



Tohoku University

Program for Leading Graduate Schools, MEXT
Multidisciplinary Field of Materials

Interdepartmental Doctoral Degree Program
for Multi-dimensional Materials Science Leaders

Application Guideline

April 2020

Center for Education and Research on Multi-dimensional Materials Science,
Division for Leading Graduate School Program,
Institute for Promoting Graduate Degree Programs,
Tohoku University
6-6-11, Aramaki Aza Aoba Aoba-ku, Sendai, Miyagi

Admission Policies

Overview of the Program

In the field of materials science, where rapid advances in the functions, processes, devices and characteristics of materials are required, society demands truly capable leaders. The ability to comprehensively understand multitude of situations from a variety of perspectives is paramount to ensure society's needs are promptly met with global needs firmly kept in mind and with a strong view to future development. The need, therefore, for a new graduate program which provides learning above and beyond that provided in the current graduate school is clear: the evaluation and analysis of materials is clearly important, but it provides limited opportunity to develop perspective.

In the Interdepartmental Doctoral Degree Program for Multi-dimensional Materials Science Leaders Program, (hereinafter called "the MD program") , Tohoku University has brought together the very best of its Materials Science expertise in order to train dynamic, highly-skilled leaders for the next generation.

The clear objective of the program is to provide industry with leaders with the ability to develop multidimensional material design ideas. The extensive training provided by the program will equip them with an extensive knowledge base, with a firm grasp of fundamental skills and extensive research experiences. The multidimensional nature of this program incorporates all the following dimensions:

material function - emission, catalysis, conduction, and magnetism;

material characteristics - strength, efficiency and the limits of materials;

material processing - raw materials, manufacturing methods, and device integration;

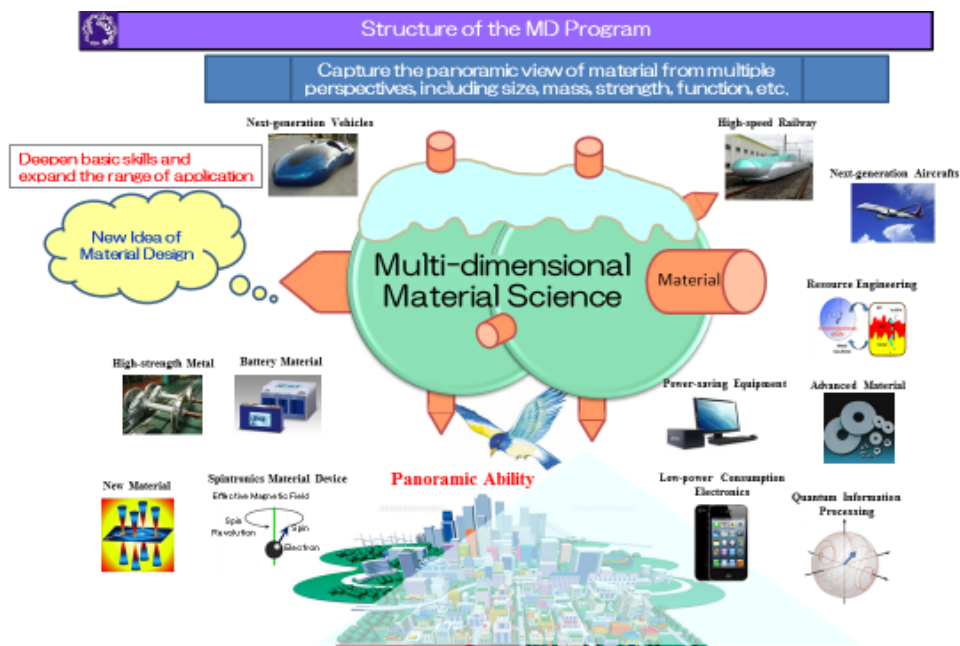
environmental compatibility - carbon emissions, and the recycling rate;

economical efficiency - cost, and the balance between supply and demand;

safety ;

a multitude of assessment techniques.

In order to cultivate such talented and capable leaders, the program provides comprehensive education centered the two core tenets of the program; science and engineering. With the development and understanding of material science as the clear goal, the students in this program will learn fundamental and applied mathematics, chemistry, and physics. Further education will include pharmaceuticals, environmental science, economics, philosophy, humanities and social science are included in the program.



