which can be used freely by international students.

Hours: Monday to Saturday: 8:30 – 20:00

Keio University Health Center/Clinic (Yagami Campus)

Office Hours

Health Center: Monday to Friday 8:30 – 11:30, 12:30 –17:00

Clinic: Monday and Wednesday 13:15 – 16:15
Friday 8:45 – 11:30, 13:15 – 16:15
*For the doctor's schedules, please check the website. http://www.hcc.keio.ac.jp/

Student ID Card, Notifications and Certificates

1. Student ID Card

Your Student ID Card certifies that you are a student of Keio University. Please be sure to carry it with you at all times as it is required in a variety of situations.

The registration sticker is renewed annually in April or in September. A new registration sticker will be sent to the student's address at the end of the semester.

If your Student ID Card and/or registration sticker becomes lost, soiled, or damaged, apply for re-issuance at the Office of Student Services. It costs 2,000yen per issuance.

If you find your old student ID card after a new one has been reissued, you must return it to the Office of Student Services.

2. Notifications and Certificates

(1) Notification of Change of Address of Student/Guarantor

Notification of change of address must be promptly completed if there are any changes to the student or guarantor's address.

For a change of address/phone number of the student:

Go to the "Update and Confirm Your Address" section on the Academic Affairs Web System to complete notification procedures.

In the case of changes to the student's address, the registration sticker on the back of the Student ID Card also needs to be updated. Bring your Student ID Card to the Office of Student Services after your new information has been registered on the Academic Affairs Web System.

For a change of address/phone number of the guarantor:

Bring your Student ID Card to the Office of Student Services and complete necessary procedures. Submission of the guarantor's Certificate of Residence is also required.

(2) Notification of Off-campus Research Activities

Any student wising to engage in off-campus research activities or conferences must submit the "Off-campus Research Activity Report Form" to the Office of Student Services. The report form is available at the following website: http://www.st.keio.ac.jp/english/students/academic.html

(3) Certificates

Students can purchase most certificates from any of the certificate issuing machines in Keio University. Use of the certificate issuing machines requires a student ID card and a four digit Personal Identification Number (PIN). Students can confirm their PIN on the Academic Affairs Web System.

If you require a certificate in a sealed envelope, make a request at the Information Counter at Office of Student Services. Please note that certificates issued from a certificate issuing machine cannot be later officially sealed in an envelope.

① Certificate Issuing Machine at Yagami campus

Building 14 "Sousoukan" First floor Student communication room	8:45 – 20:00 (Monday to Saturday) - No service on Saturdays when there are no classes and examinations - No service on Sundays, National holidays and University administration holidays

② List of Certificates

Certificate	Language	Fee (per copy)	Place of issue	Issued	Remarks
Certificate of Enrollment	Japanese	200 yen	Certificate Issuing Machine	Same day	
	English				
Transcript of Academic Record	Japanese	200 yen	Certificate Issuing Machine	Same day	
	English				
Certificate of Expected Graduation (Master's program)	Japanese	200 yen	Certificate Issuing Machine	Same day	Issued for second year master's students only.
	English				
Certificate of Course Registration	Japanese	200 yen	Certificate Issuing Machine	Same day	
	English		Information Counter		
Certificate of Annual Health Checkup	Japanese	200 yen	Certificate Issuing Machine	Same day	
	English	Contact the Health Center (Tel 045-566-1456)			
Student Travel Fare Discount Certificate (Gakuwari)	Japanese	Free	Certificate Issuing Machine	Same day	Cannot be issued to students who have not taken the annual health checkup.

* Student Travel Fare Discount Certificate are valid for three months from the day of issue (they become invalid if the student is no longer enrolled in the University). Students should only apply for the number of certificates they need.
* Certificates will not be issued if your tuition fee for the previous semester has not yet been paid.

Course Registration, Classes and Grades

1. Important notes for course registration

(1) You must receive directions and get approval from your academic advisor for course planning and complete course registration during the designated period.

(2) You are required to register for all courses you will take each semester.

(3) You cannot register for courses held during the same period on the same day.

(4) You cannot register for courses you have already passed.

(5) Grades are given for the registered courses.

(6) After the course registration period closes, courses cannot be added or deleted for any reason whatsoever.

(7) If you register for courses offered at other graduate schools or faculties, you must get approval of the faculty member in charge before registration. The designated course registration form is provided at the Academic Services.

2. Course registration Procedures

(1) Referring to the syllabus and timetable, select courses to register.
Syllabus search: https://gslbs.adst.keio.ac.jp/

(2) View “Course List for International Graduate Program” to confirm courses conducted in English

(3) Go to the “Course Registration” section of the Academic Affairs Web System via keio.jp to register for courses. Open the course registration screen by selecting [Register for Courses] in the menu.
Be sure to carefully read the User Manual for Course Registration before registering courses:http://www.gakuji.keio.ac.jp/course_reg_manual_e.html

(4) Registration method differs depending on courses. When you select a course via registration number or from timetable, normally, the field for courses will be [Colum A] (Normal). But for some courses, you need to change it to one of the Colum B options from the drop-down list.
Please confirm the table below and select the appropriate field.

Course	Field (for Ph.D.program)	Field (for master’s program)
Specialized courses offered by the Graduate School of Science and Technology	Colum A	Colum A
General courses offered by the Graduate School of Science and Technology	Colum A	Colum A
Independent Study	Colum A	Colum A
Graduate Research	Colum A	Colum A
Free elective course (including Japanese)	Colum B 49	Colum B 90
Courses offered at other graduate schools at Keio	Colum B 42	Colum B 82

(5) After registering a course, “Pending” will be indicated in the Status column if there is any error. When you have confirmed that “Registration Complete” is indicated in the Status column for all courses, save the page by printing it. Get your research advisor’s signature on it, then submit the form to the box specially prepared at the Office of Student Services.

