

Course Requirement Guide Book

(October 2024)

International Master's Degree Program



Diploma Policy

Diploma Policy for Master's Degree Program in Graduate School of Engineering

With a view to develop talented people in accordance with the basic philosophy and educational objectives, Toyohashi University of Technology (TUT) grants a degree of "Master (of Engineering)" to students who have received specialized education in the engineering field, including Mechanical Engineering, Electrical and Electronic Information Engineering, Computer Science and Engineering, Applied Chemistry and Life Science and Architecture and Civil Engineering, as well as liberal arts education; acquired the knowledge and abilities stated in 1 to 4 below; and fulfilled the requirements for graduation and degree granting set forth in TUT's regulations, etc. Those who achieved outstanding academic performance may be authorized to shorten the period of enrollment and be granted a master's degree.

1. Keep an international mindset to see things from various angles with a global perspective and have a wide range of knowledge to consider the symbiosis between humans and nature as well as linkage with society.
2. Have a high ability to contribute to team's goal attainment through effectively expressing and sending out one's own ideas, points in question and research results; deeply understanding others' values; and working together with various people.
3. Have social and ethical responsibilities as advanced-level engineers or researchers; and have the ability to voluntarily learn new things continuously in response to changes in society, environment, technology, etc.
4. Acquire advanced knowledge on an expertise in the fields of natural science and technological science; and have the practical and creative skills to understand and solve problems leveraging such knowledge in an integrated manner.

Mechanical Engineering

In accordance with the diploma policy for Master's Degree Program in Graduate School of Engineering at Toyohashi University of Technology (TUT), Toyohashi University of Technology grants a degree of "Master (of Engineering)" to the students who have received specialized education from the Department of Mechanical Engineering; have the knowledge and abilities stated below; and have fulfilled the requirements for graduation and degree granting set forth in TUT's regulations, etc. Those who achieved outstanding academic performance may be authorized to shorten the period of enrollment and be granted a master's degree.

(A) Personality and outlook with a broad perspective

Have an international mindset to see human society from various angles with a global perspective; and the ability to consider the symbiosis between humans and nature as well as public welfare.

(B) Sound ethics and social awareness as advanced-level engineers and researchers

Be conscious of specialized and ethical responsibilities as advanced-level engineers and researchers; and have the ability to set, solve and evaluate technical issues in society.

(C) Practical and creative skills to utilize advanced knowledge in an integrated manner

Have advanced knowledge about mechanical engineering and related fields; and have the practical and creative skills to utilize such knowledge for problem solving in an integrated manner.

(C1) Have the skills to voluntarily acquire theories and applied knowledge about mechanical engineering and related fields; and to utilize such knowledge in an integrated manner.

(C2) Have the skills to learn, by experience, methodologies for research and development through integrating extensive knowledge about mechanical engineering and related fields; to make plans for research and development and put them into practice; and to create new technologies to solve problems.

(D) Communication skills for global success

Have the communication skills to effectively express one's own ideas and results while working on issues faced by a globally changing society in cooperation with other team members.

(D1) Have the skills to effectively express and communicate one's own ideas as well as points in question at home and abroad through papers, oral reports or information media.

(D2) Have high skills to mutually respect the values of individual team members; and to contribute to the team's achievements through working cooperatively with other team members.

(E) Inquisitive outlook and skills for continuous learning in response to state-of-the-art technology and changes in the social environment

Have the skills to voluntarily make plans and learn throughout one's life in response to changes in society, environment and technology.

Electrical and Electronic Information Engineering

In accordance with the diploma policy for Master's Degree Program in Graduate School of Engineering at Toyohashi University of Technology (TUT), Toyohashi University of Technology grants a degree of "Master (of Engineering)" to the students who have received specialized education from the Department of Electrical and Electronic Information Engineering; have the knowledge and abilities stated below; have fulfilled the requirements for graduation and degree granting set forth in TUT's regulations. Those who achieved outstanding academic performance may be authorized to shorten the period of enrollment and be granted the degree.

(A) Personality and outlook with a broad perspective

Have an international mindset to see human society from various angles with a global perspective; the ability to consider the symbiosis between humans and nature as well as public welfare.

(B) Sound ethics and social awareness as advanced-level engineers and researchers

Be conscious of specialized and ethical responsibilities as advanced-level engineers and researchers; and have the ability to set, solve and evaluate technical issues in society.

(C) Practical and creative skills to utilize advanced knowledge in an integrated manner

Have advanced knowledge about electrical and electronic information engineering as well as related fields; and have the practical and creative skills to utilize such knowledge for problem solving in an integrated manner.

(C1) Have the skills to voluntarily acquire theories and applied knowledge about electrical and electronic information engineering as well as related fields; to utilize such knowledge in an integrated manner.

(C2) Have the skills to learn, by experience, methodologies for research and development through integrating extensive knowledge about electrical and electronic information engineering as well as related fields; to make plans for research and development and put them into practice; and to create new technologies to solve problems.

(D) Communication skills for global success

Have the communication skills to effectively express one's own ideas and results while working on issues faced by a globally changing society in cooperation with other team members.

(D1) Have the skills to effectively express and communicate one's own ideas as well as points in question at home and abroad through papers, oral reports or information media.

(D2) Have high-level skills to mutually respect the values of individual team members; to contribute to the team's achievements through working cooperatively with other team members.

(E) Inquisitive outlook and skills for continuous learning in response to state-of-the-art technology and changes in the social environment

Have the skills to voluntarily make plans and learn throughout one's life in response to changes in society, environment and technology.

Computer Science and Engineering

In accordance with the diploma policy for Master's Degree Program in Graduate School of Engineering at Toyohashi University of Technology (TUT), Toyohashi University of Technology grants a degree of "Master (of Engineering)" to the students who have received specialized education from the Department of Computer Science and Engineering; have the knowledge and abilities stated below; and have fulfilled the requirements for graduation and degree granting set forth in TUT's regulations, etc. Those who achieved outstanding academic performance may be authorized to shorten the period of enrollment and be granted a master's degree.

(A) Personality and outlook with a broad perspective

Have an international mindset to see human society from various angles with a global perspective; and the ability to consider the symbiosis between humans and nature as well as public welfare.

(B) Sound ethics and social awareness as advanced-level engineers and researchers

Be conscious of specialized and ethical responsibilities as advanced-level engineers and researchers; and have the ability to set, solve and evaluate technical issues in society.

(C) Practical and creative skills to utilize advanced knowledge in an integrated manner

Have advanced knowledge about computer science and engineering as well as related fields; and have the practical and creative skills to utilize such knowledge for problem solving in an integrated manner.

- (C1) Have the skills to voluntarily acquire theories and applied knowledge about computer science and engineering as well as related fields; and to utilize such knowledge in an integrated manner.
- (C2) Have the skills to learn, by experience, methodologies for research and development through integrating extensive knowledge about computer science and engineering as well as related fields; to make plans for research and development and put them into practice; and to create new technologies to solve problems.

(D) Communication skills for global success

Have the communication skills to effectively express one's own ideas and results while working on the issues faced by a globally changing society in cooperation with other team members.

- (D1) Have the skills to effectively express and communicate one's own ideas as well as points in question at home and abroad through papers, oral reports or information media.
- (D2) Have high-level skills to mutually respect the values of individual team members; and to contribute to the team's achievements through working cooperatively with other team members.

(E) Inquisitive outlook and skills for continuous learning in response to state-of-the-art technology and changes in the social environment

Have the skills to voluntarily make plans and learn throughout one's life in response to changes in society, environment and technology.

Applied Chemistry and Life Science

In accordance with the diploma policy for Master's Degree Program in Graduate School of Engineering at Toyohashi University of Technology (TUT), Toyohashi University of Technology grants a degree of "Master (of Engineering)" to the students who have received specialized education from the Department of Applied Chemistry and Life Science; have the knowledge and abilities stated below; and have fulfilled the requirements for graduation and degree granting set forth in TUT's regulations. Those who achieved outstanding academic performance may be authorized to shorten the period of enrollment and be granted a master's degree.

(A) Personality and outlook with a broad perspective

Have an international mindset to see human society from various angles with a global perspective; and the ability to consider the symbiosis between humans and nature as well as public welfare.

(B) Sound ethics and social awareness as advanced-level engineers and researchers

Be conscious of specialized and ethical responsibilities as advanced-level engineers and researchers; and have the ability to set, solve and evaluate technical issues in society.

(C) Practical and creative skills to utilize advanced knowledge in an integrated manner

Have advanced knowledge about applied chemistry and life science as well as related fields; and have the practical and creative skills to utilize such knowledge for problem solving in an integrated manner.

(C1) Have the skills to voluntarily acquire theories and applied knowledge about applied chemistry and life science as well as related fields; and to utilize such knowledge in an integrated manner.

(C2) Have the skills to learn, by experience, methodologies for research and development through integrating extensive knowledge about applied chemistry and life science as well as related fields; to make plans for research and development and put them into practice; and to create new technologies to solve problems.

(D) Communication skills for global success

Have the communication skills to effectively express one's own ideas and results while working on the issues faced by a globally changing society in cooperation with other team members.

(D1) Have the skills to effectively express and communicate one's own ideas as well as points in question at home and abroad through papers, oral reports or information media.

(D2) Have high-level skills to mutually respect the values of individual team member; and to contribute to the team's achievements through working cooperatively with other team members.

(E) Inquisitive outlook and skills for continuous learning in response to state-of-the-art technology and changes in the social environment

Have the skills to voluntarily make plans and learn throughout one's life in response to changes in society, environment and technology.

Architecture and Civil Engineering

In accordance with the diploma policy for Master's Degree Program in Graduate School of Engineering at Toyohashi University of Technology (TUT), Toyohashi University of Technology grants a degree of "Master (of Engineering)" to the students who have received specialized education from the Department of Architecture and Civil Engineering; have the knowledge and abilities stated below; and have fulfilled the requirements for graduation and degree granting set forth in TUT's regulations, etc. Those who achieved outstanding academic performance may be authorized to shorten the period of enrollment and be granted a master's degree.

(A) Personality and outlook with a broad perspective

Have an international mindset to see human society from various angles with a global perspective; and the ability to consider the symbiosis between humans and nature as well as public welfare.

(B) Sound ethics and social awareness as advanced-level engineers and researchers

Be conscious of specialized and ethical responsibilities as advanced-level engineers and researchers; and have the ability to set, solve and evaluate technical issues in society.

(C) Practical and creative skills to utilize advanced knowledge in an integrated manner

Have advanced knowledge about architecture and civil engineering as well as related fields; and have the practical and creative skills to utilize such knowledge for problem solving in an integrated manner.

(C1) Have the skills to voluntarily acquire theories and applied knowledge about architecture and civil engineering as well as related fields; and to utilize such knowledge in an integrated manner.

(C2) Have the skills to learn, by experience, methodologies for research and development through integrating extensive knowledge about architecture and civil engineering as well as related fields; to make plans for research and development and put them into practice; and to create new technologies to solve problems.

