PROSPECTUS
FOR
THE DOCTORAL PROGRAM

Graduate School of Engineering
KOBE UNIVERSITY
Term 3, 2022
(Starting in April, 2022)

There may be changes to the application guidelines due to the novel coronavirus (COVID-19) situation.
If there are any such changes, we will inform you through the website below.
Please check our website again before applying for the entrance examination.

http://www.eng.kobe-u.ac.jp/eng-ofc/kym/examinee.htm

About Kobe University Graduate School of Engineering

Kobe University Graduate School of Engineering was established in April 2007 in the wake of the reorganization of the Graduate School of Natural Science. Both the Master's and Doctoral Programs of the Graduate School of Engineering consist of the following five departments: Architecture, Civil Engineering, Electrical and Electronic Engineering, Mechanical Engineering, and Chemical Science and Engineering.

A Doctoral Degree, either a Doctor of Philosophy in Engineering or a Doctor of Philosophy, will be granted upon completion of the Doctoral Program of the Graduate School of Engineering.

Admission Policy of Kobe University Graduate School of Engineering

Engineering refers to an academic discipline dedicated to developing an understanding of nature to serve humanity, pursuing the principles of nature to solve social issues, and building a sustainable society in which people can live in harmony with nature.
The Graduate School of Engineering promotes fundamental scientific research, engages in applied research that contributes to society, and conducts research and education to develop individuals who can demonstrate advanced and broad knowledge, extensive creativity, high ethical standards, and global mindedness. The Graduate School is committed to enrolling students from a wide range of backgrounds, including people who have conducted and published research at a company, laboratory, or the like, and international students.
The Graduate School of Engineering welcomes applications from those who meet the criteria below, in addition to the criteria set forth in the Admission Policy of Kobe University
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Doctoral Program

●Applicants are sought with the following qualities and abilities:

1. Students who show enthusiasm for identifying the principles underlying natural phenomena and possess the potential to contribute to human society through science and technology.
   [Required competences: critical thinking, good judgement, expression, interest, and motivation]
2. Students who possess high ethical standards and is able to consider the impact of science and technology on human society.
   [Required competences: critical thinking, good judgement, expression, interest, and motivation]
3. Students who derive satisfaction from identifying novel challenges and finding creative solutions.
   [Required competences: critical thinking, good judgement, expression, interest, and motivation]
4. Students who use their international experience to increase their cultural awareness, particularly with respect to the potential applications of their research.
   [Required competences: critical thinking, good judgement, expression, initiative, cooperativeness, interest, and motivation]
5. Students who demonstrate a passion for acquiring advanced and specialized academic knowledge and capabilities in order to conduct cutting-edge research.
   [Required competences: knowledge, technique, critical thinking, good judgement, expression, interest, and motivation]

●Basic Policy for the Selection of Students:
In order to select students demonstrating the qualities above, in line with the Diploma Policy and Curriculum Policy of the Doctoral Program of the Graduate School of Engineering, the Graduate

School assesses various competences in the entrance examination below.
General entrance examination is designed to assess knowledge, technique, critical thinking, good judgement, expression, initiative, cooperativeness, interest, and motivation.

(Admissions enquiries for the Doctoral Program of the Graduate School of Engineering)

Kobe University Graduate School of Engineering, Student Affairs Section
1-1, Rokkodai-cho, Nada-ku, Kobe 657-8501
Tel : 078-803-6350
e-mail: eng-kyomugakusei@office.kobe-u.ac.jp
Graduate School of Engineering Website: http://www.eng.kobe-u.ac.jp/
Kobe University Website: https://www.kobe-u.ac.jp/

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I The Doctoral Program of the Graduate School of Engineering
General Admission Guidelines

2022 April (Term 3)
Kobe University Graduate School of Engineering, the Doctoral Program
Application Guidelines

1. Departments and the Number of Students to be Accepted

Department	No. of Students
Architecture	A few
Civil Engineering	A few
Electrical and Electronic Engineering	A few
Mechanical Engineering	A few
Chemical Science and Engineering	A few
Total	A few

(Note) The number of students to be accepted includes students who go on to a doctoral program from our master's programs, foreign students and students entering from the workforce.

2. Qualification for Applicants

Applicants must currently meet one of the following requirements or be eligible to meet one of these requirements by March 31, 2022.

(1) Those who have obtained a master's degree or the professional degree

(2) Those who have obtained a degree equivalent to a master's degree or a professional degree in a foreign country

(3) Those living in Japan who have completed a correspondence course in a foreign-affiliated educational institution and obtained a degree equivalent to a master's degree or a professional degree

(4) Those who have completed their education in a foreign-affiliated university within a school educational system of a foreign country in Japan and designated by the Minister of Education, Culture, Sports, Science and Technology, limited to those who have obtained a degree equivalent to a master's degree or a professional degree

(5) Those who have been conferred, a degree equivalent to a master's degree from the United Nations University which was promulgated by the General Assembly of the United Nations on December 11, 1972 and in accordance with the Agreement between Japan and the United Nations concerning the Act on Special Measures Incident to Enforcement of the Agreement between the United Nations and Japan regarding the Headquarters of the United Nations University (1976, Resolution 72, Article 1, Item 2)

(6) Those who have completed the curricula at a foreign university, an educational institution which is designated under Item 4, or the United Nations University and are recognized as having academic abilities equivalent or superior to those given a master's degree by passing the examination and screening which are equivalent to the ones stipulated in Article 16, paragraph (2) of the Standards for Establishment of Graduate Schools (under Minister of Education, Culture, Sports, Science and Technology Ordinance No. 28, 1974).

(7) Those who are approved by the Minister of Education, Culture, Sports, Science and Technology (under Minister of Education, Culture, Sports, Science and Technology Public Notice No. 118, 1989).

(8) Those who are 24 years of age or older and are recognized by Eligibility Screening as having academic abilities equivalent or superior to those given a master's degree or a professional degreee.