(6) After the course registration period ends, you must compare the Course Registration Confirmation screen on the Academic Affairs Web System with your own registration printout in order to check for any discrepancies. If the contents do not match, or if you receive a Course Registration Confirmation Sheet by postal mail, you should amend errors at the Academic Services during the course registration amendment period (amendments cannot be made online). If course registration has been completed correctly, you will not receive a Course Registration Confirmation Sheet.

If a student does not complete the amendment procedure within the course registration amendment period, the university will accept no responsibility whatsoever for any disadvantages resulting from carelessness on the part of student in confirming registration details. All details are deemed to have been checked and confirmed as being correct after the course registration amendment period has passed.

3. Course Cancellation System

Except for courses indicated below, registered courses for a particular semester 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. Grades will not be given for cancelled courses. Furthermore, additional courses may not be registered.

<Cancellation Period>

Year-long courses, Spring semester courses on a semester system, first half of spring semester courses on a quarter system	May 16 (Wed) 10:00 – May 17 (Thu) 16:45
Second-half of spring semester courses on a quarter system	June 25 (Mon) 10:00 – June 26 (Tue) 16:45
Fall semester courses on a semester system, first-half of fall semester courses on a quarter system	October 24 (Wed) 10:00 – October 25 (Thu) 16:45
Second-half of fall semester courses on a quarter system	December 12 (Wed) 10:00 – December 13 (Thu) 16:45

*Intensive courses held during the summer recess may be cancelled from the next day of the course registration is confirmed to the next day of the course begins.

Courses which may not be cancelled

- Mandatory courses (Independent Study, Graduate Research 1, Graduate Research 2)
- Limited-enrollment courses decided by lottery
- Limited-enrollment courses decided by course instructor

To see which courses at other graduate schools cannot be cancelled, confirm the each school.

4. Classes in Emergency Situations

If classes have to be canceled when transportation services are unavailable due to a major accident or natural disaster such as a typhoon, heavy rain, heavy snow, or earthquake, or in other times of emergency, instructions from the

university will be given via the Keio University website and/or by other means.
http://www.gakuji.keio.ac.jp/
<Other precautions>
If an emergency occurs during school hours, class may be shortened or the University may be closed early. Please follow instructions notified on the bulletin boards, school announcements, and website above.

5. Classes on Waseda-Keio Baseball Game Days

Each year, Waseda-Keio baseball games are held over the weekend in late May to early June and late October to early November. In the event that a game takes place on weekdays, classes for the Faculty of Science and Technology will be cancelled from the second period so that students can support the Keio University team. However, classes offered by the Graduate School of Science and Technology will be conducted as usual. For classes offered by other faculties/graduate schools held at other campuses, please follow the direction of the corresponding campus.

Information regarding classes will be posted on the Jukusei (Keio students) website after 9 am on the day of baseball game.

http://www.gakuji.keio.ac.jp/en

6. Grades

(1) Grading System

Academic grades are shown as S, A, B, C or D. S, A, B and C are passing grade; D is a failing grade. For certain courses grades are given as P and F representing “pass” and “failure”, respectively. Furthermore, a G (approval) grade may be given for courses for which credits are transferred from other university.

From the Academic Year 2017, “D (fail)” will be given to courses which will be dropped without taking the final exam. “ ★ (exam not taken)” will be disused.

(2) GPA (Grade Point Average) *applicable for those admitted in or after Academic Year 2017

GPA is a numeral value used to show a student’s academic grades. The grade record of each course studied is converted to a GP (Grade Point), and the average is calculated. Please refer to the GPA calculation method below.

GP (Grade Point) S:4.0 A:3.0 B:2.0 C:1.0 D:0.0

$$\frac{\text{Sum of (Grade Points} \times \text{Number of course credits)}}{\text{Total number of credits for courses registered}}$$

Courses with grades of P and G, and free elective courses are not to be included.

There are two types of GPA, “semester GPA” for the current semester, and “cumulative GPA” for the entire period of enrollment. For students enrolling in Academic Year 2017 or after, semester GPA and cumulative GPA will be shown on the Grade Reports, and cumulative GPA will be shown on the Transcript of Academic Record.

(3) Notification of Grades

A Grade Report will be sent out to your guarantor (or to you if your guarantor residing abroad) by postal mail in September for the spring semester and in March for the fall semester. Be aware that Grade Reports will not be reissued for any reason whatsoever. You can view your own academic record by logging into Keio.jp.

Temporary Leave of Absence, Withdrawal from University

1. Temporary Leave of Absence

Students who anticipate a long absence due to illness or other unavoidable reasons can take a temporary leave of absence. To request permission for a temporary leave of absence, students must confer with his/her academic advisor and a vice academic coordinator and submit the completed designated application form to the Office of Student Services (Academic Services). For illness or injury, a medical certificate issued by the physician is required. The semester in which you take a leave of absence is not counted towards the duration of enrollment required for advancement to the next year and graduation.

Application for a leave of absence is on a semester or full academic year basis, and if the leave of absence continues to the next semester, you must apply again.

When you are returning to your studies after a temporary leave of absence, you are required to submit the Notification of Returning to Study form immediately. If your temporary leave of absence was due to illness or injury, you must also submit a letter from your physician certifying that you are fit to resume your studies.

For academic fees during a temporary leave of absence, please contact the Academic Services.

	Spring Semester	Full Year	Fall Semester
Period of temporary leave of absence	April 1 to September 21	April 1 to March 31	September 22 to March 31
Deadline for submitting temporary leave of absence	Thursday, May 31	Friday, November 30	

2. Withdrawal from University

Students who wish to withdraw from the University due to illness or other reasons must confer with a vice academic coordinator and complete the designated Notification of Withdrawal form by obtaining the seal and signature of the vice academic coordinator and his/her academic advisor. Submit the completed form and your student ID card at the Academic Services.

Examinations and Papers

1. Final Examinations

Final examinations are held at the end of each half-semester or semester depending on the system the course follows. Check the class schedule on page 6-9.

The timetable of final examination may differ from the normal class schedule. Please be sure to confirm the examination timetable which will be posted on the bulletin board of the Office of Student Services.