(D) Communication skills for global success

Have the communication skills to effectively express one's own ideas and results while working on the issues faced by a globally changing society in cooperation with other team members.

(D1) Have the skills to effectively express and communicate one's own ideas as well as points in question at home and abroad through papers, oral reports or information media.

(D2) Have high-level skills to mutually respect the values of individual team member; and to contribute to the team's achievements through working cooperatively with other team members.

(E) Inquisitive outlook and skills for continuous learning in response to state-of-the-art technology and changes in the social environment

Have the skills to voluntarily make plans and learn throughout one's life in response to changes in society, environment and technology.

I Requirements for completion

1. Requirements for completion

To complete the master's course, a student must participate in the course for two or more years, and must acquire the minimum credits required as follows. A student must carry out a research program under proper guidance by faculty members. In addition, a student must submit a master's thesis, and must pass a review and final examination.

Note that students showing excellent achievement may finish in a shorter study period.

Classification	Required credits for completion	Remarks
General subjects	6	
Specialized subjects		
Mechanical Engineering	24	6 credits in total can be substituted with a combination of the following options, with permission from the student's supervisor and the subject instructor. 1. Specialized master's subjects from the other departments 2. Specialized master's subjects held in Japanese (The same subject cannot be taken in both Japanese and English)
Electrical and Electronic Information Engineering	24	
Computer Science and Engineering	24	
Applied Chemistry and Life Science	24	
Architecture and Civil Engineering	24	
Grand total	30	

2. Application for degree

Only a student who has earned the credits required for completion, or who is expected to earn the required credits can apply for the master's degree. Degree application and procedures for submission of a thesis for a master's degree shall be posted at "KYOMU JOHO SYSTEM" and on a bulletin board before the submission period.

II Class registration, examination, and attendance period

1. Class registration method

Classes shall be registered according to the program schedule of the student's respective major.

(1) Making study plans

To make study plans, students should read this Guide Book thoroughly, and follow the instructions and advice given during the orientation and by the supervisors.

The Course Schedule is provided at the beginning of each academic year.
Schedules for intensive classes will be posted at "KYOMU JOHO SYSTEM" and on a bulletin board when the details are fixed.

(2) Class Registration

Students must register for classes using "KYOMU JOHO SYSTEM" at the TUT website

<https://kyomu.office.tut.ac.jp/portal/>

or by the form "Application for Subjects" during the designated period.

*Classes cannot be registered for after the designated registration period. Classes with no registration will not be accredited in any case.

NOTES

1) To take specialized subjects given in other departments, or given in Japanese, students must obtain approval from their supervisor and the subject instructor with the form "Application for Registration of Subjects in Other Department," before registering.

2) If a student does not attend the classes nor take the examinations, credits will not be given even if the registration is made.

3) A student cannot re-register for a subject once credits are given.

4) Only one subject can be registered for in a given time schedule. Note that this does not apply to intensive subjects.

(3) Confirming and amending the registration

To confirm or amend class registration, students should access "KYOMU JOHO SYSTEM", and follow the manual's instructions.

(4) Class Cancellation

After the end of the course registration period for each semester, students can cancel classes if students find it difficult to earn credits as it is. If students wish to cancel classes, apply for cancellation using "KYOMU JOHO SYSTEM" during the class cancellation application period of each semester.

Only electives and required electives classes can be canceled. However, intensive classes are excluded. Only class cancellation is possible during the class cancellation application period. Registration of additional courses is not accepted.

If students continue to miss the class or do not take an examination without cancelling the registration, the class will be considered grade "H"(Abandoned course). Please be aware that

grade "H" course will have a large impact on your GPA.

(5) Repeating classes

In principle, a student who has failed a subject with regular examinations or has not gained credits for some other reasons can take the same subject again in the next academic year. To repeat a subject, the student must register again.

2. Examination

Examinations include regular examinations and make-up examinations.

(1) Regular examination

In principle regular examinations shall be held during the set period at the end of each term.

All students are to check the examination schedule in the academic calendar at "KYOMU JOHO SYSTEM" or on the bulletin boards. Note that examinations may be held at any time found necessary by the subject instructor.

(2) Make-up examination

1) Make-up examinations shall be held only when a student cannot take the regular examination for one of the following reasons. The student must gain the approval of the subject instructor using the form "Request for a make-up examination".

- a) Illness (doctor's medical certificate must be submitted)
- b) Accidents, disaster (certificate must be submitted), or other special reason (a letter explaining the reason must be submitted)

2) When a student cannot take the regular examination, the student has to contact the Educational Affairs Division and the course instructor by the day of the examination.

3) "Request for a make-up examination" must be submitted to the Educational Affairs Division within one week from the final date of the regular examination. In case of Spring semester, if one week from the final examination date is Saturday, Sunday, or holiday, a student must submit the document by the following day.

4) If a student fails to take the make-up examination, further examinations will not be allowed.

(3) Recognition of Credits and Grading System

Course instructors recognize credits for courses based on the results of examinations, etc.

① Student performance is graded based on the following standards. S, A, B and C are passing grades while D is a failing grade. Credits are awarded to grade C and above.

- S···90 to 100 points
- A···80 to 89 points
- B···70 to 79 points
- C···60 to 69 points
- D···59 points or less

- ② With the aim of making course grades internationally compatible, TUT has launched a Grade Point Average (GPA) system, providing a barometer to judge the overall performance of students, starting with students who entered TUT in academic year 2018.

The objectives of the GPA system are to fairly grade performance and to enhance students' desire for study by calculating the point average as a barometer to indicate the state and results of students' academic performance.

Grade	Points	Description of Grade	Judgement	Grade Point
S	90 to 100 points	Excellent—Outstanding performance	Pass	4.0
A	80 to 89 points	Good—Excellent performance		3.0
B	70 to 79 points	Satisfactory—Generally sound performance		2.0
C	60 to 69 points	Sufficient—Performance meeting the minimum passing criteria		1.0
D	59 points or less	Failure	Failure	0.0
N	-	Course for credit recognition (not included in GPA)	Pass (Recognition)	N/A
H	-	Abandoned course (Course the student abandoned by continuing to miss the class or no taking an examination without cancelling the registration)	Abandonment	0.0
K	-	Invalidated grade due to misconduct etc.	Invalid	0.0

GPA is an average calculated by converting above letter grades to grade points (GP) ranging from 0.0 to 4.0, multiplying these grade points by the number of credits for each course, and then dividing the total grade points by the total amount of registered credits.

Note, however, that grades from the following courses cannot be used to calculate GPA. Such courses are marked with a hyphen in the GP column of the grade report.

(1) Courses for which credits were earned on the basis of the credit exchange system conducted with other universities, graduate schools, etc.; courses that were registered at other universities or junior colleges while enrolled in TUT; and courses that were registered at universities, junior colleges or graduate schools in foreign countries

(2) Courses for which credits were earned before entering TUT and were recognized after entering TUT; courses that were registered at TUT, other universities or junior colleges before entering TUT; and courses registered at universities, junior colleges or graduate schools in foreign countries (including courses registered for as a credited auditor student)

(3) Courses for which credits were earned through mid-course entry, interschool transfer, readmission, or studying abroad, and were subsequently recognized

(4) Courses for which credits cannot be counted toward graduation requirements; and courses for which credits were earned through the system for advance registration to graduate school programs

(5) Courses that are designated separately by each department (On-the-job Training

(internships), Supervised Research, Seminars, experimental courses, and practical training courses)

- ③ Each student can check grades and GPA for recognized credits in the "KYOMU JOHO SYSTEM".

(4) System for appealing grades

Students who have concerns about their grades for a particular semester can inquire to the class instructor during the confirmation period. If students have complaints regarding the instructor's response, they can submit an appeal. Students, however, cannot appeal the reason or basis for the grade.

Students should contact the Educational Affairs Division for details.

3. Maximum years of attendance and related matters

(1) Maximum years of attendance

A student may not be in the master's course at the university for more than four years.

(2) Leave of absence

If a student cannot attend classes for two or more months consecutively due to illness or other special reasons, the student may submit the form "Request for leave of absence" to the Educational Affairs Division after getting approval from the supervisor, a member of the academic affairs committee, and their department head. Upon approval by the President, the student can take a leave of absence (maximum two years in total).

In order to submit the form "Request for leave of absence", the tuition fees up to the term must have been paid. The period of this absence will not be counted in the "Maximum years of attendance" mentioned in paragraph (1) above.

To return to school after the approved period ends, the student must submit the form "Notice of return to university".

To return to school before the approved period following the removal of cause of absence, the student must submit the form "Application for return to university" and obtain approval.

(3) Withdrawal

If a student wants to withdraw from the university, the student must submit the form "Application for withdrawal from university" to the Educational Affairs Division after getting the approval from the supervisor, a member of the academic affairs committee, and the department head. Upon approval by the President, the student can withdraw from the university.

In order to submit the form "Application for withdrawal from university", the tuition fees up to the term must have been paid.

Note that the tuition fee has to be paid in full even if the student withdraws in the middle of a term.

(4) Removal from the University



A student will be removed from the university for the following reason.

- 1) A student exceeds the period mentioned above in paragraph (1) "Maximum years of attendance".
- 2) A student cannot return to school after the period of absence mentioned above in paragraph (2) "Leave of absence".
- 3) A student dies, or disappears.
- 4) A student who has been approved for half exemption or postponement of admission fee payment does not pay the admission fee by the designated date.
- 5) A student fails to pay the tuition and does not pay even after a warning.

4. Other matters

(1) Information about canceled or make-up classes

All students should double-check their class schedules and other information using the following means:

Location		information
TUT website	https://kyomu.office.tut.ac.jp/portal/Public/Board/BoardList.aspx 	Canceled or make-up classes Emergency information (STORM WARNING etc.)
TUT website for mobile phones	https://kyomu.office.tut.ac.jp/mobile/Main.aspx  *Mobile tagging by camera phones	Canceled or make-up classes Emergency information (STORM WARNING etc.)

(2) Classes/exams when a STORM WARNING is announced.

If a Storm Warning (*Bo-fu Keiho*) is announced for Toyohashi city or the South-east area of the Mikawa region, TUT will deal with classes or examinations as follows:

- 1) To prevent any accident, all classes will be canceled during the Storm Warning.
- 2) If the Storm Warning is cleared before 7:00 am, all classes will be on schedule.
- 3) If the Storm Warning is cleared between 7:00 am and 11:00 am, all classes will start from the 3rd period. Classes in the 1st and 2nd period will be canceled. Cancelled classes will be held on *YOBIBI* (optional extra day) and final exams will be held on *YOBIBI* for final exam term.
- 4) If the Storm Warning continues after 11:00 am, all classes will be canceled. All cancelled classes and examinations will be rescheduled. Cancelled classes will be held on *YOBIBI* (optional extra day) and final exams will be held on *YOBIBI* for final exam term.
- 5) Whether or not a storm warning is announced, classes may be canceled because of suspension of public transportation service or some similar occurrence, at the discretion of the Vice President for Educational Affairs.