【Note】 Those who intend to apply under the requirement (7) or (8) above should refer to "8. Eligibility Screening" because they are subject to screening prior to their applications.

3. Application Procedures

（1） Period of application and how to submit the application
From January 4 (Tue) 2022 to January 7 (Fri) 2022 (except Saturday & Sunday)
When you submit in person, the office hours are Monday through Friday, from 9:00 to 12:00 & 13:00-17:00.
If you submit by mail, your application documents must arrive no later than 17:00, **January 7 (Fri) 2022**. On the envelope, write “Application Documents for the Doctoral Program” in red and mail it by “express registered mail”

（2） Mailing Address:
Kobe University Graduate School of Engineering, Students Affairs Section
1-1, Rokkodai-cho, Nada-ku, Kobe 657-8501
Tel (078) 803-6350 (direct)

（3） Application documents

Application Documents		Applicants who are required to submit	Comments
(A)	Application Form	All Applicants	Form designated by the Graduate School of Engineering (Form No.1)
(B)	ID for the examination	All Applicants	Form designated by the Graduate School of Engineering (Form No.3)
(C)	Certificate of Payment Card	All Applicants	Form designated by the Graduate School of Engineering (Form No.4)
(D)	Photograph	All Applicants	Affix two copies of photograph to the designated places on the application form and the ID for the examination. Enclose also a copy of photograph which is 3 cm long and 2.4 cm wide for your student ID card. The photograph should be 4 cm long and 3 cm wide and of upper body, taken within three months prior to submitting the application; in the picture, you should be looking straight ahead with your head uncovered.
(E)	Curriculum Vitae	All Applicants	Form designated by the Graduate School of Engineering (Form No.2)
(F)	Certificate of (Prospective) Graduation	Applicants who apply with a Qualification for Applicants (1), (2), (3), (4) or (5)	A Certificate of (Prospective) Graduation issued by the head of department or the principal of the graduate school you graduated from. If the Graduation Certificate indicated above does not show the degree you obtained, please submit a certificate of degree as well.
(G)	Academic Transcript (1)	All Applicants	Academic performance record created by the head of faculty or the principal of the university you graduated from
(H)	Academic Transcript (2)	Applicants who apply with a Qualification for Applicants (1), (2), (3), (4) or (5)	Academic performance record created by the head of department or the principal of the graduate school you graduated from

(I)	Entrance Exam Fee: 30,000 Japanese yen	All Applicants	Bring the attached form of JP bank (Form No. 5) and deposit the fee from the bank; make sure to affix the proof of receipt of postal transfer for entrance exam fee to the mounting card and send it together with the application documents. (When paying from overseas, please refer to the "Guide for overseas remittance of entrance examination fees" on page 9.) Japanese government-sponsored international students who will continue to be so after enrollment do not have to pay the fee on condition that they submit the "Certificate of Japanese Government-sponsored International Student" from the university where you are currently enrolled (unless you are a student of Kobe University).
(J)	A Copy of Master's Thesis	Applicants who have completed a master's degree program (master course)	A copy of your master's thesis written either in Japanese or in English. If not available, please contact the Student Affairs Section of Graduate School of Engineering in advance and follow the instructions you will be provided.
	Summary of Master's Thesis	Applicants who have completed a master's degree program (master course)	A set of copies of the A4 outline written in both Japanese (approx. 2,000 characters) and English (approx. 1,200 words), with a cover sheet designated by the Graduate School of Engineering (Form No. 6). For foreign applicants, an English copy alone is sufficient.
	Research Progress Report	Applicants who are expected to complete a master's degree program (master's course) or who have succeeded in eligibility screening	A set of copies of the A4 report written in both Japanese (approx. 2,000 characters) and English (approx. 1,200 words), with a cover sheet designated by the Graduate School of Engineering (Form No. 6). For foreign applicants, an English copy alone is sufficient.
	Reference Material	All Applicants	Any reference material other than indicated above may be submitted.
(K)	Research Proposal	All Applicants (except successful applicants of eligibility screening)	A copy of A4 report written in Japanese (approx. 2,000 characters) or English (approx. 1,200 words) with a cover sheet designated by the Graduate School of Engineering (Form No. 7) indicating the details of your intended research and field.
(L)	Resident Certificates	Foreign Applicants	Foreign applicants should submit a copy of Resident Certificate which is issued by the local municipality (valid for 30 days from issue date), or a document that can take the place of the Resident Certificate. (Only for those residing in Japan)
(M)	Self-Addressed Forms	All Applicants	Write your postal code, address, and name in the form designated by the Graduate School of Engineering (Form No.8).

(N)	Envelope	All Applicants (except those who live abroad)	Write your postal code, home address and name on the envelope designated by the Graduate School of Engineering and attach 384 yen stamps(Form No.9).

〔Note〕

(1) No changes are allowed in the application documents once they have been received. The entrance exam fee will not be returned to an applicant except in cases where the applicant did not apply or the application was not accepted.

(2) Make sure that documents created in a foreign language other than English are accompanied by a Japanese translation with the translation accreditation issued by a public institution such as the diplomatic facilities of Japanese or foreign government.

(3) Applicants should select a desired faculty member from the "Departments and Divisions Guidance" and indicate his/her name in the admission application form. Without the desired faculty member's name, the application documents will not be accepted. Also, applicants should closely contact the expected academic supervisor and create a research proposal.

(4) For those who submit a certificate of prospective graduation, please submit a certificate of graduation when you enroll. If the certificate does not show the degree you obtain, please submit a certificate of degree as well.

4. Screening Methods

Admission will be determined based on the results of academic examination together with the submitted documents.

The academic examination will consist of an oral examination and interview.

(1) Content of a master's thesis or research progress report
Examined as to whether or not the applicant has basic academic skills required for the course.