<Notes on final examinations>

(1) Please be sure to bring your student ID card. If you forget to bring it on the day of an examination, you must obtain a temporary ID card from the Office of Student Services. (This temporary ID card permits you to enter all campuses and libraries on the date of issuance.)

(2) Under no circumstances will students without a Student ID Card or temporary ID card be permitted to enter an examination room.

(3) After the examination starts, only within 20 minutes late arrivals will be allowed to enter the room.

(4) Examinations will not be extended for any student arriving late as a result of administrative procedures required in order to obtain a temporary ID card.

(5) Any fraud related to examinations will be dealt with severely in the manner set forth by the University.

2. Makeup Examinations

Makeup examinations are held for students who are unable to take final examinations due to illness or other unavoidable reasons. Notification regarding application period and procedures for makeup examinations will be posted on the bulletin board. The fee for makeup examination is 2,000 yen per course.

<Reasons for which applications will be accepted>

(1) Conflicts: a final examination for a course being taken at another campus is scheduled to take place at the same time (You should give priority to the examination at the other campus and then apply to take a makeup examination for the Yagami course. An examination fee is not required in this case.)

(2) Illness or injury (Medical certificate indicating treatment on the day of the original examination is required.)

(3) Delay in public transport services (Delay certificate is required. An examination fee in not required.)

(4) Funeral of a blood relative within the third degree of kinship (Letter of appreciation of chief mourner or a statement of being absent written by the guarantor is required.)

(5) Any other factor deemed unavoidable by an academic advisor

3. Term Papers

A term paper may be assigned at your class instead of a final exam. Please submit your term paper strictly according to instructions below.

(1) Your term paper must be submitted to the designated place on the designated date. Please check the information on the bulletin board. Since there are no makeup options for papers, make sure you submit your paper by the stated deadline.

(2) If you submit your paper to the Office of Student Services, attach a yellow term paper submission form to your paper. The submission form is available at the information counter at the Office of Student Services.

(3) Once you submit your paper, no alterations or corrections is permitted even during the submission period.

(4) Any fraud related to papers will be dealt with severely in the manner set forth by the University.

Web System

1. Jukusei (Keio students) website

URL: http://www.gakuji.keio.ac.jp/en/

Overview: This portal site provides various types of information for Keio University students. The latest notice and links to various websites can be found here.

Main Services Provided:

- Classes/Examinations
  Class timetables, syllabus search, announcement of examination schedule
- Student Life/Placement and Career Services
  Office service guide, information about events and scholarships

2. keio.jp

URL: http://keio.jp/

ID/password: keio.jp ID/password

Overview: This website provides an integrated menu of various services offered by the Keio Single Sign-On system.

Main Services Provided:

- Keio Mail
- Keio University Education Support System
  Search course summaries, syllabi, class timetable, and class cancellation and makeup class information
- Class support
  Browsing of class materials of registered coursers, submission of course assignments
- Academic Affairs Web System (see bolow)
- Online access to academic records
- Notification of results of annual health checkup
- Placement and Career Services System

3. Academic Affairs (Gakuji) Web System

When you login to keio. jp, you can go to the Academic Affairs Web System.

Overview: This system is used for registering courses and confirming information about your currently registered courses including class cancellation and makeup class information.

Main Services Provided

- Course registration
  With this system, you can select courses based on the timetable or course registration numbers, and register them. You can add, change, or delete courses as many times as necessary during the course registration period.
- Confirmation of registered courses
  The system displays the list of courses that you registered. Make sure to confirm that the courses you registered are correctly registered during the course registration confirmation period.
- Information on cancelled/makeup/free-scheduled classes
  You are able to check information on class cancellations and makeup/free-scheduled classes for courses you are enrolled in.
- Update and confirm your address
  Students are able to check their own and their guarantors' addresses and contact information. You can also complete an online application to change your address or contact details.

■ Notification from the Yagami Office

When you receive a notification or are being called for by the Yagami Office, a message will be displayed at the upper part of the screen upon logging in.

■ Confirmation of your student ID PIN

Your student ID PIN (four digits) which is required for the certificate issuing machines will continuously displayed on the screen upon logging in.

Courses for International Graduate Programs on Advanced Science and Technology

If international students of Graduate School of Science and Technology take these courses, the lectures will be conducted in English.