6) If cancelled classes cannot be held on *YOBIBI* (optional extra day), and final exams, on the alternate exam day, a Saturday may be used as an alternate day for classes or exams.

7) The above shall not apply to remote classes.

(3) University's e-mail account

TUT strongly recommends all students to set up the e-mail forwarding service in order to receive important information of class-scheduling, grading and other communications from the university.

(4) Absence from classes

When you have to be absent from classes due to illness, bereavement or other reasons, you need to inform these reasons to your subject instructor yourself.

Absences will be dealt with at the discretion of subject instructors.

Reasons for Absence	Documents you should submit	Procedure
Illness/Injury	Medical certificate or medical expense receipts	Students inform lecturers directly
Bereavement leave	Letter or notice of funeral	Students inform lecturers directly
Infectious diseases*	Medical certificate or medical expense receipts	Students inform the TUT Health Care Center (0532-44-6632) in addition to informing lecturers directly.

*TUT may require suspension in order to prevent the spread of infection. Suspension orders will be notified by email from TUT or KYOMU JOHO SYSTEM.

• The TUT Health Care Center (TEL: 0532-44-6632 E-mail: kenkou@office.tut.ac.jp)

III Curriculum

1. Classes and credits

(1) Classes

Classes are divided into General Subjects and Specialized Subjects. Numbers of credits are set for each subject.

For the subjects to be offered, see the following pages.
See the web syllabus for the details of each subject.

(2) Compulsory subjects and elective subjects

- 1) Compulsory subjects are the subjects that must be completed as a requirement of the major.
- 2) Elective Required subjects are the subjects that must be selected from among designated subject groups and taken at least a set number of subjects or credits.
- 3) Elective subjects can be selected and taken from those subjects being offered for the designated numbers of credits.

(3) Calculating credits

Teaching types of classes are lectures, exercises, experiments, practical or hands-on training, and they are offered individually or in combinations, and the standard is that it takes 45 hours of study to earn one credit. This is calculated in the following ways.

- (a) For lectures, 15 hours of class time and 30 hours of preparation and review for one credit.
- (b) For exercises, 30 hours of class time and 15 hours of preparation and review for one credit.
- (c) For experiments, practical or hands-on training, 45 hours of class time for one credit.

(4) Class times and class schedule.

The following are the class times.

Period	1	2	3	4	5	6
Time	8:50 am– 10:20 am	10:30 am– 12:00 (noon)	1:00 pm– 2:30 pm	2:40 pm 4:10 pm	4:20 pm– 5:50 pm	6:00 pm– 7:30pm

The class schedule is posted on "KYOMU JOHO SYSTEM" at the beginning of each semester. Notification of changes to the class schedule is also posted.

Courses listed in the "Intensive" section of the class schedule are ones that are taught intensively at irregular times. Once the dates of intensive courses are decided, the information is posted.

(5) School term

A school term is determined according to the academic year calendar, and consists of two terms; Spring term (from April 1 to September 30) and Fall term (from October 1 to March 31)

General subjects

2024.10

Compulsory / Elective	Subject Name	Class format	Excluded from GPA	Credits	Classes/Week				Instructor	note	
					1st grade						2nd grade
					Fall 1	Fall 2	Spring 1	Spring 2			
					2024.10 - 2025.3		2025.4 - 2025.9				2025.10 - 2026.9
Compulsory	Ethics for Researchers	Lecture		1	1			(0.5)			
Elective	Culture and Communication I	Lecture		2	1			(1)	E. Ryan		
	Culture and Communication II	Lecture		2		1		(1)	E. Ryan		
	Principles of Japanese Conversation	Lecture		2		1		(1)	Y. Muramatsu		
	Principles of Japanese Grammar	Lecture		2	1			(1)	J. Ishige		
	Japanese Life Today	Lecture		2		1		(1)		※	
	Japanese Industrial Technologies and Innovations	Lecture		2	1			(1)			

※JICA Trainees have to register for the 2 subjects: "Japanese Life Today" and

"Japanese Industrial Technologies and Innovations" and are required to earn these academic credits.

◆ Those subjects whose numbers marked with "()" will be held every year.

◆ "0.5" signifies that this subject will be held in any one of a quarter term (Spring 1, Spring 2, Fall 1 or Fall 2).

Mechanical Engineering

2024.10

Compulsory / Elective	Subject Name	Class format	Excluded from GPA	Credits	Classes/Week				Instructor	note	
					1st grade						
					Fall 1	Fall 2	Spring 1	Spring 2			2nd grade
					2024.10 - 2025.3	2025.4 - 2025.9	2025.10 - 2026.9				
Compulsory	Seminar on Mechanical Engineering I	Exercise	O	4	4					Supervisor	
	Seminar on Mechanical Engineering II	Exercise	O	2					2	Supervisor	
	Thesis Research on Mechanical Engineering	Experiment	O	6	9					Supervisor	
Elective	Applied Mechanics of Materials	Lecture		1			1			T. Adachi	
	Micromachining Engineering	Lecture		1					0.5	T. Shibata	
	Microsystems Engineering	Lecture		1					0.5	M. Nagai	
	Microstructural Control of Metallic Materials	Lecture		1					0.5	H. Miura	
	Microstructure and Properties of Structural Materials	Lecture		1			1			Y. Todaka	
	Advanced Characterization in Materials	Lecture		1		1				M. Kobayashi	
	Modern Control Engineering	Lecture		1					0.5	K.Takagi	
	Precision Mechatronics	Lecture		1			1			K. Sato	
	Robot Kinematics	Lecture		1	1					N. Uchiyama	
	Advanced Agricultural Engineering	Lecture		1					0.5	K. Takayama	
	Advanced Aeroacoustics	Lecture		1	1					A. Iida	
	Combustion Theory	Lecture		1					0.5	Y. Nakamura	
	Microscale Transport Phenomena	Lecture		1		1				K. Doi	
	Advanced Fluid and Energy Engineering	Lecture		1		1				H. Yokoyama	
	※Advanced Mechanical Systems Design I	Lecture		2		1			(1)	T. Shibata M. Nagai S. Kawamura T. Adachi Y. Takeichi	
	※Advanced Mechanical Systems Design II	Lecture		2			1		(1)	T. Shibata M. Nagai S. Kawamura T. Adachi Y. Takeichi	
	※Advanced Materials and Manufacturing Process I	Lecture		2		1			(1)	Y. Todaka H. Miura M. Kobayashi T. Yasui Y. Abe N. Adachi Y. Oba	
	※Advanced Materials and Manufacturing Process II	Lecture		2			1		(1)	Y. Todaka H. Miura M. Kobayashi T. Yasui Y. Abe N. Adachi Y. Oba	
	※Advanced System, Control and Robotics I	Lecture		2		1			(1)	K. Sato S. Sano K. Takayama N. Uchiyama K. Takagi J. Takahashi	
	※Advanced System, Control and Robotics II	Lecture		2			1		(1)	K. Sato S. Sano K. Takayama N. Uchiyama K. Takagi J. Takahashi	
	※Advanced Energy and Environmental Engineering I	Lecture		2		1			(1)	Y. Nakamura T. Matsuoka K. Doi T. Suzuki A. Iida N. Sekishita H. Yokoyama	
	※Advanced Energy and Environmental Engineering II	Lecture		2			1		(1)	Y. Nakamura T. Matsuoka K. Doi T. Suzuki A. Iida N. Sekishita H. Yokoyama	

◆ Up to two subjects marked with ※ can be acquired from courses taught by your supervisor. Consult your supervisor about details.

◆ Those subjects whose numbers marked with "()" will be held every year.

◆ "0.5" signifies that this subject will be held in any one of a quarter term (Spring 1, Spring 2, Fall 1 or Fall 2).

Electrical and Electronic Information Engineering

2024.10

Compulsory / Elective	Subject Name	Class format	Excluded from GPA	Credits	Classes/Week			Instructor	note		
					1st grade					2nd grade	
					Fall 1	Fall 2	Spring 1				Spring 2
					2024.10 - 2025.3	2025.4 - 2025.9	2025.10 - 2026.9				
Compulsory	Seminar on Electrical and Electronic Information Engineering 1A	Exercise	○	4	4				Supervisor		
	Seminar on Electrical and Electronic Information Engineering 1B	Exercise	○	2				2	Supervisor		
	Thesis Research on Electrical and Electronic Information Engineering	Experiment	○	6	9				Supervisor		
Elective	Material Science for Electronics 1	Lecture		2	1				H. Uchida T. Yatsui G. Kawamura		
	Material Science for Electronics 2	Lecture		2				1	H. Uchida T. Yatsui G. Kawamura		
	Physics for Electronics 1	Lecture		2		1			A. Matsuda Y. Nakamura R. Kato		
	Physics for Electronics 2	Lecture		2				1	A. Matsuda Y. Nakamura R. Kato		
	Electrical Energy Systems 1	Lecture		2	1				H. Takikawa Y. Murakami T. Tojo		
	Electrical Energy Systems 2	Lecture		2				1	H. Takikawa Y. Murakami T. Tojo		
	Electrical Technology and Materials 1	Lecture		2		1			R. Inada T. Kawashima		
	Electrical Technology and Materials 2	Lecture		2				1	R. Inada T. Kawashima		
	Semiconductor Physics 1	Lecture		2	1				T. Kawano K. Takahashi K. Yamane Y. J. Choi		
	Semiconductor Physics 2	Lecture		2				1	T. Kawano K. Takahashi K. Yamane Y. J. Choi		
	LSI Process 1	Lecture		2		1			K. Sawada Y. Ishikawa H. Sekiguchi T. Noda		
	LSI Process 2	Lecture		2				1	K. Sawada Y. Ishikawa H. Sekiguchi T. Noda		
	Information and Communication Technology 1	Lecture		2		1			S. Ichikawa K. Takeuchi N. Haga		
	Information and Communication Technology 2	Lecture		2				1	S. Ichikawa K. Takeuchi N. Haga		
	Advanced Electronic Information System 1	Lecture		2	1				H. Uehara M. Tamura X. Shao		
	Advanced Electronic Information System 2	Lecture		2				1	H. Uehara M. Tamura X. Shao		
	Methodology of R & D 1	Lecture		2	1			(1)	Supervisor		
	Methodology of R & D 2	Lecture		2			1	(1)	Supervisor		

◆ Please ask your supervisor the availability of the class before registration.

◆ Those subjects whose numbers marked with "()" will be held every year.