(2) English capability (for applicants graduated from a foreign university, both English and Japanese language skills are examined)
Examined as to whether or not the applicant has language skills required for the course.

(3) Content of research proposal
Examined as to whether or not the research plan meets the doctoral degree to be awarded.

5. Date and Place for the Interviews

Date	Place	Remark
February 2, 2022 (Wed)	Graduate School of Engineering Building, Kobe University,	Applicants will be notified of time and place for the interview at a later date.

If applicants who live outside Japan cannot attend interviews at the date and place indicated above due to a particular reason, a remote interview may be approved through facilities such as videoconferencing. Applicants wishing to be interviewed remotely must apply to the expected academic supervisor and receive a written permit before submitting the application form.

【Access to Kobe University Graduate School of Engineering Building】
Hanshin "Mikage" station, JR "Rokkomichi" station, or Hankyu "Rokko" station.
Kobe Municipal Bus No. 16 (bound for Rokko Cable)
Shindai Kokusai Bunkagaku Kenkyuka Mae, 5 min on foot to the Rokkodai Campus

6. Announcement of Successful Applicants

February15, 2022 (Tuesday) 10:00 (scheduled)

The results will be announced via the website of Kobe University Graduate School of Engineering.
http://www.eng.kobe-u.ac.jp/eng-ofc/kym/examinee.html
※Successful applicants will receive the acceptance letter. Inquiries will not be accepted via telephone.

7. Admission Procedure

(1) Admission procedure period and admission documents
The admission procedure period is scheduled to be around mid-March 2022. The details will be mailed to each successful applicant in late February 2022 with necessary documents for the procedure.

(2) Fees

Division		In Japanese yen	Remark
Admission fee		282,000	Admission fee should be paid during the admission procedure period.
Tuition fee	For semester	267,900	Refer to the "General Information for Successful Applicants" which will be sent in late February 2022. ［In case the tuition is revised, the new fee is applied from the time of the revision.］
	Annual total	535,800	

（Note） The amounts quoted above apply to 2021.

〔Note〕
(1) The admission of applicants who fall under the following items may be revoked.
(A) Applicants who made a false declaration
(B) Applicants who did not meet the qualification requirements
(2) The admission fee already paid will not be returned for any reason.
(3) Admission fee and tuition fee are not required for Japanese government-sponsored international students who will continue to be so after enrollment.

8. Eligibility Screening

Those who intend to apply under the requirements "2. Qualification for Applicants (7) or (8)" will be screened by the following documents submitted.

(1) Documents necessary for screening
(A) Application Form for Examination of Qualification: the application form designated by the Graduate School of Engineering (Form No. 10)
(B) Graduation certificate created by the head of faculty or the principal of the university you graduated from
(C) Curriculum Vitae: the form designated by the Graduate School of Engineering (Form No. 2)
(D) History of research: created by immediate manager or representative of education/research institute or company where the research was conducted. If such a certification is unavailable, an application written by the applicant can substitute it. Use the form designated by the Graduate School of Engineering. (Form No. 11)
(E) Research experience (A4): the outline of a thesis that is "an equivalent of master's thesis". A set of copies written in both Japanese (approx. 2,000 characters) and English (approx. 1,200 words), with a cover sheet designated by the Graduate School of Engineering (Form No. 12).

For foreign applicants, an English copy alone is sufficient.

(F) Materials of research achievements: Index of thesis and separate print (photocopy acceptable), which are the basis of the research achievements, along with references of other achievements, if any. In case of collaborative research, attach the material clearly indicating the portion the applicant was in charge.

(G) Research proposal (A4): a copy of a report indicating the field and research the applicant would like to explore, written either in Japanese (approx. 2,000 characters) or English (1, 200 words) with a cover sheet designated by the Graduate School of Engineering (Form No. 7).

(H) A self-addressed envelope (23.5cm long×12cm wide with a 384 yen stamp)

Note that those who have completed a 6-year course of medical college, dental college, or veterinary medicine are not required to submit the abovementioned (D), (E) and (F).

(2) Period and place for submission

Your application documents must be submitted in person or by mail (simple registered mail marked "Application Form for Examination of Qualification" in red on the envelope) by Friday, December 3, 2021, to the Student Affairs Section of the Graduate School of Engineering.

Office hours (for those who hand in): Monday through Friday: 9:00-12:00 & 13:00-16:00

(3) Announcement of the screening results

Successful applicants will be notified of the result by Thursday, December 16, 2022.

9. Others

1. Admission Fee Payment Exemption

Applicants recognized as having extreme difficulties in making the payment of the admission fee who fall under any of the following categories and make the relevant application may be exempted from the payment of all or half the admission fee upon screening. (low income does not automatically qualify applicants for the exemption.)

（1）The person mainly responsible for paying school expenses for the applicant having passed away within the year prior to admission.

（2）The applicant or the person mainly responsible for paying school expenses for the applicant having suffered from flood or storm damage within the year prior to admission.

（3） The applicant having a reason equivalent to either of the above-mentioned that is recognized by the University.

2. Admission Fee Payment Deferral

Applicants who fall under any of the following categories and make the relevant application may be able to defer payment of the admission fee for a certain period upon screening (subject to confirmation by Kobe University).

（1）Applicants, for whom payment by the payment deadline has become difficult due to financial reasons, and who are recognized as having excellent academic records.

（2）Applicants for whom payment by the payment deadline has become difficult because the person mainly responsible for paying school expenses for the applicant has passed away within the year prior to admission.

（3）Applicants for whom payment by the payment deadline has become difficult because the applicant or the person mainly responsible for paying school expenses for the applicant has suffered from flood or storm damage within the year prior to admission.

（4）Applicants for whom payment by the payment deadline has become difficult due to unavoidable circumstances other than indicated above.

3. Tuition Fee Payment Exemption

Applicants who fall under any of the following items and make the relevant application may be exempted from the payment of all or half of the tuition fee upon screening.