Sub School	Subject	Semester	Credit	Professor
General Course	SCIENCE,TECHNOLOGY AND CULTURE	Fall	2	INOUE, KYOKO
	TECHNICAL COMMUNICATION 1	Spring	2	IKEDA, MAYUMI
	TECHNICAL COMMUNICATION 1			INOUE, KYOKO
	TECHNICAL COMMUNICATION 2	Fall	2	IKEDA, MAYUMI
	TECHNICAL COMMUNICATION 2			INOUE, KYOKO
	MACROECONOMIC DEVELOPMENTS AND ECONOMIC POLICY IN JAPAN	Fall	2	SAITO, JUN
Fundamental Science and Technology	INTERNSHIP	Spring	2	HATAYAMA, AKIYOSHI
		Fall		
	CHEMISTRY AND DAILY LIFE	Fall	2	SHING, TONY KUNG MING
	PRACTICAL PRESENTATION IN CHEMISTRY 1	Spring	2	SHING, TONY KUNG MING
	PRACTICAL PRESENTATION IN CHEMISTRY 2	Fall	2	SHING, TONY KUNG MING
	TOPICS IN CARBOHYDRATE CHEMISTRY	Spring	2	SHING, TONY KUNG MING
	SEMINAR ON MODERN ORGANIC CHEMISTRY 1	Spring	2	SHING, TONY KUNG MING
	SEMINAR ON MODERN ORGANIC CHEMISTRY 2	Fall	2	SHING, TONY KUNG MING
	TOPICS IN ORGANOCATALYSIS	Fall	2	SHING, TONY KUNG MING
	ANALYTICAL METHODS IN APPLIED PHYSICS AND INFORMATICS	Spring	2	HONDA, SATOSHI
	SUPERCONDUCTIVITY AND SOLID STATE ENGINEERING	Spring	2	Not offered in 2018
	PHYSICS AND MODELING OF SEMICONDUCTOR DEVICES	Fall	2	ITOH, KOHEI UCHIDA, KEN
	QUANTUM ELECTRONICS	Fall	2	Not offered in 2018
	MATHEMATICAL ENGINEERING FOR QUANTUM MECHANICS	Spring	2	Not offered in 2018
	NATURAL PRODUCTS CHEMISTRY	Fall	2	Not offered in 2018
	CONTROL THEORY FOR BIOSYSTEM	Fall	2	Not offered in 2018
	SYSTEM BIOMECHANICS	Spring	2	Not offered in 2018
	INTELLIGENT MACHINE SYSTEM	Fall	2	MURAKAMI, TOSHIYUKI
	INFORMATION OPTICS AND OPTICAL MEASUREMENTS	Spring	2	OKADA, EIJI
	OPTICAL FUNCTIONAL MATERIALS	Spring	2	KOIKE, YASUHIRO
	NON-LINEAR DYNAMICS IN CHEMICAL SYSTEM	Spring	2	ASAKURA, KOICHI
Integrated Design Engineering	INTERNSHIP	Spring	2	AOYAMA, HIDEKI
		Fall		
	SPACE EXPLORATION ENGINEERING	Fall	2	ISHIGAMI, GENYA
	ULTRAPRECISION MACHINING AND METROLOGY	Spring	2	Not offered in 2018
	MATHEMATICAL AND PHYSICAL METHODS IN FLUID DYNAMICS	Fall	2	SAWADA, TATSUO
	BIOMIMETIC MICRO/NANO ENGINEERING	Spring	2	ONOE, HIROAKI
	MECHANICAL INTERFACE DESIGN	Fall	2	MORITA, TOSHIO
	MEMS: DESIGN AND FABRICATION	Spring	2	MIKI, NORIHISA
	ADVANCED DESIGN AND PRODUCTION SYSTEM	Spring	2	AOYAMA, HIDEKI OYA, TETSUO
	ADVANCED CONTROL SYSTEMS DESIGN	Spring	2	OHMORI, HIROMITSU NAMERIKAWA, TORU
	SYSTEM BIOMECHANICS	Spring	2	Not offered in 2018
	INTELLIGENT MACHINE SYSTEM	Fall	2	MURAKAMI, TOSHIYUKI
	ADVANCED SYSTEM ELECTRONICS	Fall	2	KUBO, RYOGO
	ADVANCED SIGNAL PROCESSING	Spring	2	YUKAWA, MASAHIRO
	DIGITAL WIRELESS COMMUNICATIONS	Spring	2	SANADA, YUKITOSHI
	COMPREHENSIVE EXERCISE OF ELECTRONICS AND ELECTRICAL ENGINEERING	Spring	2	YUKAWA, MASAHIRO
	PHYSICS AND MODELING OF SEMICONDUCTOR DEVICES	Fall	2	ITOH, KOHEI UCHIDA, KEN
	OPTO-ELECTRONICS	Spring	2	KANNARI, FUMIHIKO
	INFORMATION OPTICS AND OPTICAL MEASUREMENTS	Spring	2	OKADA, EIJI
	OPTICAL CONTROL OF QUANTUM SYSTEMS	Spring	2	SAIKI, TOSHIHARU
	OPTICAL NETWORK SYSTEM	Fall	2	Not offered in 2018
	PHOTONIC NANOSTRUCTURE	Spring	2	TANABE, TAKASUMI
	ORGANIC ELECTORONIC MATERIALS AND DEVICES	Fall	2	NODA, KEI
	LASER PROCESSING	Fall	2	TERAKAWA, MITSUHIRO
	CHEMICAL SENSORS / BIOSENSORS AND SENSING MATERIALS	Spring	2	CITTERIO, DANIEL
	FUNCTIONAL THIN FILM ENGINEERING	Spring	2	SHIRATORI, SEIMEI
	TECHNICAL ENGLISH FOR INTEGRATED DESIGN AND ENGINEERING	Spring	2	Not offered in 2018
	OPTICAL FUNCTIONAL MATERIALS	Spring	2	KOIKE, YASUHIRO
	NON-LINEAR DYNAMICS IN CHEMICAL SYSTEM	Spring	2	ASAKURA, KOICHI
	INTRODUCTION TO COMPUTATIONAL SOLID MECHANICS	Spring	2	Not offered in 2018
	COMPUTER ARCHITECTURE	Spring	2	AMANO, HIDEHARU
	COMPUTER VISION	Spring	2	SAITO, HIDEO