Computer Science and Engineering

2024.10

Compulsory / Elective	Subject Name	Class format	Excluded from GPA	Credits	Classes/Week				Instructor	note	
					1st grade						2nd grade
					Fall 1	Fall 2	Spring 1	Spring 2			
					2024.10 - 2025.3	2025.4 - 2025.9	2025.10 - 2026.9				
Compulsory	Seminar on Computer Science and Engineering I	Exercise	○	4	4				Supervisor		
	Seminar on Computer Science and Engineering II	Exercise	○	2				2	Supervisor		
	Thesis Research on Computer Science and Engineering	Experiment	○	6	9				Supervisor		
Elective	Data Science and Analysis 1	Lecture		1	1			(0.5)	T. Akiba		
	Data Science and Analysis 2	Lecture		1		1		(0.5)	M. Dall'Arno		
	Robotic Perception and Human-Robot Interaction 1	Lecture		1	1			(0.5)	J. Miura		
	Robotic Perception and Human-Robot Interaction 2	Lecture		1		1		(0.5)	R. Ohmura		
	3D Vision Computation 1	Lecture		1	1			(0.5)	Y. Kanazawa		
	3D Vision Computation 2	Lecture		1		1		(0.5)	Y. Sugaya		
	Molecular Simulation 1	Lecture		1				0.5	N. Kurita		
	Molecular Simulation 2	Lecture		1				0.5	H. Goto		
	Computational Intelligence in Brain System	Lecture		1			1	(0.5)	K. Murakoshi		
	Human Sensation and Perception 1	Lecture		1	1			(0.5)	S. Nakauchi		
	Human Sensation and Perception 2	Lecture		1		1		(0.5)	K. Koida		
	Information Security	Lecture		1				1	K. Suzuki		
	Statistical Machine Learning Theory	Lecture		1				0.5	K. Watanabe		
	X Reality and Psychology 1	Lecture		1	1			(0.5)	M. Kitazaki		
	X Reality and Psychology 2	Lecture		1		1		(0.5)	T. Minami K. Uehara		

◆ Those subjects whose numbers marked with "()" will be held every year.

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Compulsory / Elective	Subject Name	Class format	Excluded from GPA	Credits	Classes/Week					Instructor	note
					1st grade				2nd grade		
					Fall 1	Fall 2	Spring 1	Spring 2			
					2024.10 - 2025.3		2025.4 - 2025.9				
Compulsory	Seminar on Applied Chemistry and Life Science 1	Exercise	○	3	3					Supervisor	
	Seminar on Applied Chemistry and Life Science 2	Exercise	○	3					3	Supervisor	
	Thesis Research on Applied Chemistry and Life Science	Experiment	○	6	9					Supervisor	
Elective	Advanced Separation Chemistry	Lecture		1	1					Y. Saito	
	X-ray Spectroscopy for Catalytic Engineering	Lecture		1					0.5	T. Mizushima	
	Applied Physical Chemistry	Lecture		1		1				A. Matsumoto	
	Advanced Polymer Chemistry	Lecture		1					0.5	N. Haraguchi	
	Advanced Polymer Engineering	Lecture		1					0.5	E. Yoshida	
	Special Topics in Applied Organic Chemistry	Lecture		1			1			K. Shibatomi	
	Developmental Neuroscience	Lecture		1					0.5	S. Yoshida	
	Advanced Molecular Life Science	Lecture		1	1					T. Tanaka	
	Advanced Genomics	Lecture		1		1				T. Eki	
	Advanced Reactive Plasma	Lecture		1				1		K. Takashima	
	Advanced Reaction Engineering	Lecture		1					0.5	T. Oguchi	
	Advanced Supercritical Fluid Engineering	Lecture		1				1		H. Daimon	
	Applied Environmental Biology	Lecture		1					0.5	A. Nakabachi	
	Photobiology	Lecture		1					0.5	Y. Hirose	
	Advanced Surface and Interface Chemistry	Lecture		1				1		R. Tero	
	Advanced Molecular and Cellular Bioengineering	Lecture		1					0.5	H. Kurita	
	Advanced Supramolecular Chemistry	Lecture		1		1				Y. Arakawa	
	※ Advanced Molecular Design Chemistry 1	Lecture		2		1			(1)	A. Matsumoto Y. Saito E. Yoshida	
	※ Advanced Molecular Design Chemistry 2	Lecture		2				1	(1)	N.Haraguchi S. Ariyoshi	
	※ Advanced Molecular Functional Chemistry 1	Lecture		2		1			(1)	T. Mizushima T. Oguchi Y. Arakawa	
	※ Advanced Molecular Functional Chemistry 2	Lecture		2				1	(1)	K. Shibatomi H. Daimon	
	※ Advanced Molecular Biological Chemistry 1	Lecture		2		1			(1)	T. Eki K. Takashima R. Tero T. Tanaka H. Kurita	
	※ Advanced Molecular Biological Chemistry 2	Lecture		2				1	(1)	Y. Hirose S. Yoshida R. Numano J. Nakabachi	

◆ Up to two subjects marked with ※ can be acquired from courses taught by your supervisor. Consult your supervisor about details.

◆ Those subjects whose numbers marked with "()" will be held every year.

◆ "0.5" signifies that this subject will be held in any one of a quarter term (Spring 1, Spring 2, Fall 1 or Fall 2).

Architecture and Civil Engineering

2024.10

Compulsory / Elective	Subject Name	Class format	Excluded from GPA	Credits	Classes/Week				Instructor	note	
					1st grade						2nd grade
					Fall 1	Fall 2	Spring 1	Spring 2			
					2024.10 - 2025.3		2025.4 - 2025.9	2025.10 - 2026.9			
Compulsory	Seminar on Architecture and Civil Engineering I	Exercise	○	3	3				Supervisor		
	Seminar on Architecture and Civil Engineering II	Exercise	○	3				3	Supervisor		
	Thesis Research on Architecture and Civil Engineering	Experiment	○	6	9				Supervisor		
Elective	Elasticity and Stability	Lecture		2				1	Y. Matsumoto		
	Finite Element Method for Continua and Bar Structures	Lecture		2	1				S. Nakazawa		
	Seismic Evaluation of Existing Buildings	Lecture		2		1		(1)	T. Matsui		
	Seismic Design of Structures	Lecture		2	1			(1)	T. Saito		
	Geohazards	Lecture		2				1	T. Matsuda		
	Building Science: Indoor Air Quality and Ventilation	Lecture		2				1	M. Tajima Y. Shimazaki		
	Building science: Thermal Environment and vernacular building	Lecture		2		1			M. Tajima Y. Shimazaki		
	Coastal Hydraulics	Lecture		2				1	S. Kato		
	Water Environment Engineering	Lecture		2		1			T. Inoue		
	Environmental Management	Lecture		2		1			T. Tokairin K. Yokota		
	Advanced Urban Planning	Lecture		2				1	J. Asano H. Ono		
	Advanced Architectural Design	Lecture		2				1	D. Fujita		
	Advanced Transportation and Urban Planning	Lecture		2				1	N. Sugiki		
	Advanced Computational Economics	Lecture		2				1	H. Shibusawa		
	Advanced Transportation Engineering	Lecture		2	1				K. Matsuo		
	Computational Structural Design	Lecture		2		1			Y.Takiuchi		
	※ Advanced Structural System Planning and Design I	Lecture		2	1			(1)	T. Saito S. Nakazawa T. Matsui		
	※ Advanced Structural System Planning and Design II	Lecture		2		1		(1)	Y. Matsumoto T. Matsuda		
	※ Advanced Environmental System Planning and Design I	Lecture		2	1			(1)	M. Tajima T. Inoue S. Kato		
	※ Advanced Environmental System Planning and Design II	Lecture		2		1		(1)	Y. Shimazaki K. Yokota T. Tokairin		
	※ Advanced Regional System Planning and Design I	Lecture		2	1			(1)	J. Asano H. Shibusawa D. Fujita		
	※ Advanced Regional System Planning and Design II	Lecture		2		1		(1)	H. Ono N. Sugiki K. Matsuo		

◆ Up to two subjects marked with ※ can be acquired from courses taught by your supervisor. Consult your supervisor about details.

◆ Those subjects whose numbers marked with "()" will be held every year.

Twinning Program
Double Degree Program
Imaging and Light in Extended Reality
Program
Course Requirement Guide Book
(October 2024)

International Master's Degree Program



Diploma Policy

Diploma Policy for Master's Degree Program in Graduate School of Engineering

With a view to develop talented people in accordance with the basic philosophy and educational objectives, Toyohashi University of Technology (TUT) grants a degree of "Master (of Engineering)" to students who have received specialized education in the engineering field, including Mechanical Engineering, Electrical and Electronic Information Engineering, Computer Science and Engineering, Applied Chemistry and Life Science and Architecture and Civil Engineering, as well as liberal arts education; acquired the knowledge and abilities stated in 1 to 4 below; and fulfilled the requirements for graduation and degree granting set forth in TUT's regulations, etc. Those who achieved outstanding academic performance may be authorized to shorten the period of enrollment and be granted a master's degree.

1. Keep an international mindset to see things from various angles with a global perspective and have a wide range of knowledge to consider the symbiosis between humans and nature as well as linkage with society.
2. Have a high ability to contribute to team's goal attainment through effectively expressing and sending out one's own ideas, points in question and research results; deeply understanding others' values; and working together with various people.
3. Have social and ethical responsibilities as advanced-level engineers or researchers; and have the ability to voluntarily learn new things continuously in response to changes in society, environment, technology, etc.
4. Acquire advanced knowledge on an expertise in the fields of natural science and technological science; and have the practical and creative skills to understand and solve problems leveraging such knowledge in an integrated manner.

Mechanical Engineering

In accordance with the diploma policy for Master's Degree Program in Graduate School of Engineering at Toyohashi University of Technology (TUT), Toyohashi University of Technology grants a degree of "Master (of Engineering)" to the students who have received specialized education from the Department of Mechanical Engineering; have the knowledge and abilities stated below; and have fulfilled the requirements for graduation and degree granting set forth in TUT's regulations, etc. Those who achieved outstanding academic performance may be authorized to shorten the period of enrollment and be granted a master's degree.

(A) Personality and outlook with a broad perspective

Have an international mindset to see human society from various angles with a global perspective; and the ability to consider the symbiosis between humans and nature as well as public welfare.

(B) Sound ethics and social awareness as advanced-level engineers and researchers

Be conscious of specialized and ethical responsibilities as advanced-level engineers and researchers; and have the ability to set, solve and evaluate technical issues in society.

(C) Practical and creative skills to utilize advanced knowledge in an integrated manner

Have advanced knowledge about mechanical engineering and related fields; and have the practical and creative skills to utilize such knowledge for problem solving in an integrated manner.

(C1) Have the skills to voluntarily acquire theories and applied knowledge about mechanical engineering and related fields; and to utilize such knowledge in an integrated manner.

(C2) Have the skills to learn, by experience, methodologies for research and development through integrating extensive knowledge about mechanical engineering and related fields; to make plans for research and development and put them into practice; and to create new technologies to solve problems.

(D) Communication skills for global success

Have the communication skills to effectively express one's own ideas and results while working on issues faced by a globally changing society in cooperation with other team members.

(D1) Have the skills to effectively express and communicate one's own ideas as well as points in question at home and abroad through papers, oral reports or information media.

(D2) Have high skills to mutually respect the values of individual team members; and to contribute to the team's achievements through working cooperatively with other team members.