（1）Applicants recognized as having difficulty in making the payment due to financial reasons and having excellent academic records.

（2）Applicants, except those who fall under (1), recognized as having extreme difficulty making the payment due to any of the following circumstances.

ⅰ The person mainly responsible for paying school expenses for the applicant having passed away within a year prior to admission (when concerning the exemption of tuition fee of the term of the admission).

ⅱ The applicant or the person mainly responsible for paying school expenses for the applicant having suffered from flood or storm damage within a year prior to admission (when concerning the exemption of tuition fee of the term of the admission).

ⅲ The applicant having a reason equivalent to either of the above-mentioned that is recognized by the University.

4. Handling of personal information

(1) Kobe University complies with legislation such as the “Act on the Protection of Personal Information Held by Independent Administrative Legal Entity” in using applicants’ personal information, and handles it based on the “Guideline on the Control of Personal Information Held by Kobe University.”

(2) Personal information including the individual results of screening shall be used for screening (application procedures, conducting screening), announcement of successful applicants, enrollment procedures, future screening methods, and surveys/research aimed at improving university education. The results of these surveys/research will be published without information that could identify specific individuals.

(3) The personal information of enrolled students provided for the application will be used for supporting the students after enrollment (health management, tuition fee exemption or scholarship application), educational purposes (registration, academic instruction), tuition-fee related matters, and other corresponding work.

(4) Part of these operations may be outsourced to an agency (hereafter referred to as “Agency”). In cases where operations are outsourced, all or part of the personal information provided will be provided to such an Agency under a nondisclosure obligation within a certain limit necessary for the Agency to execute the operations.

5. Control and Prevention of Infectious Diseases

Submission of a certificate demonstrating inoculation and an antibody test against measles and rubella:

Kobe University has implemented the *Measles and Rubella Registration Policy*, and all newly enrolled Kobe University students must submit one of the following three certificates (①, ②, or ③) to prevent a possible outbreak of measles and rubella on campus.

Please note that students admitted into the following schools should submit either ① or ③: School of Medicine (Faculty of Medicine and Faculty of Health Sciences),the Graduate School of Medicine, or the Graduate School of Health Sciences.

① A vaccination certificate to prove that you were inoculated against measles and rubella (twice each after one year of age) .

② A vaccination certificate to prove that you were inoculated with measles and rubella vaccines each within the last five years (since April 2017).

③ An antibody certificate verifying that you have sufficient antibody titer in your blood (refer to the chart next page) to prevent the development of measles and rubella, based on the results of an antibody test performed within the last five years (since April 2017).

＊ For ① and ②, it can be a combined vaccine of measles and rubella vaccines (e.g., MR vaccine).

＊ For ① and ②, the certificate must be issued by an accredited medical institution,and state the type of vaccine and the date of inoculation.

＊ For ③, the certificate must specify the measuring method and the measured values of antibody titer in your blood (refer to the next page), and it must satisfy the judging standard listed in the chart. A blood test report sheet itself can be accepted for submission.

If the antibody titer in your blood is insufficient, you must receive the necessary vaccination, and submit either ① or ②.

＊ You may submit a combination of ①, ②, and ③ (e.g., ① for measles, and ③ for rubella).

＊ If the antibody titer level is below requirements, yet you cannot be inoculated with vaccines for some reason (e.g. illness or body composition), please submit an official document (for example, a certificate issued by the doctor) explaining why.

<Submission Period and Place of Submission>

・All successful undergraduate and graduate applicants enrolling in April.
Submit the certificate when you register at the Medical Center for Student Health (Rokkodai) during your routine medical check-up scheduled for early April.

・Successful applicants enrolling in October:
Submit the certificate when you register at the Medical Center for Student Health (Rokkodai) during the routine medical check-up scheduled for mid-late October.

Measuring Methods and Judging Standards for Protective Antibodies in Blood

	Measuring Method	Judging Standard	Remarks
Measles	IgG－EIA method PA method NT method	8.0 ≦ positive 256x ≦ positive 4.0x ≦ positive	Positive result by one of these three methods
Rubella	HI method IgG－EIA method	32x ≦ positive 8.0 ≦ positive	Positive result by one of these two methods. (HI method is recommended)

Make sure the above methods are followed when the antibody titer is measured in your blood. The protective antibody value differs according to the measuring method used. Please note that **the judging standards are higher than the usual standards used at medical institutions.**

Before you visit a medical institution, please make an appointment and confirm that the antibody test and/or the vaccine you need are available at that institution.

When you visit a doctor at a medical institution, make sure you present this guidebook so your doctor can issue the necessary certificate(s). (Please make sure you confirm with your doctor the measuring methods and judging standards when measuring the antibody titer in your blood.)

＊ Points to Consider when Submitting a Certificate:

① Please submit the original certificate and one set of copies (A4 size).

② If the certificate is written in a language other than Japanese or English, please attach a document that shows either a Japanese or English translation.

For further information,please refer to:
Medical Center for Student Health, Kobe University Tel: 078-803-5245
Student Support Division, Student Affairs Department, Kobe University Tel: 078-803-5219

＊ If you have any questions concerning the application, please contact us below.

Students Affairs Section,
Graduate School of Engineering,
Kobe University,
1-1 Rokkodai-cho, Nada-ku, Kobe 657-8501
TEL (078) 803-6350
e-mail: eng-kyomugakusei@office.kobe-u.ac.jp

“Guide for overseas remittance of entrance examination fees for the 2022 Doctoral Programs at the Graduate School of Engineering, Kobe University”

The entrance examination fee is 30,000 Japanese yen. When paying from overseas, please be sure to make the payment in Japanese yen and remit 30,000 yen as the examination fee to the designated bank account mentioned below.
The remittance fees will be borne by the applicant, while Kobe University covers any other commissions including lifting charges or handling fees. No overseas remittance checks will be accepted.
A photocopy of the remittance request form must be attached to your application for admission.