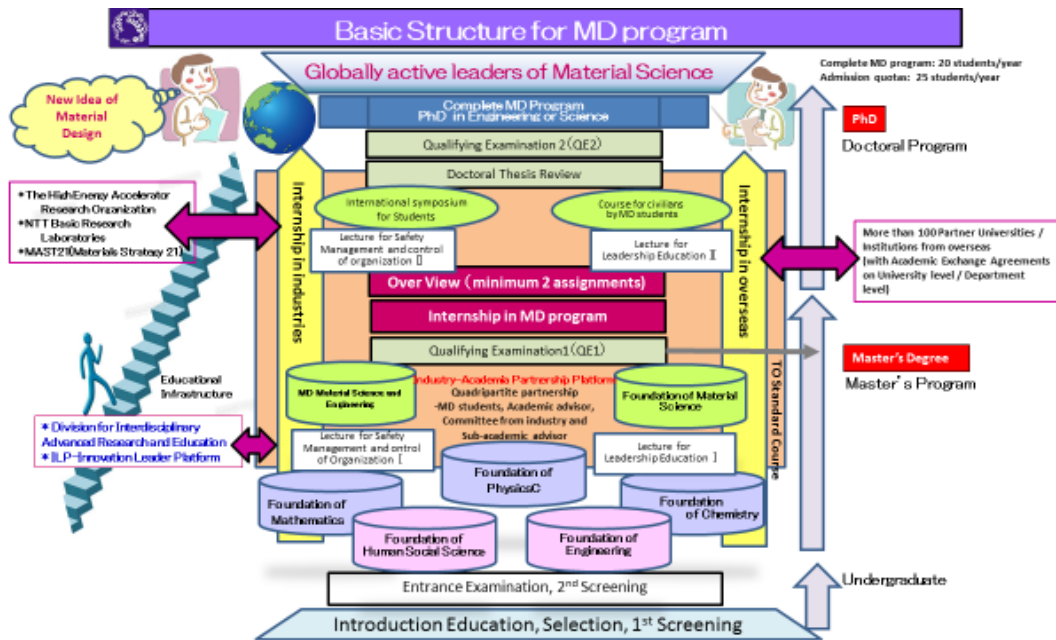
Features of the Program

In order to develop the full potential of the talented young people accepted into this course, developing the ability to understand materials from multi-dimensional perspectives is one of our most important objectives. Another feature of the MD program is collaboration with companies through the cooperative research office. Once enrolled in the program, students are asked to decide a partner company as well as a theme for their doctoral dissertation. The students will be supported by students' advisors, a committee (organized by the faculty members involved in the program) and the committee of the partner company involved in cooperative research. Work on their dissertations will progress under the guidance of all three. Partner companies will also serve as hosts for internships.

The MD program also boasts the opportunity for students to engage in internships between departments within the university. In principle, MD students will have a period of time involved in a research task in a laboratory in a different department. The opportunity to overview and present results in a different research environment will allow for the acquisition of further knowledge, research abilities, assessment skills, and creativity. The ability to understand research and development in different environments is considered essential for a Materials Science leader. The MD program also provides students with the opportunity to engage in international internship programs, to spend time researching in a laboratory in another country, and to develop well-polished global communication skills in the mandatory English classes provided throughout the duration of the program.

Students will be subjected to a qualifying examination before entering their doctoral course to guarantee the quality of learning. Upon entering the first year of their doctoral course, the doctoral dissertation research work will be overviewed along with the two research themes in the laboratory where students will complete their internship.

In addition to the existing process of the doctoral dissertation defense, the program will carry out a comprehensive examination by a committee including external examiners from the company the student worked with or the researchers from abroad they were affiliated with. Students will be awarded a doctoral degree from the department, they are enrolled in. The diploma will include a notation that the student has completed the MD Program.



1. Admission Quotas:

A few students.

2. Eligibility to apply

As a general rule, anyone enrolled in a master's program in any of the departments affiliated with the MD program listed below in April, 2020.

Note:

- Since the MD program is a 5 years integrated Master's and Doctoral degree program in principle, only those who intend to complete a Doctoral program are eligible to be MD program students.
- An applicant to the MD program is allowed to apply to other doctoral programs in Tohoku University at a time. However, if an applicant passes screening of more than one program, he or she must decide two programs for enrollment, and must choose a main and a sub program with the approval of both programs. (Some programs do not allow students to be enrolled in two programs at the same time). In addition, it is only from main program that financial support will be provided to successful applicants. Moreover, only the name of the main program will appear on a diploma.

【Graduate Schools and Departments for MD program】

Graduate Schools	Departments
Arts and Letters	Integrated Human Sciences
Science	Physics Chemistry Mathematics Astronomy
Engineering	Metallurgy Materials Science Material Processing Mechanical Systems Engineering Electronic Engineering Applied Physics Applied Chemistry
Information Sciences	System Information Sciences
Environmental Studies	Environmental Studies for Advanced Society Frontier Science for Advanced Environment
Pharmaceutical Sciences	Molecular Pharmaceutical Science

3. Application Period

Monday, February 10, 2020 - Friday, February 21, 2020

The office hours: 9:00 - 16:30 (not including 11:45 to 13:00).

- Application either be handed directly or sent by postal mail to:
Center for Education and Research on Multi-dimensional Materials Science
Graduate School of Engineering, Tohoku University
#901-1 (9F) Engineering Laboratory Complex Building
6-6-11, Aramaki Aza Aoba Aoba-ku, Sendai, Miyagi
〒980-8579, Japan
Phone: (+81) 022-795-5036
Location (Campus map):
<http://www.eng.tohoku.ac.jp/english/map/?menu=campus&area=c>

Notes:

- Postal applications are due not later than Friday, February 21, 2020
- Postal applications are to be sent by registered mail. Please ensure that “Application form for MD program enclosed” is written in red on the front of envelope.