(E) Inquisitive outlook and skills for continuous learning in response to state-of-the-art technology and changes in the social environment

Have the skills to voluntarily make plans and learn throughout one's life in response to changes in society, environment and technology.

Electrical and Electronic Information Engineering

In accordance with the diploma policy for Master's Degree Program in Graduate School of Engineering at Toyohashi University of Technology (TUT), Toyohashi University of Technology grants a degree of "Master (of Engineering)" to the students who have received specialized education from the Department of Electrical and Electronic Information Engineering; have the knowledge and abilities stated below; have fulfilled the requirements for graduation and degree granting set forth in TUT's regulations. Those who achieved outstanding academic performance may be authorized to shorten the period of enrollment and be granted the degree.

(A) Personality and outlook with a broad perspective

Have an international mindset to see human society from various angles with a global perspective; the ability to consider the symbiosis between humans and nature as well as public welfare.

(B) Sound ethics and social awareness as advanced-level engineers and researchers

Be conscious of specialized and ethical responsibilities as advanced-level engineers and researchers; and have the ability to set, solve and evaluate technical issues in society.

(C) Practical and creative skills to utilize advanced knowledge in an integrated manner

Have advanced knowledge about electrical and electronic information engineering as well as related fields; and have the practical and creative skills to utilize such knowledge for problem solving in an integrated manner.

(C1) Have the skills to voluntarily acquire theories and applied knowledge about electrical and electronic information engineering as well as related fields; to utilize such knowledge in an integrated manner.

(C2) Have the skills to learn, by experience, methodologies for research and development through integrating extensive knowledge about electrical and electronic information engineering as well as related fields; to make plans for research and development and put them into practice; and to create new technologies to solve problems.

(D) Communication skills for global success

Have the communication skills to effectively express one's own ideas and results while working on issues faced by a globally changing society in cooperation with other team members.

(D1) Have the skills to effectively express and communicate one's own ideas as well as points in question at home and abroad through papers, oral reports or information media.

(D2) Have high-level skills to mutually respect the values of individual team members; to contribute to the team's achievements through working cooperatively with other team members.

(E) Inquisitive outlook and skills for continuous learning in response to state-of-the-art technology and changes in the social environment

Have the skills to voluntarily make plans and learn throughout one's life in response to changes in society, environment and technology.

Computer Science and Engineering

In accordance with the diploma policy for Master's Degree Program in Graduate School of Engineering at Toyohashi University of Technology (TUT), Toyohashi University of Technology grants a degree of "Master (of Engineering)" to the students who have received specialized education from the Department of Computer Science and Engineering; have the knowledge and abilities stated below; and have fulfilled the requirements for graduation and degree granting set forth in TUT's regulations, etc. Those who achieved outstanding academic performance may be authorized to shorten the period of enrollment and be granted a master's degree.

(A) Personality and outlook with a broad perspective

Have an international mindset to see human society from various angles with a global perspective; and the ability to consider the symbiosis between humans and nature as well as public welfare.

(B) Sound ethics and social awareness as advanced-level engineers and researchers

Be conscious of specialized and ethical responsibilities as advanced-level engineers and researchers; and have the ability to set, solve and evaluate technical issues in society.

(C) Practical and creative skills to utilize advanced knowledge in an integrated manner

Have advanced knowledge about computer science and engineering as well as related fields; and have the practical and creative skills to utilize such knowledge for problem solving in an integrated manner.

- (C1) Have the skills to voluntarily acquire theories and applied knowledge about computer science and engineering as well as related fields; and to utilize such knowledge in an integrated manner.
- (C2) Have the skills to learn, by experience, methodologies for research and development through integrating extensive knowledge about computer science and engineering as well as related fields; to make plans for research and development and put them into practice; and to create new technologies to solve problems.

(D) Communication skills for global success

Have the communication skills to effectively express one's own ideas and results while working on the issues faced by a globally changing society in cooperation with other team members.

- (D1) Have the skills to effectively express and communicate one's own ideas as well as points in question at home and abroad through papers, oral reports or information media.
- (D2) Have high-level skills to mutually respect the values of individual team members; and to contribute to the team's achievements through working cooperatively with other team members.

(E) Inquisitive outlook and skills for continuous learning in response to state-of-the-art technology and changes in the social environment

Have the skills to voluntarily make plans and learn throughout one's life in response to changes in society, environment and technology.

Applied Chemistry and Life Science

In accordance with the diploma policy for Master's Degree Program in Graduate School of Engineering at Toyohashi University of Technology (TUT), Toyohashi University of Technology grants a degree of "Master (of Engineering)" to the students who have received specialized education from the Department of Applied Chemistry and Life Science; have the knowledge and abilities stated below; and have fulfilled the requirements for graduation and degree granting set forth in TUT's regulations. Those who achieved outstanding academic performance may be authorized to shorten the period of enrollment and be granted a master's degree.

(A) Personality and outlook with a broad perspective

Have an international mindset to see human society from various angles with a global perspective; and the ability to consider the symbiosis between humans and nature as well as public welfare.

(B) Sound ethics and social awareness as advanced-level engineers and researchers

Be conscious of specialized and ethical responsibilities as advanced-level engineers and researchers; and have the ability to set, solve and evaluate technical issues in society.

(C) Practical and creative skills to utilize advanced knowledge in an integrated manner

Have advanced knowledge about applied chemistry and life science as well as related fields; and have the practical and creative skills to utilize such knowledge for problem solving in an integrated manner.

(C1) Have the skills to voluntarily acquire theories and applied knowledge about applied chemistry and life science as well as related fields; and to utilize such knowledge in an integrated manner.

(C2) Have the skills to learn, by experience, methodologies for research and development through integrating extensive knowledge about applied chemistry and life science as well as related fields; to make plans for research and development and put them into practice; and to create new technologies to solve problems.

(D) Communication skills for global success

Have the communication skills to effectively express one's own ideas and results while working on the issues faced by a globally changing society in cooperation with other team members.

(D1) Have the skills to effectively express and communicate one's own ideas as well as points in question at home and abroad through papers, oral reports or information media.

(D2) Have high-level skills to mutually respect the values of individual team member; and to contribute to the team's achievements through working cooperatively with other team members.

(E) Inquisitive outlook and skills for continuous learning in response to state-of-the-art technology and changes in the social environment

Have the skills to voluntarily make plans and learn throughout one's life in response to changes in society, environment and technology.

Architecture and Civil Engineering

In accordance with the diploma policy for Master's Degree Program in Graduate School of Engineering at Toyohashi University of Technology (TUT), Toyohashi University of Technology grants a degree of "Master (of Engineering)" to the students who have received specialized education from the Department of Architecture and Civil Engineering; have the knowledge and abilities stated below; and have fulfilled the requirements for graduation and degree granting set forth in TUT's regulations, etc. Those who achieved outstanding academic performance may be authorized to shorten the period of enrollment and be granted a master's degree.

(A) Personality and outlook with a broad perspective

Have an international mindset to see human society from various angles with a global perspective; and the ability to consider the symbiosis between humans and nature as well as public welfare.

(B) Sound ethics and social awareness as advanced-level engineers and researchers

Be conscious of specialized and ethical responsibilities as advanced-level engineers and researchers; and have the ability to set, solve and evaluate technical issues in society.

(C) Practical and creative skills to utilize advanced knowledge in an integrated manner

Have advanced knowledge about architecture and civil engineering as well as related fields; and have the practical and creative skills to utilize such knowledge for problem solving in an integrated manner.

- (C1) Have the skills to voluntarily acquire theories and applied knowledge about architecture and civil engineering as well as related fields; and to utilize such knowledge in an integrated manner.
- (C2) Have the skills to learn, by experience, methodologies for research and development through integrating extensive knowledge about architecture and civil engineering as well as related fields; to make plans for research and development and put them into practice; and to create new technologies to solve problems.

(D) Communication skills for global success

Have the communication skills to effectively express one's own ideas and results while working on the issues faced by a globally changing society in cooperation with other team members.

- (D1) Have the skills to effectively express and communicate one's own ideas as well as points in question at home and abroad through papers, oral reports or information media.
- (D2) Have high-level skills to mutually respect the values of individual team member; and to contribute to the team's achievements through working cooperatively with other team members.

(E) Inquisitive outlook and skills for continuous learning in response to state-of-the-art technology and changes in the social environment

Have the skills to voluntarily make plans and learn throughout one's life in response to changes in society, environment and technology.

I Requirements for completion

1. Requirements for completion

To complete the master's course, a student must participate in the course for two or more years, and must acquire the minimum credits required as follows. A student must carry out a research program under proper guidance by faculty members. In addition, a student must submit a master's thesis, and must pass a review and final examination.

Classification	Required credits for completion	Remarks
General subjects	6	
Specialized subjects		
Mechanical Engineering	24	
Electrical and Electronic Information Engineering	24	
Computer Science and Engineering	24	
Applied Chemistry and Life Science	24	
Architecture and Civil Engineering	24	
Grand total	30	

For students in the Twinning Program and also the Double Degree Program, up to 15 credits that the students had acquired at their home university before coming to TUT can be transferred to TUT Master's Program only if TUT admits after being examined. Those 15 credits shall be determined by TUT's criteria. However, credit transfer for compulsory courses will not be accepted.

2. Application for degree

Only a student who has earned the credits required for completion, or who is expected to earn the required credits can apply for the master's degree. Degree application and procedures for submission of a thesis for a master's degree shall be posted at "KYOMU JOHO SYSTEM" and on a bulletin board before the submission period.

II Class registration, examination, and attendance period

1. Class registration method

Classes shall be registered according to the program schedule of the student's respective major.

(1) Making study plans

To make study plans, students should read this Guide Book thoroughly, and follow the instructions and advice given during the orientation and by the supervisors.

The Course Schedule is provided at the beginning of each academic year.
Schedules for intensive classes will be posted at "KYOMU JOHO SYSTEM" and on a bulletin board when the details are fixed.

(2) Class registration

Students must register for classes using "KYOMU JOHO SYSTEM" at the TUT website

<https://kyomu.office.tut.ac.jp/portal/>

or by the form "Application for Subjects" during the designated period.

*Classes cannot be registered for after the designated registration period. Classes with no registration will not be accredited in any case.

NOTES

1) If a student does not attend the classes nor take the examinations, credits will not be given even if the registration is made.

2) A student cannot re-register for a subject once credits are given.

3) Only one subject can be registered for in a given time schedule. Note that this does not apply to intensive subjects.

(3) Confirming and amending the registration

To confirm or amend class registration, students should access "KYOMU JOHO SYSTEM", and follow the manual's instructions.

(4) Class Cancellation

After the end of the course registration period for each semester, students can cancel classes if students find it difficult to earn credits as it is. If students wish to cancel classes, apply for cancellation using "KYOMU JOHO SYSTEM" during the class cancellation application period of each semester.

Only electives and required electives classes can be canceled. However, intensive classes are excluded. Only class cancellation is possible during the class cancellation application period. Registration of additional courses is not accepted.