Sub School	Subject	Semester	Credit	Professor
Science for Open and Environmental Systems	INTERNSHIP	Spring Fall	2	TAKADA, SHINGO
	INTRODUCTION TO COMPUTATIONAL SOLID MECHANICS	Spring	2	Not offered in 2018
	ANALYSIS OF ARCHITECTURAL FORM	Fall	2	Not offered in 2018
	ARCHITECTURAL AND BUILDING DESIGN STUDIO B	Spring	4	RADVIC, DARKO ALMAZAN, JORGE KISHIMOTO, TATSUYA KONDO, TETSUO SAIKAWA, TAKUMI
	DYNAMICS IN ARCHITECTURAL ENGINEERING	Spring	2	MITA, AKIRA
	PUBLIC SPACE AND COMMUNICATION	Fall	2	INOUE, KYOKO
	ADVANCED COURSE ON SUSTAINABLE ARCHITECTURE AND CITIES	Fall	2	RADVIC, DARKO
	THERMAL AND REACTIVE FLUID DYNAMICS	Spring	2	UEDA, TOSHIHISA
	NON-LINEAR DYNAMICS IN CHEMICAL SYSTEM	Spring	2	ASAKURA, KOICHI
	ADVANCED ACTUATOR ENGINEERING	Fall	2	TAKEMURA, KENJIRO
	COMPRESSIBLE FLUID DYNAMICS	Spring	2	MATSUO, AKIKO
	ADVANCED COURSE IN APPLIED AND COMPUTATIONAL MECHANICS 2	Fall	2	OGIHARA, NAOMICHI OBI, SHINNOSUKE TAKANO, NAOKI MATSUO, AKIKO YASUOKA, KENJI CHUN, HEOUNGJAE TAKEMURA, KENJIRO ANDO, KEITA
	FUNDAMENTALS OF MULTIPHASE FLOW	Spring	2	ANDO, KEITA
	BIOMECHANICS AND CONTROL OF HUMAN MOVEMENTS	Fall	2	OGIHARA, NAOMICHI
	ADVANCED COURSE OF MOLECULAR DYNAMICS	Fall	2	YASUOKA, KENJI
	FINITE ELEMENT MODELING AND SIMULATION	Fall	2	TAKANO, NAOKI
	FUNDAMENTALS OF TURBULENCE AND ITS THEORY	Spring	2	FUKAGATA, KOJI
	INTRODUCTION TO TURBULENCE MODEL AND ITS APPLICATION	Fall	2	OBI, SHINNOSUKE
	AD HOC AND SENSOR NETWORK	Fall	2	OTSUKI, TOMOAKI
	ADVANCED COURSE OF INTERNET BACKBONE ARCHITECTURE	Spring	2	YAMANAKA, NAOAKI
	TOPICS IN COMPUTER OPERATING SYSTEMS	Spring	2	KONO, KENJI
	FORMAL PROGRAMMING LANGUAGE THEORY	Spring	2	TAKIMOTO, MUNEHIRO
	COMPUTER ARCHITECTURE	Spring	2	AMANO, HIDEHARU
	ADVANCED COURSE ON COMPUTER VISUALIZATION	Spring	2	FUJISHIRO, ISSEI
	COMPUTER SCIENCE: EXERCISES	Fall	2	TAKADA, SHINGO
	COMPUTER VISION	Spring	2	SAITO, HIDEO
	SYSTEMS PERFORMANCE EVALUATION	Fall	2	Not offered in 2018
	ADVANCED COURSE ON NATURAL LANGUAGE PROCESSING	Fall	2	OHARA, KYOKO SAITO, HIROAKI
	DESIGN OF PHYSICALLY GROUNDED COMMUNICATION SYSTEM	Spring	2	IMAI, MICHITA
	SOFTWARE ENGINEERING: DEVELOPMENT AND TESTING	Spring	2	TAKADA, SHINGO
	ADVANCED COURSE ON DIGITAL COMMUNICATION THEORY	Spring	2	SASASE, IWAO
	ADVANCED COURSE IN DATABASE SYSTEMS	Spring	2	TOYAMA, MOTOMICHI
	ADVANCED COURSE ON NETWORK ENGINEERING	Spring	2	TERAOKA, FUMIO
	ADVANCED COURSE ON NETWORK SERVICES	Fall	2	KANEKO, KUNITAKE
	MIXED REALITY	Spring	2	Not offered in 2018
	DISTRIBUTED SYSTEMS	Fall	2	MATSUTANI, HIROKI
	MODELS FOR CONCURRENCY	Spring	2	YOSHIDA, NOBUKO
	MICROPROCESSOR ARCHITECTURE	Fall	2	YAMASAKI, NOBUYUKI
	ADVANCED COURSE ON APPLICATION OF EXPERIMENTAL DESIGN	Fall	2	YAMADA, SHU
	APPLIED STATISTICAL ANALYSIS	Fall	2	SUZUKI, HIDEO
	OPEN SYSTEMS MANAGEMENT: LECTURE AND EXERCISES	Fall	2	IMAI, JUNICHI SUZUKI, HIDEO HIBIKI, NORIO MASUDA,YASUSHI MATSUKAWA, HIROAKI YAMAGUCHI, TAKAHIRA YAMADA, SHU MATUURA, SHUN KURIHARA, SATOSHI
	OPERATIONS MANAGEMENT	Spring	2	MATSUKAWA, HIROAKI
	MODELING AND ANALYSIS OF STOCHASTIC SYSTEMS	Fall	2	MASUDA, YASUSHI
	ADVANCED FINANCIAL ENGINEERING 1	Spring	2	IMAI, JUNICHI

Curriculum for International Students

The Graduate School of Science and Technology consists of two years of Master's program followed by three years of Ph.D. program. The school is divided into the following three sub-schools:

School of Fundamental Science and Technology

Center for Mathematics
Center for Physics
Center for Molecular Chemistry
Center for Applied Physics and Physico-Informatics
Center for Chemical Biology
Center for Biosciences and Informatics

School of Integrated Design Engineering

Center for Multidisciplinary and Design Science
Center for System Integration Engineering
Center for Electronics and Electrical Engineering
Center for Material Design Science

School of Science for Open and Environmental Systems

Center for Space and Environment Design Engineering
Center for Science of Environment and Energy
Center for Applied and Computational Mechanics
Center for Information and Computer Science
Center for Open Systems Management

Every graduate student in the graduate school officially belongs to one of the three sub-schools listed above, and performs research under the guidance of his/her academic advisor who belongs to one of the centers. Each center consists of faculty members and graduate students whose research interests match the field specified by the name of the center.

1. 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 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. Compulsory courses will be set for some centers.

Independent Study Course（課題研究科目）

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 sufficient knowledge obtained for starting Master's thesis research. Obtaining credits in this course is a prerequisite for studying in Graduate Research course.

Graduate Research Course（特別研究科目）

Graduate Research course is designed to provide students with opportunities to perform individual research projects leading to the completion of their Master's and Ph.D. theses. Every student is expected to select a research topic of his/her own, based not on his/her faculty member' s interests but on his/her individual interests and future goals. The level of these Master's and Ph.D. theses is expected to be very high; and the contents should be presentable at internationally recognized scientific journals and meetings. It is possible to acquire a doctoral degree in philosophy if the research topic of the student's interest does not fall within the categories of science and engineering.

(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 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.

