



2022 Academic Year

Application for Spring Enrollment in Master's  
Program

(for entry in April 2022)

Special selection for graduates of the early graduation system

November 2021

Graduate School of Biomedical Engineering, Tohoku University

## Admission Policy of Graduate School of Biomedical Engineering

The Graduate School of Biomedical Engineering is supported by faculty members, facilities, and equipment to carry out cutting-edge research, and it has a philosophy of "Research First," which is a tradition of Tohoku University. In this context, our educational goal is to nurture human resources with creativity and high research ability and to raise engineers with advanced expertise who can carry out research based on their own ideas, aim at the realization of an affluent society, and be responsible for the development and innovation of science and technology in medicine and welfare, based on a broad perspective and deep knowledge in the interdisciplinary field of medicine and engineering.

We are looking for students with the following backgrounds:

- People with a strong passion for contributing to the medical and welfare fields through the creation and innovation of science and technology.
- Those who have the basic academic skills necessary to study medical engineering and who have a strong desire to study at the university.
- People who have creativity and the ability to implement new research areas.
- People who have a firm sense of ethics and can act responsibly.

For the Special Selection Program for Working Adults and Special Selection Program for International Students, in addition to the above items, the following items are also required for admission:

### *Special Selection Program for Working Adults:*

engineers after graduating from university, etc.; teaching/faculty staff; among working adults who are active as researchers, etc. it is required to use your experience in your study; application of the existing knowledge to research; people who desire to advance their technical level and develop their creative abilities; motivated individuals

### *Special Selection Program for International Students:*

students who have completed a course after acquiring sufficient basic academic skills, and then wish to receive graduate education at the Tohoku University Graduate School of Biomedical Engineering using their experience

In the selection of applicants, emphasis is placed on whether or not the applicant has the high level of abilities and qualities necessary to conduct research in line with the educational philosophy and goals of the Graduate School. Written examinations and interviews are conducted according to the fields of study that the applicant has acquired to date.

In the general selection, the special selection for graduates of the early graduation system, and the special selection for international students, the written examination to evaluate basic and specialized knowledge and the interview to evaluate the aptitude of the applicants will be conducted with special emphasis on basic academic skills. International students may be asked to demonstrate proficiency in Japanese.

In the Special Selection for Working Adults, emphasis is placed on a comprehensive evaluation of the applicant's work history and research as a working adult, as well as the evaluation of basic academic skills, using an essay and an interview. The selection process is based on the evaluation of oral and written examinations, if necessary. For international students, Japanese language proficiency may also be tested.

Before enrolling in the program, students are expected to have the basic academic skills necessary to acquire advanced knowledge in their field and to conduct research.

## 1. Departments and Admission Quotas

| Department             | Course                                | Quota |
|------------------------|---------------------------------------|-------|
| Biomedical Engineering | Basic Biomedical Engineering Course   | A few |
|                        | Applied Biomedical Engineering Course |       |
|                        | Medical Device Innovation Course      |       |

## 2. Application Qualifications

- ◎ Those who are eligible to apply for the Special Selection for Early Graduation System are those who have been enrolled for more than 3 years but less than 4 years and are expected to graduate from a university in March 2022.

[Note] Applicants who plan to apply for the special selection for graduates of the early graduation system should contact Academic Affairs Section, Graduate School of Biomedical Engineering in advance.

### \* Inquiry Related to Certification of Qualifications to Enter or Transfer to Graduate School (Skipping Admission)

The Graduate School does not accept submissions of qualifications related to those who have been enrolled for at least three years at university (including those that the Minister of Education, Culture, Sports, Science and Technology recognizes as the equivalent) and who have obtained the necessary credits set by this Graduate School through excellent grades.

## 3. Application Submission

The application period is from January 18<sup>th</sup> (Tue.) to January 21<sup>st</sup> (Fri.), 2022.

Applications will be received during office hours, which are from 9:00 a.m. to 4:00 p.m. (Except for the period from 11:45 a.m. to 1:00 p.m.)

Mailed applications must arrive on the last day of the application period.

Please note that no applications will be accepted after January 22<sup>nd</sup> (Sat.) neither at the counter nor via mail.

Please note that applications will not be accepted on Saturdays, Sundays, or national holidays.