If students continue to miss the class or do not take an examination without cancelling the registration, the class will be considered grade "H" (Abandoned course). Please be aware that grade "H" course will have a large impact on your GPA.

(5) Repeating classes

In principle, a student who has failed a subject with regular examinations or has not gained credits for some other reasons can take the same subject again in the next academic year. To repeat a subject, the student must register again.

2. Examination

Examinations include regular examinations and make-up examinations.

(1) Regular examination

In principle regular examinations shall be held during the set period at the end of each term.

All students are to check the examination schedule in the academic calendar at "KYOMU JOHO SYSTEM" or on the bulletin boards. Note that examinations may be held at any time found necessary by the subject instructor.

(2) Make-up examination

1) Make-up examinations shall be held only when a student cannot take the regular examination for one of the following reasons. The student must gain the approval of the subject instructor using the form "Request for a make-up examination".

- a) Illness (doctor's medical certificate must be submitted)
- b) Accidents, disaster (certificate must be submitted), or other special reason (a letter explaining the reason must be submitted)

2) When a student cannot take the regular examination, the student has to contact the Educational Affairs Division and the course instructor by the day of the examination.

3) "Request for a make-up examination" must be submitted to the Educational Affairs Division within one week from the final date of the regular examination. In case of Spring semester, if one week from the final examination date is Saturday, Sunday, or holiday, a student must submit the document by the following day.

4) If a student fails to take the make-up examination, further examinations will not be allowed.

(3) Recognition of Credits and Grading System

Course instructors recognize credits for courses based on the results of examinations, etc.

① Student performance is graded based on the following standards. S, A, B and C are passing grades while D is a failing grade. Credits are awarded to grade C and above.

S···90 to 100 points

A···80 to 89 points

B···70 to 79 points

C···60 to 69 points

D···59 points or less

② With the aim of making course grades internationally compatible, TUT has launched a Grade Point Average (GPA) system, providing a barometer to judge the overall performance of

students, starting with students who entered TUT in academic year 2018.

The objectives of the GPA system are to fairly grade performance and to enhance students' desire for study by calculating the point average as a barometer to indicate the state and results of students' academic performance.

Grade	Points	Description of Grade	Judgement	Grade Point
S	90 to 100 points	Excellent—Outstanding performance	Pass	4.0
A	80 to 89 points	Good—Excellent performance		3.0
B	70 to 79 points	Satisfactory—Generally sound performance		2.0
C	60 to 69 points	Sufficient—Performance meeting the minimum passing criteria		1.0
D	59 points or less	Failure	Failure	0.0
N	-	Course for credit recognition (not included in GPA)	Pass (Recognition)	N/A
H	-	Abandoned course (Course the student abandoned by continuing to miss the class or no taking an examination without cancelling the registration)	Abandonment	0.0
K	-	Invalidated grade due to misconduct etc.	Invalid	0.0

GPA is an average calculated by converting above letter grades to grade points (GP) ranging from 0.0 to 4.0, multiplying these grade points by the number of credits for each course, and then dividing the total grade points by the total amount of registered credits.

Note, however, that grades from the following courses cannot be used to calculate GPA. Such courses are marked with a hyphen in the GP column of the grade report.

(1) Courses for which credits were earned on the basis of the credit exchange system conducted with other universities, graduate schools, etc.; courses that were registered at other universities or junior colleges while enrolled in TUT; and courses that were registered at universities, junior colleges or graduate schools in foreign countries

(2) Courses for which credits were earned before entering TUT and were recognized after entering TUT; courses that were registered at TUT, other universities or junior colleges before entering TUT; and courses registered at universities, junior colleges or graduate schools in foreign countries (including courses registered for as a credited auditor student)

(3) Courses for which credits were earned through mid-course entry, interschool transfer, readmission, or studying abroad, and were subsequently recognized

(4) Courses for which credits cannot be counted toward graduation requirements; and courses for which credits were earned through the system for advance registration to graduate school programs

(5) Courses that are designated separately by each department (On-the-job Training (internships), Supervised Research, Seminars, experimental courses, and practical training courses)

- ③ Each student can check grades and GPA for recognized credits in the "KYOMU JOHO SYSTEM".

(4) System for appealing grades

Students who have concerns about their grades for a particular semester can inquire to the class instructor during the confirmation period. If students have complaints regarding the instructor's response, they can submit an appeal. Students, however, cannot appeal the reason or basis for the grade.

Students should contact the Educational Affairs Division for details.

3. Maximum years of attendance and related matters

(1) Maximum years of attendance

A student may not be in the master's Twinning Program course, Double Degree Program course and Imaging and Light in Extended Reality Program course at the university for more than two years.

(2) Leave of absence

If a student cannot attend classes for two or more months consecutively due to illness or other special reasons, the student may submit the form "Request for leave of absence" to the Educational Affairs Division after getting approval from the supervisor, a member of the academic affairs committee, and their department head. Upon approval by the President, the student can take a leave of absence (maximum two years in total).

In order to submit the form "Request for leave of absence", the tuition fees up to the term must have been paid.

The period of this absence will not be counted in the "Maximum years of attendance" mentioned in paragraph (1) above.

To return to school after the approved period ends, the student must submit the form "Notice of return to university".

To return to school before the approved period following the removal of cause of absence, the student must submit the form "Application for return to university" and obtain approval.

(3) Withdrawal

If a student wants to withdraw from the university, the student must submit the form "Application for withdrawal from university" to the Educational Affairs Division after getting the approval from the supervisor, a member of the academic affairs committee, and the department head. Upon approval by the President, the student can withdraw from the university.

In order to submit the form "Application for withdrawal from university", the tuition fees up to the term must have been paid.

Note that the tuition fee has to be paid in full even if the student withdraws in the middle of a term.

(4) Removal from the University



A student will be removed from the university for the following reason.

- 1) A student exceeds the period mentioned above in paragraph (1) "Maximum years of attendance".
- 2) A student cannot return to school after the period of absence mentioned above in paragraph (2) "Leave of absence".
- 3) A student dies or disappears.
- 4) A student who has been approved for half exemption or postponement of admission fee payment does not pay the admission fee by the designated date.
- 5) A student fails to pay the tuition and does not pay even after a warning.

4. Other matters

(1) Information about canceled or make-up classes

All students should double-check their class schedules and other information using the following means:

Location		information
TUT website	https://kyomu.office.tut.ac.jp/portal/Public/Board/BoardList.aspx 	Canceled or make-up classes Emergency information (STORM WARNING etc.)
TUT website for mobile phones	https://kyomu.office.tut.ac.jp/mobile/Main.aspx  *Mobile tagging by camera phones	Canceled or make-up classes Emergency information (STORM WARNING etc.)

(2) Classes/exams when a STORM WARNING is announced.

If a Storm Warning (*Bo-fu Keiho*) is announced for Toyohashi city or the South-east area of the Mikawa region, TUT will deal with classes or examinations as follows:

- 1) To prevent any accident, all classes will be canceled during the Storm Warning.
- 2) If the Storm Warning is cleared before 7:00 am, all classes will be on schedule.
- 3) If the Storm Warning is cleared between 7:00 am and 11:00 am, all classes will start from the 3rd period. Classes in the 1st and 2nd period will be canceled.

Cancelled classes will be held on *YOBIBI* (optional extra day) and final exams will be held on *YOBIBI* for final exam term.

- 4) If the Storm Warning continues after 11:00 am, all classes will be canceled.

All cancelled classes and examinations will be rescheduled. Cancelled classes will be held on *YOBIBI* (optional extra day) and final exams will be held on *YOBIBI* for final exam term.

- 5) Whether or not a storm warning is announced, classes may be canceled because of suspension of public transportation service or some similar occurrence, at the discretion of the Vice President for Educational Affairs.

- 6) If cancelled classes cannot be held on *YOBIBI* (optional extra day), and final exams, on the alternate exam day, a Saturday may be used as an alternate day for classes or exams.
- 7) The above shall not apply to remote classes.

(3) University's e-mail account

TUT strongly recommends all students to set up the e-mail forwarding service in order to receive important information of class-scheduling, grading and other communications from the university.

(4) Absence from classes

When you have to be absent from classes due to illness, bereavement or other reasons, you need to inform these reasons to your subject instructor yourself.

Absences will be dealt with at the discretion of subject instructors.

Reasons for Absence	Documents you should submit	Procedure
Illness/Injury	Medical certificate or medical expense receipts	Students inform lecturers directly
Bereavement leave	Letter or notice of funeral	Students inform lecturers directly
Infectious diseases*	Medical certificate or medical expense receipts	Students inform the TUT Health Care Center (0532-44-6632) in addition to informing lecturers directly.

*TUT may require suspension in order to prevent the spread of infection. Suspension orders will be notified by email from the TUT or KYOMU JOHO SYSTEM.

- The TUT Health Care Center (TEL: 0532-44-6632 E-mail: kenkou@office.tut.ac.jp)

III Curriculum

1. Classes and credits

(1) Classes

Classes are divided into General Subjects and Specialized Subjects. Numbers of credits are set for each subject.

(For the subjects to be offered, see the following pages.
See the web syllabus for the details of each subject.)

(2) Compulsory subjects and elective subjects

- 1) Compulsory subjects are the subjects that must be completed as a requirement of the major.
- 2) Elective Required subjects are the subjects that must be selected from among designated subject groups and taken at least a set number of subjects or credits.
- 3) Elective subjects can be selected and taken from those subjects being offered for the designated numbers of credits.

(3) Calculating credits

Teaching types of classes are lectures, exercises, experiments, practical or hands-on training, and they are offered individually or in combinations, and the standard is that it takes 45 hours of study to earn one credit. This is calculated in the following ways.

- (a) For lectures, 15 hours of class time and 30 hours of preparation and review for one credit.
- (b) For exercises, 30 hours of class time and 15 hours of preparation and review for one credit.
- (c) For experiments, practical or hands-on training, 45 hours of class time for one credit.

(4) Class times and class schedule.

The following are the class times.

Period	1	2	3	4	5	6
Time	8:50 am– 10:20 am	10:30 am– 12:00 (noon)	1:00 pm– 2:30 pm	2:40 pm 4:10 pm	4:20 pm– 5:50 pm	6:00 pm– 7:30 pm

The class schedule is posted on "KYOMU JOHO SYSTEM" at the beginning of each semester. Notification of changes to the class schedule is also posted.

Courses listed in the "Intensive" section of the class schedule are ones that are taught intensively at irregular times. Once the dates of intensive courses are decided, the information is posted.