Bank name	Sumitomo Mitsui Banking Corporation
Bank code	0009
Swift Code	SMBCJPJT
Branch	Rokko
Branch Code	421
Account No.	4142727
Recipient	Kobe University

In addition, please include the following information, if necessary.
Purpose of Remittance: Entrance Examination Fee
Message to Payee, if any: Please indicate ”D60 : Applicant's full name”
＊ Please put ”D60” before your name.

◎Special Education System for Students Entering From Workplace

Recently, increasing numbers of engineers and researchers in the workforce wish to continue education and training as well as obtaining doctoral degrees in graduate school. However, education programs of graduate schools usually require them to spend time away from their workplace to focus on the graduate program for three years, which is likely to limit their learning opportunities. On the other hand, the "Graduate School Foundation Standard, Article 14" stipulates that "When special educational measures are recognized as necessary in the Programs of the Graduate School, appropriate educational measures can be taken such as providing classes or research guidance during night or certain periods." considering the students from the workplace. Based on these backgrounds, the Doctoral Program of the Graduate School of Engineering has implemented special educational measures as stipulated by the statement for those students since 2005. (*). The following items summarize the program.

1. Part of class by a faculty member upon an agreement of the member, and part of research guidance by academic supervisor upon an agreement of the supervisor, can be provided during night or a certain period.
2. If the academic supervisor recognizes that the thesis is making good progress, and that superior facilities or equipment for the research are provided in the relevant company where outstanding performance can be expected, the student can conduct research within the company.

(*) Then, they were provided by the "Graduate School of Natural Science", the predecessor of the Graduate School of Engineering.

Ⅱ Introduction to the Doctoral Program of the Graduate School of Engineering

1. Philosophy and Features of Curriculum

The doctoral degree program of the Graduate School of Engineering provides highly-specialized education integrating the master's degree program and based on the policy of cultivating human resources after the course completion. At the same time, individual instruction is provided for new students to the doctoral program. The Graduate School of Engineering features the curriculum organization as indicated below.

The current courses of the Master's and the Doctoral Degree Program, which meet the students' demand for learning while covering subdivided and diversified disciplines of engineering, are the outline of the curriculum of the Graduate School of Engineering, into which course work and multi-major education are incorporated.

2. Features of Doctoral Program Education

Fostering Interdisciplinary Perspectives:

Take a specialized course (optional) of other Graduate Schools or other departments fosters interdisciplinary perspectives.

Measures Taken for New Students Enrolled from Other Graduate Schools of Kobe University：

New students who enrolled in the doctoral program of the Graduate School of Engineering from other graduate schools of Kobe University may be instructed to take courses in the master's degree program if considered necessary.

Doctoral Degree Accreditation Process：

We provide research progress presentations for research concept, research progress, and future research plan during both the 1st year and 2nd year in order to instruct the students to create an appropriate doctoral thesis. In the 3rd year, the research result presentation is conducted, and if the research results are acknowledged as superior, the student can proceed to submitting the doctoral thesis and reviewing (including the doctoral thesis presentation). All departments make a concerted effort in conducting research progress presentations, research results presentations, and the doctoral thesis presentation so that each department can be involved in guiding the students' research. For those who finish early, the research result presentation and the doctoral thesis presentation are conducted during the 1st or the 2nd year.

3. Departments and Divisions of the Graduate School of Engineering

The Graduate School of Engineering has five departments: Architecture, Civil Engineering, Electrical and Electronic Engineering, Mechanical Engineering, and Chemical Science and Engineering.

（1）Architecture

The Department of Architecture aims to create a variety of spaces and areas in daily lives and social lives. In these days, the targets of architecture as a science include not only the requirements of everyday life—comfort and convenience, or strength enough for safety—but the creation of buildings oriented to friendliness to environment and sustainable development. In other words, instead of focusing only on successive creation of buildings as in the past, what is needed now is the creation of new buildings that can coexist more harmoniously with the earth and the natural environment, preserving the human environment that has been built by human society for many years. In this department, in response to eternal challenges of human society, we provide the education and research to foster human resources who can consider architecture not only as a single entity but also as part of regional and urban spaces as well as the ecological environment directly connected with the earth. To realize this, the Department of Architecture consists of the following four divisions: Spatial Design, Architectural Planning History and Theory, Structural Engineering of Buildings, and Architectural Environment Engineering.

Spatial Design

The Division of Spatial Design aims to provide synthetic theory establishment and practical education and research on the creation of space, which includes architectural and environmental design, structural engineering design, structural and information systems and environmental management.

Architectural Planning, History, and Theory

The Division of Architectural Planning, History, and Theory provides education and research on basic architectural design including history and theory of architecture, conservation and renovation planning of historical environment, planning of human living, housing and regions, urban and architectural safety planning, architectural planning, and urban planning.

Structural Engineering of Buildings

The Division of Structural Engineering of Buildings conducts a broad range of researches with a mission to improve safety and resilience of buildings against natural and human-made hazards and provides an education program and a research opportunity involving advanced structural design and performance evaluation, proposal and application of novel technologies: structural controls and high-performance materials.

Architectural Environmental Engineering

The Division of Architectural Environmental Engineering provides education and research on analysis and control of acoustical, thermal, aerial, and lighting environment in buildings and analysis and planning of regional and urban environments.

（2）Civil Engineering

The Department of Civil Engineering offers programs to educate students who wish to become the pillars of public service demanded by citizens and society, in order to foster human resources with broader interdisciplinary perspectives embracing the traditional civil engineering fields, as well as high-level practical skills and expertise. Under the perspective of “New Civil Engineering in the 21st century” defined as extended engineering embracing both traditional civil engineering and engineering for urban redevelopment, public involvement, and globalization, our department provides education for creating safe and secured cities and regions against natural and social disasters, and education for sustaining the environment where cities and regions exist in symbiosis with nature, and maintaining and reviving urban facilities. To realize this, the Department of Civil Engineering consists of two divisions: Engineering of Human Safety and Engineering of Environmental Symbiosis.