If you send your application by mail, please use a commercially available square No. 2 envelope and be sure to send it by express registered mail.

Post to:

Academic Affairs Section, Graduate School of Biomedical Engineering, Tohoku University  
6-6-12 Aramaki Aza Aoba, Aoba-ku, Sendai, Miyagi 980-8579, Japan

## 4. Application Procedures

Applicants must submit the following materials before the deadline. Please download the application form from the web site of the Graduate School of Biomedical Engineering and print it

out on a single-sided A4-size paper.

**Withdrawal of an application or replacement of application documents will not be accepted under any circumstances.**

Applicants who submitted falsified documents may have their admission revoked even after enrollment.

**For certification documents that are not in Japanese or English, please attach a Japanese or English translation.**

**※ Certificates must be originals. (Tohoku University does not accept copies, digital files, or printouts of digital files as original documents.)**

**※ Do not use erasable pens for application documents or envelopes.**

| Required documents, etc.   | Notes   |
|--|---|
| Application for admission  | Use the official form for this Graduate School.   |
| Statement of Desire  | Use the official form for this Graduate School (enter the laboratories (fields) you wish to enter in order from first preference to third preference). Note that when selecting your desired labs (fields), you <b><u>MUST</u></b> discuss this with your intended advisor for your first choice.)<br><br>When discussing applications, also discuss the field you will be applying for.  |
| Reason and ambition for application  | Use the official form for this Graduate School.   |
| Undergraduate transcript   | Issued by the president or the dean, etc. of the university from which you graduated or the head of the last school in which you were enrolled.   |
| Original score sheet of TOEFL® or TOEIC® test<br><br>TOEFL®, TOEFL iBT®, TOEFL ITP® and TOEIC® are registered trademarks of Educational Testing Service (ETS). | The score sheets must be no older than two years before the entrance exam date.<br><br>Valid tests: TOEFL iBT®, TOEFL PBT® and TOEIC®<br><br>TOEFL ITP® test and TOEIC® IP test for group examination are not valid.<br><br>◆ However, those who will submit the score sheet for the 284 <sup>th</sup> or 285 <sup>th</sup> Public Test: <ul style="list-style-type: none"><li>• Please, submit all the other application documents excluding the score sheet during the application period indicated in ‘3. Application Submission’.</li><li>• The score sheet must arrive no later than January 26<sup>th</sup> (Wed.) (Applications will not be accepted on Saturdays, Sundays, and national holidays). When submitting by mail, please write "Score sheet enclosed" in red ink on any kind of envelope and send it to us. When submitting the score sheet, please write the examination</li></ul> |

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|  | <p>series you applied for on the back of the score sheet.</p> <p>[Note 1]: Score sheets may not be replaced with more recent test results once submitted. For example, after submitting the score sheet for the 283<sup>rd</sup> TOEIC® Public Test, you cannot resubmit another score sheet for the 284<sup>th</sup> TOEIC® Public Test.</p> <p>[Note 2]: Only the score sheet for the 284<sup>th</sup> or 285<sup>th</sup> TOEIC® Public Test can be submitted after the application period indicated in '3. Application Submission'. Thus, score sheets up to and including the 283<sup>rd</sup> session cannot be submitted after the application period.</p> <p>MyBestTMscores will not be used for the TOEFL® test.</p>  |
| Certificate of (expected) completion   | Issued by the president or the dean, etc. in which you were enrolled.  |
| Photo ID and examination admission ticket  | One photo showing the applicant's upper body, bare-headed, and taken within the past three months should be attached to the photo form.  |
| Residence certificate  | Only foreign nationals residing in Japan (those whose period of stay exceeds 90 days) should submit this form. (Must be issued within 3 months before the date of application that does not include your personal number (My Number) and clearly states your status of residence.)   |
| <p>Examination fee</p> <p>If it is difficult to pay by bank transfer, please consult with the Academic Affairs Section in advance.</p> | <p>1. Please pay the examination fee using ATMs (financial institutions or convenience stores) or Internet banking, etc. as follows:</p> <ul style="list-style-type: none"> <li>✂ the name of the payee must be the applicant's own name in katakana</li> <li>✂ please submit a copy of the bank account information, amount, date of transfer, name of the payee, etc. (e.g. copy of the ATM statement, copy of the screen of the completed Internet banking transfer) at the time of application</li> <li>✂ the transfer fee is covered by the applicant</li> </ul> <p>Amount: 30,000 yen</p> <p>Payment deadline: 20<sup>th</sup> January (Thu.) (Deadline is strictly observed)</p> <p>Bank: Mitsubishi UFJ Bank, Bank Code: 0005</p> <p>Branch: Wakatake Branch, Branch Code: 809</p> <p>Type of deposit: Ordinary</p> <p>Account number: 2259227</p> <p>Account name: National University Corporation Tohoku University</p> <p>Name: Tohoku University</p> |