Compulsory		
Independent Study（課題研究科目）		4 credits
Graduate Research 1（特別研究第１）		6 credits
Elective		
General Courses（総合科目）	Maximum number of credits you can count towards your degree requirement is six.	20 credits
Specialized Courses（専門科目）	No upper limit for the number of credits.	
	TOTAL	30 credits
Free Elective Courses（自由科目）	Credits for these courses cannot be counted towards your degree requirement (e.g., Japanese).	

- As an exception, students may complete the Master's program in one to one and a half year if they acquire the required

credits, produce outstanding research results and pass the final evaluation.
- Every student should enroll in *Independent Study* during the first year of the Master's program, and *Graduate Research 1* during the second year of the program.
- Students are required to complete at least 16 credits (including *Independent Study*) during the first year of the program in order to register for *Graduate Research 1*.
- Credits for Japanese classes DO NOT count toward the degree requirement. For more details, please contact the Office of Student Services (International).

(2) Selection of an Advisor

An academic advisor must be selected for the Master's Program. Advisors are selected from staffs responsible for the Independent Study course taken by each student in the respective center. It is compulsory for applicants to specify their preferred advisors on the application form when taking the entrance exam. Advisors give guidance in Independent Study and advice on the courses to be taken. If necessary, based on the advisor's judgment, guidance may be received from more than one advisor.

After matriculation, students are permitted to officially change their advisor upon advancing to the second year, at the time of registering for the Graduate Research 1, due to changes in the direction of research, etc. If a change of advisors is necessary at times other than this, please consult the Vice Academic Coordinator.

(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 sub-school 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 Master's program in March, final evaluation of the Master's thesis will be given between late January and early February based on written thesis and oral or other forms of presentations.

For those completing the program in September, the evaluation will be given in mid August.

(4) Criteria for Evaluating Master's Thesis

School of Fundamental Science and Technology

1) The Master's thesis should be based on the student's own work.
2) It should provide a logical and detailed description of student's research. It should consist of the student's original result of work, or discovery of new approach, knowledge and interpretation.
3) It should appropriately cite previous research in the field.

School of Integrated Design Engineering

The Master's thesis will be examined in accordance with the following criteria and comprehensive evaluation will be made based on the written thesis and oral presentation.

1) The Master's thesis should be based on the student's own work.
2) It should consist of the student's original result of work, or discovery of new approach, knowledge and interpretation.
3) It should cite previous research in the field appropriately.
4) It should provide a logical and detailed description of student's research and show objectivity.

School of Science for Open and Environmental Systems

The Master's thesis will be examined in accordance with the following criteria and comprehensive evaluation will be

made.

1) The Master's thesis should be based on the student's own work.
2) It should consist of the student's original result of work, and discovery of new approach, knowledge and interpretation.
3) It should cite previous research in the field appropriately.
4) It should provide a logical and detailed description of student's research and show objectivity.

(5) Types of Master's Degrees

Students may pursue studies leading to any of the following degrees.

The School of Fundamental Science and Technology: **Master of Science in Engineering** or **Master of Science**
The School of Integrated Design Engineering: **Master of Science in Engineering** or **Master of Science**
The School of Science for Open and Environmental Systems: **Master of Science in Engineering**

2. Ph.D. Program

(1) Requirements for Completion of the Ph.D. program

The requirements to complete the Ph.D. program are: 1) at least three academic year in the Ph.D. Program; 2) completion of the Ph.D. Graduate Research (six credits); 3) approval of the Ph.D. thesis; and 4) passing of the final evaluation.

A student may complete his/her Ph.D. Program in one to two and a half years (a total of three or more years combined with the time spent in the Master's Program) if he/she produces outstanding research results.

(2) Selecting an Academic Advisor

Upon admission to the Ph.D. Program, an advisor must be selected from among those in charge of Graduate Research 2 to be taken in association with the major field. This advisor will offer guidance for the Ph.D. thesis. If necessary, guidance may be given jointly by multiple advisors.

(3) Course Requirements for the Ph.D. program

Graduate Research 2 is the only required course for completion. In this course, a student will be given guidelines and engage in discussions with his/her advisor on how to prepare for his/her Ph.D. thesis. Upon acceptance, a student is required to submit a proposal on the subjects he/she wishes to pursue in his/her Ph.D. program. This proposal needs to be approved by their advisor before being submitted. If it is deemed necessary after a discussion with the advisor, a student may choose courses that are offered in the master's program or in other research departments.

(4) Publication of the Research Results

Students in the Ph.D. program are strongly urged to publish their research results. It is recommended that students submit their work to a professional publication or introduce the results at international conferences or major academic conferences. The publication will be presented as academic achievements at the completion of the Ph.D. program.

(5) Necessary Procedures for Enrollment

The standard duration of the Ph.D. program is three years (except leave of absence period). Students may not attend the program for a period exceeding six years. Within the six-year period after admission, students are eligible to submit a Ph.D. thesis and apply for a Ph.D. degree.

Students must submit one of the following documents before the standard three-year period expires depending on the

progress of their Ph.D. thesis.
The approval seal or signature of the academic advisor must be put on each form. You are strongly advised to discuss your thesis progress with your academic advisor fully before submission and get his/her approval.

(1) Report on Expected Completion of Ph.D. Program
Applies to the Ph.D. students who have earned a required number of credits, passed the final evaluation and are expected to complete the Ph.D. program. The first and second-year students who are expected to complete before the three-year standard period must also submit this.

(2) Application for Extension of Enrollment Period
Applies to the third-year Ph.D. students who wish to extend their enrollment for another one year.

(3) Notification of Withdrawal from the Ph.D. Program with the Completion of Course Requirements
Applies to the students who have enrolled in the Ph.D. program for three years or more and wish to withdraw from the Ph.D. program with completing course requirements, obtaining the required number of credits (six credits for Graduate Research 2), but not submit the Ph.D. thesis nor pass the final evaluation.

Period for submission: Once a year in late January for April enrollment students, in late July for September enrollment students. Submit the completed form to the designated box at the Academic Services.