Engineering of Human Safety

As a fundamental research field to create safe cities and regions against natural disasters and social disasters such as terrorism and traffic accidents, the Division of Engineering of Human Safety provides education and research programs related to the following fields: structural safety engineering, geotechnical safety engineering and transportation system engineering concerning social safety, and geo-disaster engineering, earthquake-disaster prevention engineering, and flood control engineering concerning the prevention of urban disasters.

Engineering of Environmental Symbiosis

As a fundamental research field with the aims of sustaining the environment and maintaining/reviving urban facilities that allow cities and regions to live in symbiosis with nature, the Division of Engineering of Environmental Symbiosis provides education and research programs related to the following fields: environmental fluid engineering, hydrospheric environment engineering and geo-environmental engineering concerning the environmental preservation of cities and regions, and wide-area environment engineering, urban safety & security engineering, and urban management engineering concerning the maintenance and revival of cities and regions involving symbiosis with nature.

（3）Electrical and Electronic Engineering

The Department of Electrical and Electronic Engineering shares the academic as well as technological bases with various research fields including computer information processing systems, information and telecommunications, computer science, quantum mechanics, and optical electromagnetic theory. In this department, we aim to foster human resources with highly specialized basic academic skills and basic research capabilities in the master’s degree program; and we aim to foster human resources processing further advanced and pioneering research capabilities in the doctoral degree program. To this end, we provide systematic education and research—from basics to most advanced—on the science and technology that assume the core role of the modern society; and the basic theories and technologies required for establishing the new nano-materials, devices, hardware, software, wearable computing technology, and system engineering for the coming highly advanced information society, and its progress and new development. To be more specific, the Department of Electrical and Electronics Engineering consists of two divisions, Physical Electronics, and Computer and Information, which are functionally integrated and provide education and research on 1) electronics materials properties and device physics as the basis of electronics, 2) theories and technologies of information exchange, transmission, and processing, 3) conversion, transmission, and control of electrical energy, and basics of new energy system.

Physical Electronics

The Division of Physical Electronics provides education and research on solving the mechanism of quantum mechanical interaction between electrons and light in various electrical materials such as semiconductors, developing new electrical materials, building the models of nano-devices and molecular devices incorporating the quantum behaviors of electronics, and developing new devices and systems with a view to applying the electrical energy.

Computer and Information
The Division of Computer Information provides education and research on information mathematics, information processing, information transmission, and information recognition to realize highly advanced computer information processing and communication systems, as well as the design and configuration of computer information devices including the large-scale integrated circuit (LSI).

（4）Mechanical Engineering
Mechanical engineering is a discipline that serves the basis for supporting the industrial society and the information society. In the Department of Mechanical Engineering, we provide education and research on a wide range of mechanical engineering and other related fields, including environment, energy, nanotechnology, robotics, and manufacturing systems as well as designing, manufacturing and controlling highly diversified and complex mechanical systems, from both hardware and software aspects by integrating and merging a number of advanced and sophisticated fundamental technologies, while maintaining harmony with society and the environment.

In the master's degree program, we foster human resources who have both highly specialized basic academic skills and basic capabilities of research and development, as well as high ethical standards and a global mind-set required for the leaders of the future society. In the doctoral degree program, we foster human resources who have the interdisciplinary sense and capability to perform creative research and development. To this end, the Department of Mechanical Engineering consists of the following four divisions: Heat Transfer and Fluid Engineering, Materials Physics and Mechanics, System Design, and Innovative Materials and Nano Engineering.

Heat Transfer and Fluid Engineering
The Division of Heat Transfer and Fluid Engineering aims to solve the complicated, diversified generative mechanism and transportation mechanism of fluid energy and thermal energy, to achieve their higher efficiency, and also provides general education and research on thermal and fluid energies from a wider perspective of the environment by systematically reviewing energy conversion.

Materials Physics and Mechanics
The Division of Mechanics and Physics of Materials provides education and research with a view to acquiring the basics of nanotechnology through evaluating the function, strength, and stability of the properties of solid structure, composition, and dynamics, by defining them from micro-, mezzo- and nano-hierarchies and constructing their organic interrelations, and through designing the function of the surfaces and interfaces.

System Design
The Division of System Design provides education and research on system design such as system analysis, intelligent robots, control systems theory, and advanced manufacturing systems, as well as on fundamental technologies such as sensors/actuators, functional materials, and machining, covering a wide range of -from microscopic to macroscopic- phenomena and objects related to the design and manufacturing of industrial products and other artifacts.

Innovative Materials and Nano Engineering
The Division of Innovative Materials and Nano Engineering provides education and research on design/manufacturing of advanced structural materials and nano electro-mechanical systems required in interdisciplinary fields in mechanical engineering such as medical engineering, information communication, and robotics, on the basis of nanotechnologies such as nanomaterial engineering/processing, and nano/micro-fabrications.

（5）Chemical Science and Engineering
The Department of Chemical Science and Engineering offers consistent education and research, based on the new norms, by extensively integrating a range of contents including the basic chemistry of molecular levels, the provision of functionality for chemical substances and materials consisting of molecules, discovery of functionality, engineering application of biological functions to the creation of substances and manufacturing

technologies, creating the actual macro industrial scales, and manufacturing technologies and systems, to foster researchers and engineers who will lead the chemical industry of the future on a global scale. We provide education and research on the following: the analyses of structure and properties of molecular/nano order of chemical substances; creation of substances and materials of advanced functionality; developing biomaterials including biotic function applied technology and bioreactors; enhancing chemical engineering, manufacturing technology, and separation/purification technologies; and basic and application of the collective process system analyses. To this end, The Department of Chemical Science and Engineering consists of the following divisions: Applied Chemistry, Chemical Engineering, and 6 cooperative divisions; Localized Reactions and Physical Properties of Materials, Chemical Energy Conversion Process, Biofunctional Engineering, Pharmaceutical Technology, Chemical Biosensing, and Materials for Environment and Energy.