|  |  |
|--|--|
|  | <p>2. Not required for international students on a Japanese government scholarship (<i>Monbukagakusho</i> scholarship) or those who have applied for a waiver of entry examination fees.</p> <p>For more information about the exemption of the entrance examination fee for victims of disasters, please refer to the following website:</p> <p><a href="http://www.bme.tohoku.ac.jp/admission/index.html">http://www.bme.tohoku.ac.jp/admission/index.html</a></p> |
| Envelope for submitting application      | Please write your name, address, and postal code on a standard-sized envelope (23.5 x 12 cm) and affix a postage stamp worth 84 yen.   |
| Return envelope for results notification | Write your name and address (including post code) on a rectangular-shaped No. 2 envelope.  |

## 5. Special Selection Process

Examination dates: From 28<sup>th</sup> February (Mon.) to 2<sup>nd</sup> March (Wed.), 2022, according to the attached schedule.

Location: Aobayama Campus, Tohoku University  
Details will be provided to applicants separately.

© For applicants to the Special Selection for Early Graduation System, the decision will be made based on a combination of written grades, interview, and submitted documents.

## 6. Results Announcement

The examination numbers for successful applicants will be listed on the Graduate School of Biomedical Engineering website (<http://www.bme.tohoku.ac.jp/>) at around 5:00 p.m. on 7<sup>th</sup> March (Mon.), 2022.

A letter of acceptance will be mailed to successful applicants. Please note that we will not be able to respond to inquiries by phone.

## 7. Enrollment Procedures

- (1) Details of the enrollment procedures will be announced when the acceptance letters are mailed in late March 2022.
- (2) Required fees
  - (a) Entrance fees: 282,000 yen (tentative)
  - (b) Tuition (first semester): 267,900 yen (annual 535,800 yen) (tentative)

[Note 1]: The above amounts are tentative. If the admission or tuition fees are revised, the new fees will become applicable from the time of the revision.

[Note 2]: Information on the payment of entrance fees and tuition will be provided in the enrollment procedures documentation sent after the results notification. For procedures related to waivers of admission or tuition fees, or permission to defer payment to a later date, etc., access the university's website at <http://www.tohoku.ac.jp/>

and then click on “東北大学で学びたい方へ” (Those wishing to study at Tohoku University) and then “入学料及び授業料等免除” (Entrance and tuition fee waivers).

## **8. Eligibility for Long-Term Study Program**

Some applicants, due to the need to continue with employment or other special circumstances (Note 1), may request permission to follow a planned course of study longer than the normal period of two years in order to receive their master's degree (Note 2). This Graduate School offers this option, called the "Long-Term Study Program," to those who qualify based on an advance screening exam. Long term master's students pay the same amount over the length of their studies as those enrolled in the standard two-year program. Inquiries about this program can be accepted at any time before enrollment. Please contact the Academic Affairs Section, Graduate School of Biomedical Engineering.

Applicants hoping to be considered for this program will be notified separately regarding the procedure for applying. Be sure to put a check mark in the appropriate place on the admission application form. Note that this program is applicable only from the beginning of studies, and cannot be joined after studies have begun.

[Note 1]: Eligible persons: (1) Those employed by a company or self-employed.

(2) Those who require maternity leave, or are engaged in child or family care

(3) Those otherwise determined by this Graduate School to be suitable for the program (excluding financial reasons).

※ In principle, this program is limited to students in the Special Selection Program for Working Adults. Persons in other Special Selection programs wishing to be considered should discuss the matter in advance with the Academic Affairs Section, Graduate School of Biomedical Engineering.