You can download the forms from the URL below.
[Keio University Science and Technology website]-[For Students]-[Academic Service]-[Forms]
http://www.gakuji.keio.ac.jp/en/yagami/gakuseki_rikouken.html

(6) Ph.D. Thesis Assignment
For details, please refer to the "Application Guide for the Ph.D. Degree" available from the following website.
http://www.gakuji.keio.ac.jp/yagami/hakaseronbun_rikouken.html
[Keio University Science and Technology website]-[For Students]-[Academic Service]-[Ph.D. Degree Application]

(7) Evaluation for a Ph.D. Degree
A successful completion of the Ph.D. program is based on the following procedures.

(1) Establishment of an evaluation committee among the faculty members belonging to one of the three sub-schools to which the candidate belongs. External members from outside the school or university may be added to the committee if appropriate.
(2) Evaluation of the Ph.D. thesis by the committee and open-to-public research presentation by the candidate.
(3) A closed-door examination by the committee on the basic knowledge related to the candidate's field of research, and language skills.
(4) A total and final evaluation of the candidate by all the members of the sub-school.

Further evaluation and standards vary depending on the sub-schools. Please refer to the conditions for each schools.

School of Fundamental Science and Technology

(1) Nomination as a Ph.D. candidate
Each research advisor is responsible for the nomination of his students to the school as Ph.D. candidates when they are fully prepared to receive the degree. The advisor requests the school for the official permission to start the evaluation procedure.

(2) Submission of lists of research achievements
The main outcome of the thesis is required to have been published or accepted for publication in major research journals by the end of final evaluation. Candidates are expected to submit:
a) List of research presentations at international and domestic scientific meetings.

b) List of publications including those that have been submitted but not accepted.
c) CV describing the candidate's previous experience in research and teaching.

The candidates should follow instructions from their advisors when preparing above documents.

(3) Preliminary evaluation

Those students who plan to finish the Ph.D. program must undergo a preliminary review before filing an application for the degree. The Ph.D. thesis does not have to be completed for the preliminary evaluation to begin. The candidate's qualification as a Ph.D. is evaluated by all members of the sub-school and by external committee members of the candidate's thesis, based on the list of research achievements submitted. After passing the preliminary evaluation, the evaluation for a Ph.D. degree is officially initiated.

School of Integrated Design Engineering

(1) The outcome of the candidate's Ph.D. research should contribute to the advancement of science, technology, and industrial development. The candidate must possess sufficient knowledge and understanding in his/her field of study, and be qualified to lead innovative research and development activities internationally.

(2) A multiple number of publications in appropriate academic journals (including those that have been accepted for publication but not printed) based on the candidate's Ph.D. research is considered standard for the Ph.D. degree application.

(3) Submission of research achievements

As a reference to determine whether the Ph.D. degree should be conferred, the following should be submitted with the application:

1) Published articles (including those that have been accepted for publication but yet to be printed);
2) Records of presentations at academic meetings and international conferences;
3) Description of other research activities.

School of Science for Open and Environmental Systems

(1) The criteria for determining if a Ph.D. degree should be awarded are as follows; (a) the candidate possesses sufficient knowledge and understanding of his/her field of study, (b) the candidate is capable of conducting highly sophisticated and intellectually productive engineering activities, and (c) the candidate is familiar with basic methodologies to carry out engineering tasks.

Since this school aims to expand scientific and technological methodologies to many fields, we accept flexibility in the forms of research and presentation.

(2) The Ph.D. thesis will be examined by an examination committee, chaired by the student's (major) advisor.

(3) When deciding on the student's research plan, the student's advisor will specify the criterion that will be used to judge his/her completion of the Ph.D. Program.

(4) A Ph.D. candidate shall report to the committee his/her research accomplishments, including papers published in research journals as well as publications in other formats in related fields. In certain cases, the candidate will be required to submit the following information, related to his/her Ph.D. research activities:

1) Records of presentations given at international conferences and academic meetings
2) Research experience

The student must ask his/her advisor whether to include above two information or not.

(8) Criteria for Evaluating Ph.D Thesis

School of Fundamental Science and Technology

1) The Ph.D. research should be the candidate's own work and be based on an appropriate methodology, discussion, and sufficient actual proof.
2) It should show originality and creativity. The outcome of the candidate's research should contribute to the

advancement of science, technology or development of related academic fields and society.

3) It should consist of precise description and citation of previous research based on the candidate's own investigation and demonstrate the scope of candidate's work.

School of Integrated Design Engineering

The Ph.D. thesis will be examined in accordance with the following criteria and comprehensive evaluation will be made based on an oral presentation and final examination.

1) The Ph.D. thesis should be based on the candidate's own work.
2) It should show originality and creativity. The outcome of the candidate's research should contribute to the advancement of science, technology and industry.
3) It should consist of precise description and citation of previous research and demonstrate the scope of candidate's work.
4) It should provide a logical and detailed description of student's research and show objectivity.
5) The main outcome of the Ph.D. thesis should be published multiple times in major research journals and not considered as original articles related to the other Ph.D. thesis. The candidate should be the lead author of the publication.

School of Science for Open and Environmental Systems

The Ph.D. thesis will be examined in accordance with the following criteria and comprehensive evaluation will be made.

1) The Ph.D. thesis should be based on the candidate's own work.
2) It should show originality and creativity. The outcome of the candidate's research should contribute to the advancement of science, technology and industry.
3) It should consist of precise description and citation of previous research and demonstrate the scope of candidate's work.
4) It should provide a logical and detailed description of student's research and show objectivity.
5) The main outcome of the Ph.D. thesis should meet the standards set by each Center.
6) The candidate should present their research in an oral presentation and answer questions accurately.

(9) Types of Ph.D. Degrees

Students may pursue studies leading to any of the following degrees.

The School of Fundamental Science and Technology: **Ph.D. in Engineering** or **Ph.D. in Science**
The School of Integrated Design Engineering: **Ph.D. in Engineering** or **Ph.D. in Science**
The School of Science for Open and Environmental Systems: **Ph.D. in Engineering**
In addition to above, the degree of **Doctor of Arts** may be conferred.