Applied Chemistry
The Division of Applied Chemistry provides education and research on mechanism clarification of functional development and new substances creation technology based thereon, from the engineering perspective, by providing precise, advanced functionality to chemical substances and materials, and creation of functionality, designed for a wide range of groups including from atomic, molecular level substances to nano-, mezzo-, and macro-substances, with the aim of combining the world of atoms and molecules made thereof and various functions created by the convergence of molecules.

Chemical Engineering
The Division of Chemical Engineering provides education and research on useful substances, high efficiency of energy, and development of low environmental load manufacturing process by developing new materials and reactive, catalytic substances, establishing the control method of reactive, transfer phenomena, and creating new manufacturing processes, based on the finding of intermolecular interaction, biological molecular functions/substances and energy transfer phenomena during the substance and energy conversion process based on the chemical and biological reaction.

Localized Reactions and Physical Properties of Materials (Cooperative division)
Cooperative education and research with National Institute of Advanced Industrial Science and Technology are carried out in various fields such as material design, synthesis, analysis, characterization, specific function, catalyst, nanobiology, biosensors, surface modification, and energy transformation.

Chemical Energy Conversion Process (Cooperative division)
Cooperative education and research with the National Institute of Advanced Industrial Science and Technology are carried out for various topics such as electrochemical science, porous materials, metal-organic frameworks, fuel cells, microanalysis, and solid electrochemistry.

Biofunctional Engineering (Cooperative division)
Cooperative education and research with Suntory Foundation for Life Sciences are carried out for the various topics such as post-genomic analysis, endocrinology, evolutionary biology, plant biology, metabolic engineering, and structural biology.

Pharmaceutical Design and Production Engineering (Cooperative division)
Cooperative education and research with Astellas Pharma Inc. are carried out for the various topics such as oral formulation technology, oral formulation process engineering technology, oral formulation packaging technology, tablets, capsules, granules, scale up theory, parenteral formulation technology, and parenteral formulation process engineering technology.

Chemical Biosensing (Cooperative division)
Cooperative education and research with National Institute of Advanced Industrial Science and Technology for the various research topics such as chemical sensors, biosensors, and bioanalysis

Materials for Environment and Energy (Cooperative division)
Cooperative education and research with Japan Atomic Energy Agency regarding materials sciences for environment and energy, e.g., characterization for materials and chemical processes, material design and developments, separation sciences for noble metals, and f-element fundamental sciences, employing neutron and synchrotron radiations.

Department・Divisions・Education/Research Fields

(Department)	(Divisions)	(Education/Research Fields)
Architecture	Spatial Design	4 Fields
	Architectural Planning, History and Theory	3 Fields
	Structural Engineering of Buildings	3 Fields
	Architectural Environmental Engineering	2 Fields
Civil Engineering	Engineering of Human Safety	6 Fields
	Engineering of Environmental Symbiosis	6 Fields
Electrical and Electronic Engineering	Physical Electronics	5 Fields
	Computer and Information Engineering	5 Fields
Mechanical Engineering	Heat Transfer and Fluid Engineering	3 Fields
	Materials Physics and Mechanics	3 Fields
	System Design	3 Fields
	Innovative Materials and Nano Engineering	2 Fields
Chemical Science and Engineering	Applied Chemistry	3 Fields
	Chemical Engineering	3 Fields
	Localized Reactions and Physical Properties of Materials	1 Field
	Chemical Energy Conversion Process	1 Field
	Biofunctional Engineering	1 Field
	Pharmaceutical Technology	1 Field
	Chemical Biosensing	1 Field
	Materials for Environment and Energy	1 Field
5 Departments	20 Divisions	57 Fields

Departments and Divisions Guidance

As of November 1, 2021

Department	Divisions	Education/Research Fields	Staff
Architecture	Spatial Design	Architectural Design and Environmental Design	Tsukihashi Osamu
		Structural Engineering and Design	Taga Kenzo (Note1)
		Structural and Information Systems	Yamabe Yuichiro
		Environmental Management	Takebayashi Hideki
			Suzuki Hirotaka
	Architectural Planning, History and Theory	History and Theory of Architecture	Suekane Shingo
			Nakae Ken
		Urban and Regional Planning	Yamazaki Juichi (Note2)
			Kuriyama Naoko
		Planning for the Built Environment and Disaster Risk Reduction	Hokugo Akihiko (Note1)
			Kondo Tamiyo
	Structural Engineering of Buildings	Steel Structures	Tanaka Tsuyoshi
			Namba Hisashi
		Reinforced Concrete Structures	Sun Yuping
			Ohtani Yasuhiro (Note2)
			Fujinaga Takashi
		Structural Dynamics and Mechanics	Fujitani Hideo (Note3)
			Mukai Yoichi
	Architectural Environmental Engineering	Planning of Acoustical and Lighting Environments	Sakagami Kimihiro
			Sato Hayato
		Thermal Environmental Planning	Takada Satoru
	Cooperative Division	Disaster Mitigation Planning	Kubota Katsuaki
			Ohtsu Nobuhito

(Note1)The faculty member is scheduled to retire in March, 2022.
(Note2)The faculty member is scheduled to retire in March, 2023.
(Note3)The faculty member is scheduled to retire in March, 2024.