4. Application Procedures

Applicants should prepare the following documents and submit them during the application period noted above.

Required documents

- A) Application for admission (Form1)
- B) Statement of purpose (Form2)
- C) Written recommendation (Form3:推薦書)
- D) Official university transcript
- E) TOEFL[®]TEST/ TOEIC[®]TEST score sheets (Photocopies are acceptable.)
* TOEFL, TOEFL iBT, TOEFL ITP and TOEIC are registered trademarks of Educational Testing Service (ETS).

Notes:

- Please attach a Japanese or English translation if any of required documents are not in Japanese or English.
- MD program does not accept any replacement and/or renewal of submitted application documents.
- All submitted documents are not returnable.

5. Examination and Selection

Every applicant is considered individually in a holistic assessment using all the information available, including the Master Course enrollment examination, submitted documents and Interviews listed below.

Interview in English

Date: Monday, February 17, 2020 - Friday, March 6, 2020

- The interview in English will be held to check applicants' English proficiency and communication skill.
- Details of the Interview in English will be informed to applicants.

Oral interview test

Date: Saturday, March 7, 2020

Location: MD Lecture Room, 11F Engineering Laboratory Complex Building

- Details of the Oral interview test will be informed to applicants.

6. Announcement of Results

Results will be announced on March 19, 2020 on the MD program website.

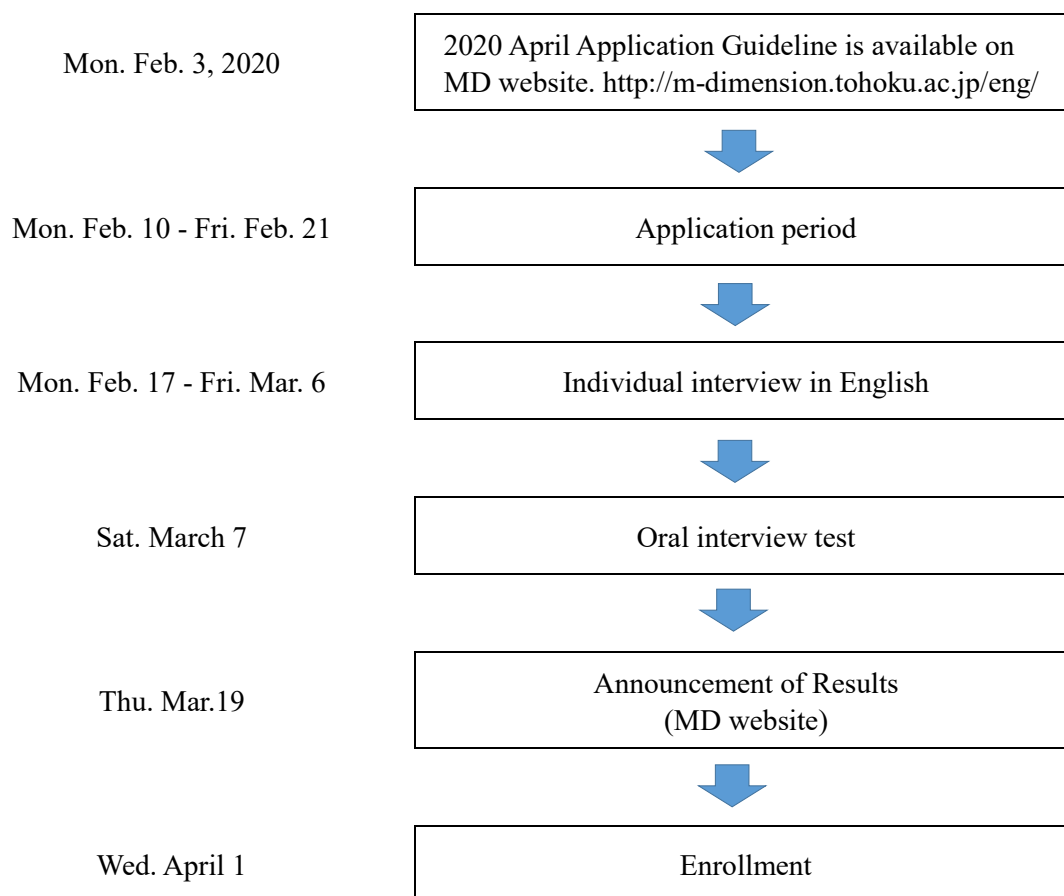
URL: <http://m-dimension.tohoku.ac.jp/eng/> (English)

<http://m-dimension.tohoku.ac.jp/> (Japanese)

7. Financial Support

Financial support will be provided to the students in the second year of the master's course and all of the doctoral course. Furthermore, successful students will be required to apply for the Research Fellowships for Young Scientists of the Japan Society for the Promotion of Science after the enrollment.

8. Selection Schedule



9. Contact

MD office (MD program admission office)

Phone: (+81) 022-795-5036

Email: md-kyom@grp.tohoku.ac.jp

Mailing address:

Center for Education and Research on Multi-dimensional Materials Science

Graduate School of Engineering, Tohoku University

#901-1 (9F) Engineering Laboratory Complex Building

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