(5) School term

A school term is determined according to the academic year calendar, and consists of two terms; Spring term (from April 1 to September 30) and Fall term (from October 1 to March 31)

General subjects (Twinning Program・Double Degree Program)

2024.10

Compulsory / Elective	Subject Name	Class format	Excluded from GPA	Credits	Classes/Week		Instructor	note
					Fall	Spring		
					2024.10 - 2025.3	2025.4 - 2025.9		
Compulsory	Ethics for Researchers	Lecture		1	1			
Elective	Culture and Communication I	Lecture		2	1		E. Ryan	
	Culture and Communication II	Lecture		2		1	E. Ryan	
	Principles of Japanese Conversation	Lecture		2		1	Y. Muramatsu	
	Principles of Japanese Grammar	Lecture		2	1		J. Ishige	
	Japanese Life Today	Lecture		2		1		
	Japanese Industrial Technologies and Innovations	Lecture		2	1			

Mechanical Engineering (Twinning Program)

2024.10

Compulsory / Elective	Subject Name	Class format	Excluded from GPA	Credits	Classes/Week				Instructor	note
					2nd grade					
					Fall 1	Fall 2	Spring 1	Spring 2		
					2024.10 - 2025.3		2025.4 - 2025.9			
Compulsory	Seminar on Mechanical Engineering	Exercise	○	6	6				Supervisor	
	Thesis Research on Mechanical Engineering	Experiment	○	6	9				Supervisor	
	Applied Mechanics of Materials	Lecture		1			1		T. Adachi	
	Micromachining Engineering	Lecture		1					T. Shibata	
	Microsystems Engineering	Lecture		1					M. Nagai	
	Microstructural Control of Metallic Materials	Lecture		1					H. Miura	
	Microstructure and Properties of Structural Materials	Lecture		1			1		Y. Todaka	
	Advanced Characterization in Materials	Lecture		1		1			M. Kobayashi	
	Modern Control Engineering	Lecture		1					K.Takagi	
	Precision Mechatronics	Lecture		1			1		K. Sato	
	Robot Kinematics	Lecture		1	1				N. Uchiyama	
	Advanced Agricultural Engineering	Lecture		1					K. Takayama	
	Advanced Aeroacoustics	Lecture		1	1				A. Iida	
	Combustion Theory	Lecture		1					Y. Nakamura	
	Microscale Transport Phenomena	Lecture		1		1			K. Doi	
	Advanced Fluid and Energy Engineering	Lecture		1		1			H. Yokoyama	
	※Advanced Mechanical Systems Design I	Lecture		2		1			T. Shibata M. Nagai S. Kawamura T. Adachi Y. Takeichi	
	※Advanced Mechanical Systems Design II	Lecture		2				1	T. Shibata M. Nagai S. Kawamura T. Adachi Y. Takeichi	
	※Advanced Materials and Manufacturing Process I	Lecture		2		1			Y. Todaka H. Miura M. Kobayashi T. Yasui Y. Abe N. Adachi Y. Oba	
	※Advanced Materials and Manufacturing Process II	Lecture		2				1	Y. Todaka H. Miura M. Kobayashi T. Yasui Y. Abe N. Adachi Y. Oba	
	※Advanced System, Control and Robotics I	Lecture		2		1			K. Sato S. Sano K. Takayama N. Uchiyama K. Takagi J. Takahashi	
	※Advanced System, Control and Robotics II	Lecture		2				1	K. Sato S. Sano K. Takayama N. Uchiyama K. Takagi J. Takahashi	
	※Advanced Energy and Environmental Engineering I	Lecture		2		1			Y. Nakamura T. Matsuoka K. Doi T. Suzuki A. Iida N. Sekishita H. Yokoyama	
	※Advanced Energy and Environmental Engineering II	Lecture		2				1	Y. Nakamura T. Matsuoka K. Doi T. Suzuki A. Iida N. Sekishita H. Yokoyama	

◆ Up to two subjects marked with ※ can be acquired from courses taught by your supervisor. Consult your supervisor about details.

Electrical and Electronic Information Engineering (Twinning Program)

2024.10

Compulsory / Elective	Subject Name	Class format	Excluded from GPA	Credits	Classes/Week				Instructor	note
					2nd grade					
					Fall 1	Fall 2	Spring 1	Spring 2		
					2024.10 - 2025.3		2025.4 - 2025.9			
Compulsory	Seminar on Electrical and Electronic Information Engineering	Exercise	○	6	6				Supervisor	
	Thesis Research on Electrical and Electronic Information Engineering	Experiment	○	6	9				Supervisor	
Elective	Material Science for Electronics 1	Lecture		2	1			H. Uchida T. Yatsui G. Kawamura		
	Material Science for Electronics 2	Lecture		2				H. Uchida T. Yatsui G. Kawamura		
	Physics for Electronics 1	Lecture		2			1	A. Matsuda Y. Nakamura R. Kato		
	Physics for Electronics 2	Lecture		2				A. Matsuda Y. Nakamura R. Kato		
	Electrical Energy Systems 1	Lecture		2	1			H. Takikawa Y. Murakami T. Tojo		
	Electrical Energy Systems 2	Lecture		2				H. Takikawa Y. Murakami T. Tojo		
	Electrical Technology and Materials 1	Lecture		2			1	R. Inada T. Kawashima		
	Electrical Technology and Materials 2	Lecture		2				R. Inada T. Kawashima		
	Semiconductor Physics 1	Lecture		2	1			T. Kawano K. Takahashi K. Yamane Y. J. Choi		
	Semiconductor Physics 2	Lecture		2				T. Kawano K. Takahashi K. Yamane Y. J. Choi		
	LSI Process 1	Lecture		2			1	K. Sawada Y. Ishikawa H. Sekiguchi T. Noda		
	LSI Process 2	Lecture		2				K. Sawada Y. Ishikawa H. Sekiguchi T. Noda		
	Information and Communication Technology 1	Lecture		2			1	S. Ichikawa K. Takeuchi N. Haga		
	Information and Communication Technology 2	Lecture		2				S. Ichikawa K. Takeuchi N. Haga		
	Advanced Electronic Information System 1	Lecture		2	1			H. Uehara M. Tamura X. Shao		
	Advanced Electronic Information System 2	Lecture		2				H. Uehara M. Tamura X. Shao		
	Methodology of R & D 1	Lecture		2	1			Supervisor		
	Methodology of R & D 2	Lecture		2			1	Supervisor		

◆ Please ask your supervisor the availability of the class before registration.

Computer Science and Engineering(Twinning Program)

2024.10

Compulsory / Elective	Subject Name	Class format	Excluded from GPA	Credit s	Classes/Week				Instructor	note
					2nd grade					
					Fall 1	Fall 2	Spring 1	Spring 2		
					2024.10 - 2025.3		2025.4 - 2025.9			
Compulsory	Seminar on Computer Science and Engineering	Exercise	○	6	6				Supervisor	
	Thesis Research on Computer Science and Engineering	Experiment	○	6	9				Supervisor	
Elective	Data Science and Analysis 1	Lecture		1	1				T. Akiba	
	Data Science and Analysis 2	Lecture		1		1			M. Dall'Arno	
	Robotic Perception and Human-Robot Interaction 1	Lecture		1	1				J. Miura	
	Robotic Perception and Human-Robot Interaction 2	Lecture		1		1			R. Ohmura	
	3D Vision Computation 1	Lecture		1	1				Y. Kanazawa	
	3D Vision Computation 2	Lecture		1		1			Y. Sugaya	
	Molecular Simulation 1	Lecture		1					N. Kurita	
	Molecular Simulation 2	Lecture		1					H. Goto	
	Computational Intelligence in Brain System	Lecture		1			1		K. Murakoshi	
	Human Sensation and Perception 1	Lecture		1	1				S. Nakauchi	
	Human Sensation and Perception 2	Lecture		1		1			K. Koida	
	Information Security	Lecture		1				1	K. Suzuki	
	Statistical Machine Learning Theory	Lecture		1					K. Watanabe	
	X Reality and Psychology 1	Lecture		1	1				M. Kitazaki	
	X Reality and Psychology 2	Lecture		1		1			T. Minami K. Uehara	

Applied Chemistry and Life Science (Twinning Program)

2024.10

Compulsory / Elective	Subject Name	Class format	Excluded from GPA	Credits	Classes/Week				Instructor	note
					2nd grade					
					Fall 1	Fall 2	Spring 1	Spring 2		
					2024.10 - 2025.3		2025.4 - 2025.9			
Compulsory	Seminar on Applied Chemistry and Life Science	Exercise	○	6	6				Supervisor	
	Thesis Research on Applied Chemistry and Life Science	Experiment	○	6	9				Supervisor	
Elective	Advanced Separation Chemistry	Lecture		1	1				Y. Saito	
	X-ray Spectroscopy for Catalytic Engineering	Lecture		1					T. Mizushima	
	Applied Physical Chemistry	Lecture		1		1			A. Matsumoto	
	Advanced Polymer Chemistry	Lecture		1					N. Haraguchi	
	Advanced Polymer Engineering	Lecture		1					E. Yoshida	
	Special Topics in Applied Organic Chemistry	Lecture		1			1		K. Shibatomi	
	Developmental Neuroscience	Lecture		1					S. Yoshida	
	Advanced Molecular Life Science	Lecture		1	1				T. Tanaka	
	Advanced Genomics	Lecture		1		1			T. Eki	
	Advanced Reactive Plasma	Lecture		1				1	K. Takashima	
	Advanced Reaction Engineering	Lecture		1					T. Oguchi	
	Advanced Supercritical Fluid Engineering	Lecture		1				1	H. Daimon	
	Applied Environmental Biology	Lecture		1					A. Nakabachi	
	Photobiology	Lecture		1					Y. Hirose	
	Advanced Surface and Interface Chemistry	Lecture		1				1	R. Tero	
	Advanced Molecular and Cellular Bioengineering	Lecture		1					H. Kurita	
	Advanced Supramolecular Chemistry	Lecture		1		1			Y. Arakawa	
	※ Advanced Molecular Design Chemistry 1	Lecture		2	1				A. Matsumoto Y. Saito E. Yoshida	
	※ Advanced Molecular Design Chemistry 2	Lecture		2				1	N.Haraguchi S. Ariyoshi	
	※ Advanced Molecular Functional Chemistry 1	Lecture		2	1				T. Mizushima T. Oguchi Y. Arakawa	
	※ Advanced Molecular Functional Chemistry 2	Lecture		2				1	K. Shibatomi H. Daimon	
	※ Advanced Molecular Biological Chemistry 1	Lecture		2	1				T. Eki K. Takashima R. Tero T. Tanaka H. Kurita	
	※ Advanced Molecular Biological Chemistry 2	Lecture		2				1	Y. Hirose S. Yoshida R. Numano J. Nakabachi	

◆ Up to two subjects marked with ※ can be acquired from courses taught by your supervisor. Consult your supervisor about details.