Departments and Divisions Guidance

As of November 1, 2021

Department	Divisions	Education/Research Fields	Staff
Civil Engineering	Engineering of Human Safety	Structural Engineering for Urban Safety	Akutagawa Shinichi
			Miki Tomohiro
		Geotechnical Engineering for Urban Safety	Shibuya Satoru (Note1)
		Transport Systems Engineering	Otazawa Toshimori
			Seya Hajime
		Geotechnical Engineering for Disaster Reduction	Takeyama Tomohide
		Earthquake Disaster Mitigation Engineering	Nagao Takashi
			Kuwata Yasuko
		Disaster-prevention Engineering for River Basin	Kobayashi Kenichiro
	Engineering of Environmental Symbiosis	Environmental Fluid Engineering	Uchiyama Yusuke
			Saito Masahiko
		Engineering of Hydrospheric Environment	Nakayama Keisuke
		Geo-environmental Engineering	Oishi Satoru
			Kajikawa Yoshiyuki
			Kato Shoji
		Urban Preservation Engineering	Iizuka Atsushi (Note2)
			Zenitani Seiji (Note1)
			Tachibana Shinya
		Urban Preservation Engineering	Morikawa Hidenori
			Hashimoto Kunitaro
		Urban and Transport Planning and Management	Koike Atsushi
			Segi Shunsuke

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(Note2)The faculty member is scheduled to retire in March, 2024.

Departments and Divisions Guidance

As of November 1, 2021

Department	Divisions	Education/Research Fields	Staff
Electrical and Electronic Engineering	Physical Electronics	Mesoscopic Materials	Fujii Minoru
			To be fixed
		Photonic Materials	Kita Takashi
			Kojima Osamu
		Quantum Functional Engineering	Kitamura Masatoshi
			To be fixed
		Nano-Structure Electronics	Ono Tomoya
			Souma Satofumi
		Electromagnetic Energy Physics	Takeno Hiromasa
			To be fixed
	Computer and Information Engineering	Integrated Circuit Information	Numa Masahiro
			Kuroki Nobutaka
		Computer Engineering	Tsukamoto Masahiko
			Terada Tsutomu
		Information and Communication Engineering	Morii Masakatu (Note1)
			Shiraishi Yoshiaki
		Algorithms	To be fixed
			Yamaguchi Kazuaki
		Intelligent Learning Theory	Ozawa Seiichi
			Omori Toshiaki
	Functional Thin-Film Engineering *	Functional Thin-Film Engineering	Shimono Ken
			Hiraoka Maki
			Yukihiro Kaneko

* This division is cooperative division.

(Note1)The faculty member is scheduled to retire in March, 2024.

Departments and Divisions Guidance

As of November 1, 2021

Department	Divisions	Education/Research Fields	Staff
Mechanical Engineering	Heat Transfer and Fluid Engineering	Advanced Fluid Engineering	Imai Yohsuke
			Kataoka Takeshi
		Multiphase Fluid Dynamics	Tomiyama Akio (Note2)
			Hayashi Kosuke
		Energy Conversion Engineering	Asano Hitoshi
			Murakawa Hideki
	Materials Physics and Mechanics	Structural Safety Evaluation	Sakagami Takahide
			Shiozawa Daiki
		Fracture Control Engineering	Tagawa Masahito
			Tanaka Hiroshi
		Structural and Functional Materials	Tanaka Katsushi
			Hasebe Tadashi
			Fujii Yoshikazu (Note1)
	System Design	Function-Oriented Robotics	Yokokohji Yasuyoshi
			Tazaki Yuichi
		Sensing Device Engineering	Kanno Isaku
			Hida Hirotaka
		Advanced Manufacturing Systems	Shirase Keiichi
			Sato Ryuta
	Innovative Materials and Nano Engineering	Nano Electro Mechanical Systems	Isono Yoshitada
			Sugano Koji
		Materials Design and Fabrication Engineering	Mukai Toshiji
	Intelligent Production Systems *	Intelligent Production Systems	Narazaki Hiroshi
			To be fixed
			Nishida Yoshiharu
	Adaptive Function Model *	Adaptive Function Model	Inoue Shinichiro
			Miki Shigehito
			To be fixed
	Wisdom-based Manufacturing *	Wisdom-based Manufacturing	Kubota Tetsuya
			Kagaya Hiroaki

* These divisions are cooperative divisions

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Departments and Divisions Guidance

As of November 1, 2021

Chemical Science and Engineering	Applied Chemistry	Creative Materials Chemistry	Mori Atsunori
			Mizuhata Minoru
			Okada Etsuji (Note1)
			Maki Hideshi
			Okano Kentaro
		Smart Materials Chemistry	Nishino Takashi
			Ishida Kenji
		Functional Material Chemistry	Minami Hideto
			Kajinami Akihiko (Note2)
			Ooya Tooru
	Chemical Engineering	Separation and Reaction Engineering	Matsuyama Hideto
			Nishiyama Satoru (Note1)
			Maruyama Tatsuo
			Ichihashi Yuichi
			Kamio Eiji
		Process Engineering	Ohmura Naoto
			Suzuki Hiroshi
			Komoda Yoshiyuki
			Hidema Ruri
		Biochemical Engineering	Yamaji Hideki
			Ogino Chiaki
			Tanaka Tsutomu
			Katsuda Tomohisa
	Localized Reactions and Physical Properties of Materials ＊	Localized Reactions and Physical Properties of Materials	Hagihara Yoshihisa
			Shichiri Mototada
			Nakamura Tsutomu
	Chemical Energy Conversion Process ＊	Chemical Energy Conversion Process	Ioroi Tsutomu
			Akita Tomoki
			Kuratani Kentaro
	Biofunctional Engineering ＊	Biofunctional Engineering	Satake Honoo
			Murata Yoshiko
	Pharmaceutical Technology ＊	Pharmaceutical Technology	Yasuji Takehiko
			Kobayashi Naoki
			Dohi Masafumi
	Chemical Biosensing ＊	Chemical Biosensing	Fujita Satoshi
			Furutani Syunsuke
	Materials for Environment and Energy ＊	Materials for Environment and Energy	Yaita Tsuyoshi
			Okamoto Yoshihiro
			Yoshii Kenji

＊ These divisions are cooperative divisions.

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