[Note 2]: The period of study may not be extended beyond four years, but it is possible to request that the period be shortened. In principle, no special curriculum will be prepared for students in the long-term study program.

## **9. Handling of Personal Information**

- (1) The Graduate School of Biomedical Engineering of Tohoku University handles personal information in strict compliance with regulations such as the "Act on the Protection of Personal Information Held by Incorporated Administrative Agencies" and the "National University Corporation Tohoku University - Policy on the Protection of Personal Information," taking every precaution to protect personal information.
- (2) Examination results and other personal information obtained in the application process will be used for the selection of students for admission, enrollment procedures, follow-up surveys, student support after enrollment (e.g., scholarships, tuition waiver, health care), student guidance and other academic purposes, as well as in the collection of tuition fees, etc.
- (3) After enrollment, the Graduate School may outsource administrative work in educational affairs to third-party companies (hereafter, “contractors”). In doing so, it shall provide them as necessary with some or all of the student's personal information in compliance with the "National University Corporation Tohoku University - Policy on the Protection of Personal Information."

## **10. Points to Note**

- (1) Applicants will not be automatically notified of the receipt of applications. Those



desiring notification should enclose a postcard with their return address along with their application.

- (2) Submitted application documents and examination fees will not be returned.
- (3) If you do not receive your examination admission ticket by ten days prior to the examination date, please contact the Academic Affairs Section, Graduate School of Biomedical Engineering.
- (4) All other inquiries regarding application for admission should likewise be made to the Academic Affairs Section, Graduate School of Biomedical Engineering.
- (5) Applicants desiring consultation regarding the need for special assistance or other consideration in taking the examination or conducting their studies should make a written application indicating the items listed below (in any format). Be assured that such a request will in no way prejudice the outcome of the selection process, as all applicants will be treated fairly.

\* Deadline for consultations: As a rule, no later than 5<sup>th</sup> January (Wed.), 2022.

\* Information to be shown in application:

- (A) Name, address and phone number of the applicant
  - (B) University, etc. from which the applicant has graduated
  - (C) Special considerations desired when taking the examination
  - (D) Special considerations desired in the study environment
  - (E) Nature of special considerations provided up to now
  - (F) Other relevant information about daily life circumstances
  - (G) Reference materials (if currently under treatment, enclose a medical certificate issued by your physician)
- (6) The disclosure of information pertaining to entrance examination results, etc. will only be authorized if the examinee requests such disclosure in person, using the specified application form within the year in which the entrance examination was held.
  - (7) The university does not send telegrams informing applicants of success or failure.
  - (8) In accordance with the Foreign Exchange and Foreign Trade Act, Tohoku University has established the Tohoku University Security Export Control Regulations and conducts screening when accepting international students. If you fall under any of these restrictions, you may not be able to receive your desired education or your research theme may be restricted.

November 2021

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<http://www.bme.tohoku.ac.jp/>

## Appendix

Applicants must select one of the following two categories: Medical Science or Engineering.

### 1. Medical Science

| Selection                             | Exam subjects                    | Date and time   | Description   | Remarks   |
|---------------------------------------|----------------------------------|---|---|---|
| Special Selection for Early Graduates | English                          |   | In place of the English exam, an original TOEFL® or TOEIC® Public Test score sheet no older than two years as of the date of the entrance exam is to be submitted at the time of application.<br><br>TOEFLiBT Home Edition scores are also accepted. Applicants whose native language is English should inquire individually [Note 1].                                | (1) Consult the website below for the scope of each subject.<br><a href="http://www.bme.tohoku.ac.jp/admission/">http://www.bme.tohoku.ac.jp/admission/</a><br><br>(2) Calculators or devices such as watches and mobile phones with calculation or communication functions are not allowed in the examination room.<br><br>※ Applicants will be notified at a later date with details if the exam subjects or method have to be changed to prevent Covid-19 infection. |
|                                       | Specialized subjects (Electives) | 28 <sup>th</sup> February (Mon.)<br>10:00-12:00                                 | Cell and molecular biology, biochemistry, anatomy, physiology, immunology, public health, pathology<br><br>Choose any two of the 7 subjects above (declare these in advance).   |   |
|                                       | Basic Mathematics                | 1 <sup>st</sup> March (Tue.)<br>10:00-12:00                                     | Calculus, ordinary differential equations and linear algebra at the general education level of universities (In addition to the mathematical training required for university admission, content equivalent to classes conducted in biological systems, medicine / healthcare and pharmaceutical science other than in science and engineering departments) [Note 2]. |   |
|                                       | Interview                        | 2 <sup>nd</sup> March (Wed.)<br>(Schedules etc. will be notified individually.) | Suitability for entrance to the university.<br>International students may also be questioned about their Japanese ability.  |   |

[Note 1]: If originals of TOEFL®/TOEIC® score sheets are not submitted, the score for the English portion will be zero.