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. This is 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:
http://www.gakuji.keio.ac.jp/en/yagami/syuusironbun_rikouken.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 2018 completion: early June to 4:00 pm, Monday, June 25, 2018
      March 2019 completion: early November to 4:00 pm, Monday, November 26, 2018

   2) **Paper version thesis**
      The thesis must be arranged in the following order in an A4-size paper folder and submit with the ***Thesis Copyright Agreement Approval Form*** (your advisor's signature is required).

1. A Spine	: stick on the folder's spine	(see sample format)
2. B Front cover	: stick on the folder	(see sample format*)
3. C Title page	: file in the folder	(see sample format*)
4. D Abstract	: about 400 words	(see sample format)
5. Table of contents		
6. Text	* B **Front cover** and C **Title page** are the same format	

      Date of Submission
      September 2018 completion: Monday, August 6, 2018 at the Academic Services (1F, 25th Bldg.)
      March 2019 completion: Tuesday, February 5, 2019 at Discussion Space 33, 34 (3F, 14th Bldg.)

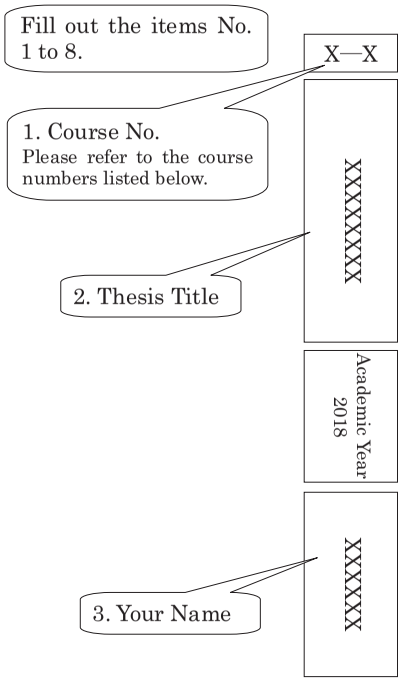
   3) **PDF version thesis**
      Create a PDF file of your thesis and upload the file by logging into "Keio University Class Support" via "keio.jp".
      Submission Deadline
      September 2018 completion: 4:00pm, Friday, August 31, 2018
      March 2019 completion: 4:00pm, Thursday, February 28, 2019

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 2018 completion: August 20, 2018
   March 2019 completion: February 12, 2019

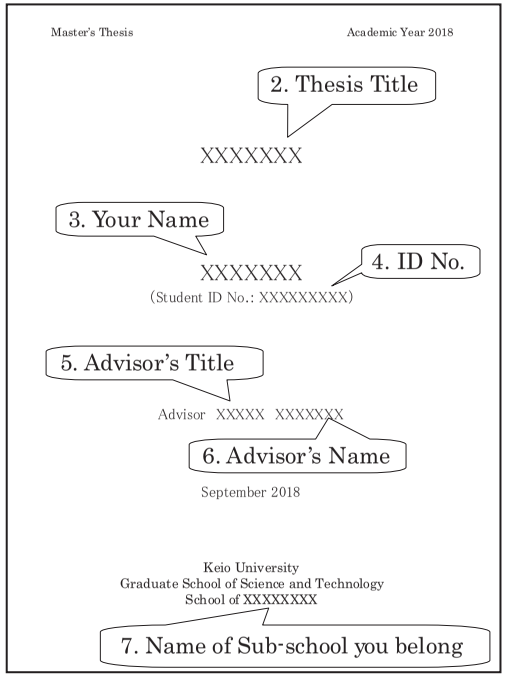
NOTE
1. The thesis title must be EXACTLY identical with the one declared via "keio. jp".
2. Students must present their thesis in person.

Sample format for master's thesis in academic year 2018

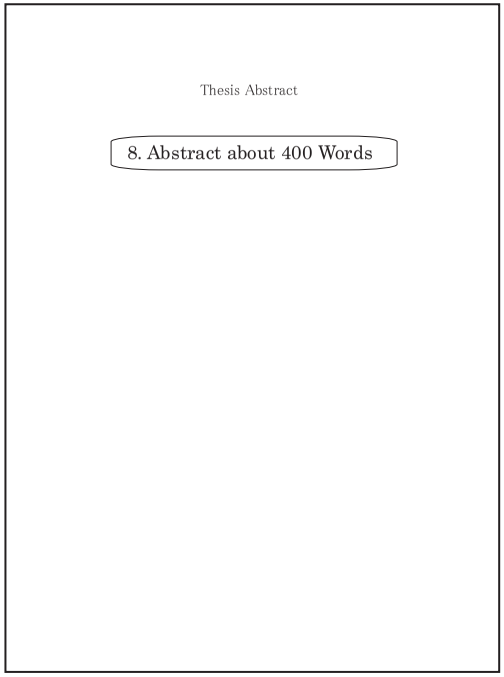
A Spine



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



D Thesis Abstract (free-form)



***Graduate Research 1* Course Numbers**

Sub school: Fundamental Science and Technology		Sub school: Integrated Design Engineering		Sub school: Science for Open and Environmental Systems	
1–1	Mathematics	2–1	Multidisciplinary and Design Science	3–1	Space and Environment Design Engineering
1–2	Physics	2–2	System Integration Engineering	3–2	Science of Environment and Energy
1–3	Molecular Chemistry	2–3	Electronics and Electrical Engineering	3–3	Applied and Computational Mechanics
1–4	Applied Physics and Physico-Informatics	2–4	Material Design Science	3–4	Information and Computer Science
1–5	Chemical Biology			3–5	Open Systems Management
1–6	Biosciences and Informatics				

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

*Please make sure to see the website for details:

http://www.gakuji.keio.ac.jp/en/yagami/syuusironbun_rikouken.html

[Keio University Science and Technology website]-[For Student]-[Academic Services]-[Master's Thesis Assignment]

*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.

Keio University
Graduate School of Science and Technology

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https://www.st.keio.ac.jp/en/