[Note 2]: Applicants may be allowed to take exams in subjects related to their backgrounds.

Those wishing to use this examination method should inquire ahead of time with their prospective academic advisor in the laboratory (field) they wish to study in, and with the Academic Affairs Section, Graduate School of Biomedical Engineering.

## 2. Engineering

Those taking the entrance examination in engineering are required to choose one of the following fields (Mechanical Engineering, Electrical and Information Engineering, Materials Science) for the exam.

### A. Engineering (Mechanical Engineering)

| Selection                             | Exam subjects                    | Date and time   | Description   | Remarks  |
|---------------------------------------|----------------------------------|---|---|--|
| Special Selection for Early Graduates | English                          |   | <p>In place of the English exam, an original TOEFL® or TOEIC® Public Test score sheet no older than two years as of the date of the entrance exam is to be submitted at the time of application.</p> <p>TOEFLiBT Home Edition scores are also accepted. Applicants whose native language is English should inquire individually [Note 1].</p> | <p>(1) Written examination may be waived depending on the applicant's record as indicated on transcripts.</p> <p>(2) Consult the website below for the scope of each subject.<br/><a href="http://www.mech.tohoku.ac.jp/">http://www.mech.tohoku.ac.jp/</a></p>  |
|                                       | Mathematics A (Required)         | 28 <sup>th</sup> Feb. (Mon.)<br>9:30-10:30 (Assemble at 8:50)                   | Calculus, linear algebra, vector analysis   | <p>(3) Calculators or devices such as watches and mobile phones with calculation or communication functions are not allowed in the examination room.</p> <p>(4) Since there is a high possibility that the examination will be conducted online, you are required to secure an Internet environment and prepare a PC, a Web camera, and a smartphone with a camera function (or a scanner).</p> <p>(5) You will be informed whether you will take the online or onsite exam when the examination voucher is sent out (early February).</p> |
|                                       | Mathematics B (Required)         | 28 <sup>th</sup> Feb. (Mon.)<br>13:00-14:00                                     | Ordinary differential equations, partial differential equations, Fourier series and Fourier transformations, Laplace transformations  |  |
|                                       | Specialized subjects (Electives) | 28 <sup>th</sup> Feb. (Mon.)<br>15:45-16:45                                     | <p>Thermodynamics, fluid mechanics, mechanics of materials, dynamics of mechanical systems, control engineering</p> <p>Choose any two of the 5 subjects above (declare these in advance).</p>   |  |
|                                       | Interview                        | 2 <sup>nd</sup> March (Wed.)<br>(Schedules etc. will be notified individually.) | <p>Suitability for entrance to the university.</p> <p>International students may also be questioned about their Japanese ability.</p>   |  |

※ 1<sup>st</sup> March (Tue), will be a reserve day for the Mathematics and Specialized Subjects examinations.

[Note]: If originals of TOEFL®/TOEIC® score sheets are not submitted, the score for the English portion will be zero.

**B. Engineering (Electrical and Information Engineering)**

| Selection                             | Exam subjects        | Date and time   | Description   | Remarks   |
|---------------------------------------|----------------------|---|---|---|
| Special Selection for Early Graduates | English              |   | <p>In place of the English exam, an original TOEFL® or TOEIC® Public Test score sheet no older than two years as of the date of the entrance exam is to be submitted at the time of application.</p> <p>TOEFLiBT Home Edition scores are also accepted. Applicants whose native language is English should inquire individually [Note 1].</p> | <p>(1) Written examination may be waived depending on the applicant's record as indicated on transcripts.</p> <p>(2) Consult the website below for the scope of each subject.<br/><a href="http://www.ecei.tohoku.ac.jp/">http://www.ecei.tohoku.ac.jp/</a></p> <p>(3) Calculators or devices such as watches and mobile phones with calculation or communication functions may not be used.</p> <p>※ Applicants will be notified at a later date with details if the exam subjects or method have to be changed to prevent Covid-19 infection.</p> |
|                                       | Basic subjects       | 28 <sup>th</sup> Feb. (Mon.)<br>9:40-10:40 (Assemble at 9:00)                   | Choice of 2 questions from the following 6 areas: Electromagnetism, Electrical Circuits, Basic Information Science 1, Basic Information Science 2, Basic Physics, Basic Mathematics   |   |
|                                       | Specialized subjects | 1 <sup>st</sup> March (Tue)<br>9:40-10:40 (Assemble at 9:00)                    | Choice of 2 questions from the following 6 areas: Electrical Engineering, Communication Engineering, Electronic Engineering, Computer Science 1, Computer Science 2, Advanced Physics   |   |
|                                       | Interview            | 2 <sup>nd</sup> March (Wed.)<br>(Schedules etc. will be notified individually.) | <p>Suitability for entrance to the university.</p> <p>International students may also be questioned about their Japanese ability.</p>   |   |

[Note]: If originals of TOEFL®/TOEIC® score sheets are not submitted, the score for the English portion will be zero.

**C. Engineering (Materials Science)**

| Selection                             | Exam subjects        | Date and time  | Description  | Remarks  |
|---------------------------------------|----------------------|--|--|--|
| Special Selection for Early Graduates | English              |  | <p>In place of the English exam, an original TOEFL® or TOEIC® Public Test score sheet no older than two years as of the date of the entrance exam is to be submitted at the time of application.</p> <p>TOEFLiBT Home Edition scores are also accepted. Applicants whose native language is English should inquire individually [Note 1].</p>  | <p>(1) Written examination may be waived depending on the applicant's record as indicated on transcripts.</p> <p>(2) Calculators are not allowed during the test.</p> <p>(3) Schedules etc. will be notified individually.</p> <p>* Applicants will be notified at a later date with details if the exam subjects or method have to be changed to prevent Covid-19 infection.</p> <p>*Contact the department for more information or check on the following homepage <a href="http://www.material.tohoku.ac.jp/admission/index.html">http://www.material.tohoku.ac.jp/admission/index.html</a></p> |
|                                       | Mathematics          | 28 <sup>th</sup> Feb. (Mon.) ~ 2 <sup>nd</sup> March (Wed.)<br>60 min  | Differential and integral calculus, ordinary differential equations, linear algebra (vectors, matrices, determinants), vector analysis, complex function theory, Fourier series and Fourier transformations, Laplace transformations   |  |
|                                       | Specialized subjects | 28 <sup>th</sup> Feb. (Mon.) ~ 2 <sup>nd</sup> March (Wed.)<br>160 min | <p>Physics: Particle and rigid body dynamics, electromagnetism, vibration and wave dynamics, etc.</p> <p>Chemistry: Atomic and molecular structure, chemical bonding, chemical reactions, chemical thermodynamics, fundamentals of organic chemistry, etc.</p> <p>Materials chemistry: Materials physical chemistry, materials electrochemistry, transfer phenomenology theory, metal refining and purification, applied material chemistry, materials process engineering, etc.</p> <p>Materials physics: Crystal diffraction, solid state physics, material strength, materials microstructure, electronic materials, magnetic and dielectric materials, materials design, etc.</p> <p>Materials processing: Mechanics of materials, continuum dynamics,</p> |  |

|  |           |  |   |  |
|--|-----------|--|---|--|
|  |           |  | <p>materials testing, molding/powder/plastic forming, welding and joining, materials assessment, processing analysis, etc.</p> <p>Choose any four questions from 10 questions in the five subjects above.</p> |  |
|  | Interview | <p>2<sup>nd</sup> March (Wed.)<br/>(Schedules etc. will be notified individually.)</p> | <p>Suitability for entrance to the university.</p> <p>International students may also be questioned about their Japanese ability.</p>   |  |

[Note 1]: If originals of TOEFL®/TOEIC® score sheets are not submitted, the score for the English portion will be zero.