Architecture and Civil Engineering (Twinning Program)

2024.10

Compulsory / Elective	Subject Name	Class format	Excluded from GPA	Credits	Classes/Week				Instructor	note
					2nd grade					
					Fall 1	Fall 2	Spring 1	Spring 2		
					2024.10 - 2025.3		2025.4 - 2025.9			
Compulsory	Seminar on Architecture and Civil Engineering	Exercise	○	6	6				Supervisor	
	Thesis Research on Architecture and Civil Engineering	Experiment	○	6	9				Supervisor	
Elective	Elasticity and Stability	Lecture		2					Y. Matsumoto	
	Finite Element Method for Continua and Bar Structures	Lecture		2	1				S. Nakazawa	
	Seismic Evaluation of Existing Buildings	Lecture		2			1		T. Matsui	
	Seismic Design of Structures	Lecture		2	1				T. Saito	
	Geohazards	Lecture		2					T. Matsuda	
	Building Science: Indoor Air Quality and Ventilation	Lecture		2					M. Tajima Y. Shimazaki	
	Building science: Thermal Environment and vernacular building	Lecture		2			1		M. Tajima Y. Shimazaki	
	Coastal Hydraulics	Lecture		2					S. Kato	
	Water Environment Engineering	Lecture		2			1		T. Inoue	
	Environmental Management	Lecture		2			1		T. Tokairin K. Yokota	
	Advanced Urban Planning	Lecture		2					J. AsanoH. Ono	
	Advanced Architectural Design	Lecture		2					D. Fujita	
	Advanced Transportation and Urban Planning	Lecture		2					N. Sugiki	
	Advanced Computational Economics	Lecture		2					H. Shibusawa	
	Advanced Transportation Engineering	Lecture		2	1				K. Matsuo	
	Computational Structural Design	Lecture		2			1		Y.Takiuchi	
	※ Advanced Structural System Planning and Design I	Lecture		2	1				T. Saito S. Nakazawa T. Matsui	
	※ Advanced Structural System Planning and Design II	Lecture		2			1		Y. Matsumoto T. Matsuda	
	※ Advanced Environmental System Planning and Design I	Lecture		2	1				M. Tajima T. Inoue S. Kato	
	※ Advanced Environmental System Planning and Design II	Lecture		2			1		Y. Shimazaki K. Yokota T. Tokairin	
	※ Advanced Regional System Planning and Design I	Lecture		2	1				J. Asano H. Shibusawa D. Fujita	
	※ Advanced Regional System Planning and Design II	Lecture		2			1		H. Ono N. Sugiki K. Matsuo	

◆ Up to two subjects marked with ※ can be acquired from courses taught by your supervisor. Consult your supervisor about details.

Mechanical Engineering (Double Degree Program)

2024.10

Compulsory / Elective	Subject Name	Class format	Excluded from GPA	Credits	Classes/Week				Instructor	note
					2nd grade					
					Fall 1	Fall 2	Spring 1	Spring 2		
					2024.10 - 2025.3		2025.4 - 2025.9			
Compulsory	Seminar on Mechanical Engineering I	Exercise	○	4	4				Supervisor	
	Seminar on Mechanical Engineering II	Exercise	○	2	2				Supervisor	
	Thesis Research on Mechanical Engineering	Experiment	○	6	9				Supervisor	
	Internship	Experiment	○	—	12				Supervisor	
Elective	Advances in Mechanical Design	Lecture		2					T. Adachi	
	Advances in Material Science and Manufacturing	Lecture		2		1			Y. Todaka M. Kobayashi	
	Advances in Thermal and Fluid Mechanics	Lecture		2	1				A. Iida K. Doi	
	Advances in Systems, Control and Robotics	Lecture		2			2		K. Sato N. Uchiyama	
	Robotics	Lecture		2	1				N. Uchiyama	

Computer Science and Engineering(Double Degree Program)

2024.10

Compulsory / Elective	Subject Name	Class format	Excluded from GPA	Credit s	Classes/Week				Instructor	note
					2nd grade					
					Fall 1	Fall 2	Spring 1	Spring 2		
					2024.10 - 2025.3		2025.4 - 2025.9			
Compulsory	Seminar on Computer Science and Engineering	Exercise	○	6	6				Supervisor	
	Thesis Research on Computer Science and Engineering	Experiment	○	6	9				Supervisor	
Elective	Data Science and Analysis 1	Lecture		1	1				T. Akiba	
	Data Science and Analysis 2	Lecture		1		1			M. Dall'Arno	
	Robotic Perception and Human-Robot Interaction 1	Lecture		1	1				J. Miura	
	Robotic Perception and Human-Robot Interaction 2	Lecture		1		1			R. Ohmura	
	3D Vision Computation 1	Lecture		1	1				Y. Kanazawa	
	3D Vision Computation 2	Lecture		1		1			Y. Sugaya	
	Molecular Simulation 1	Lecture		1					N. Kurita	
	Molecular Simulation 2	Lecture		1					H. Goto	
	Computational Intelligence in Brain System	Lecture		1			1		K. Murakoshi	
	Human Sensation and Perception 1	Lecture		1	1				S. Nakauchi	
	Human Sensation and Perception 2	Lecture		1		1			K. Koida	
	Information Security	Lecture		1				1	K. Suzuki	
	Statistical Machine Learning Theory	Lecture		1					K. Watanabe	
	X Reality and Psychology 1	Lecture		1	1				M. Kitazaki	
	X Reality and Psychology 2	Lecture		1		1			T. Minami K. Uehara	

General subjects (IMLEX Program)

2024.10

Compulsory / Elective	Subject Name	Class format	Excluded from GPA	Credits	Classes/Week		Instructor	note
					Fall	Spring		
					2024.10 - 2025.3	2025.4 - 2025.9		
Compulsory	Ethics for Researchers	Lecture		1	1			
	Japanese Communication Theory	Lecture		2	1		C. Ishikawa	
Elective	Culture and Communication I	Lecture		2	1		E. Ryan	
	Culture and Communication II	Lecture		2		1	E. Ryan	
	Japanese Life Today	Lecture		2		1		
	Japanese Industrial Technologies and Innovations	Lecture		2	1			

Computer Science and Engineering (IMLEX Program)

2024.10

Compulsory / Elective	Subject Name	Class format	Excluded from GPA	Credit s	Classes/Week				Instructor	note
					2nd grade					
					Fall 1	Fall 2	Spring 1	Spring 2		
					2024.10 - 2025.3		2025.4 - 2025.9			
Compulsory	Case Study in Imaging and Light and XR	Exercise	○	4	4				Supervisor	IMLEX Core Courses
	Advanced Research Methods	Exercise	○	2	2				Supervisor	IMLEX Core Courses
	Supervised Research in Computer Science and Engineering	Experiment	○	6			9		Supervisor	IMLEX Core Courses
	Data Science and Analysis 1	Lecture		1	1				T. Akiba	IMLEX Core Courses
	Data Science and Analysis 2	Lecture		1		1			M. Dall'Arno	IMLEX Core Courses
Elective Required	Human Sensation and Perception 1	Lecture		1	1				S. Nakauchi	IMLEX Compulsory in Lighting Track
	Human Sensation and Perception 2	Lecture		1		1			K. Koida	IMLEX Compulsory in Lighting Track
	X Reality and Psychology 1	Lecture		1	1				M. Kitazaki	IMLEX Compulsory in Lighting Track
	X Reality and Psychology 2	Lecture		1		1			T. Minami K. Uehara	IMLEX Compulsory in Lighting Track
	3D Vision Computation 1	Lecture		1	1				Y. Kanazawa	IMLEX Compulsory in Computational
	3D Vision Computation 2	Lecture		1		1			Y. Sugaya	IMLEX Compulsory in Computational
	Robotic Perception and Human-Robot Interaction 1	Lecture		1	1				J. Miura	IMLEX Compulsory in Computational
	Robotic Perception and Human-Robot Interaction 2	Lecture		1		1			R. Ohmura	IMLEX Compulsory in Computational

Course Requirement Guide Book

(October 2024)

International Doctoral Degree Program



Diploma Policy

Diploma Policy for Doctoral Degree Program in Graduate School of Engineering

With a view to develop talented people in accordance with the basic philosophy and educational objectives, Toyohashi University of Technology (TUT) grants a degree of “Doctor of Philosophy (Engineering)” to students who have received specialized education in the engineering field, including Mechanical Engineering, Electrical and Electronic Information Engineering, Computer Science and Engineering, Applied Chemistry and Life Science and Architecture and Civil Engineering; acquired the knowledge and abilities stated in 1 to 4 below; and fulfilled the requirements for graduation and degree granting set forth in TUT’s regulations, etc. Those who achieved outstanding academic performance may be authorized to shorten the period of enrollment and be granted a Doctoral degree.

1. Keep an international mindset to see things from various angles with a global perspective and have a wide range of knowledge to consider comprehensively the symbiosis between humans and nature as well as linkage with society.
2. Have a high ability to contribute to team’s goal attainment as a leader through effectively expressing and sending out one’s own ideas, points in question and research results; deeply understanding others’ values; and working together with various people.
3. Have social and ethical responsibilities as advanced-level leading engineers or researchers; and have the ability to voluntarily learn new things continuously in response to changes in society, environment, technology, etc.
4. Acquire advanced knowledge on an expertise in the fields of natural science and technological science; and have the practical, creative and leading skills to understand and solve problems leveraging such knowledge in an integrated and progressive manner.

Mechanical Engineering

In accordance with the diploma policy for Doctoral Degree Program in Graduate School of Engineering at Toyohashi University of Technology (TUT), Toyohashi University of Technology grants a degree of "Doctor of Philosophy (Engineering)" to the students who have received specialized education from the Department of Mechanical Engineering; have the knowledge and abilities stated below; and have fulfilled the requirements for graduation and degree granting set forth in TUT's regulations, etc. Those who achieved outstanding academic performance may be authorized to shorten the period of enrollment and be granted a Doctoral degree.

(A) Personality and outlook with a broad perspective

Have an international mindset to see human society from various angles with a global perspective; and the ability to consider the symbiosis between humans and nature as well as public welfare.

(B) Sound ethics and social awareness as highly advanced-level engineers and researchers

Be conscious of specialized and ethical responsibilities as highly advanced-level engineers and researchers; and have the ability to discover, set, solve and evaluate technical issues in society.

(C) Practical and creative skills to utilize advanced knowledge in an integrated and constructive manner

Have advanced knowledge about mechanical engineering and related fields, and have ability to create and practice original techniques for problem solving by acquiring the research and development methodology that combines such knowledge in an extensive and organic manner.

(D) Communication skills for global success

Have the communication skills to effectively express one's own ideas and results while working on issues faced by a globally changing society in cooperation with other team members, and the high ability to contribute to the goals of the team as a leader.

(E) Inquisitive outlook and skills for continuous learning in response to state-of-the-art technology and changes in the social environment

Have the skills to investigate the nature of change in society, environment and technology, and voluntarily make plans and learn throughout one's life.

Electrical and Electronic Information Engineering

In accordance with the diploma policy for Doctoral Degree Program in Graduate School of Engineering at Toyohashi University of Technology (TUT), Toyohashi University of Technology grants a degree of "Doctor of Philosophy (Engineering)" to the students who have received specialized education from the Department of Electrical and Electronic Information Engineering; have the knowledge and abilities stated below; and have fulfilled the requirements for graduation and degree granting set forth in TUT's regulations, etc. Those who achieved outstanding academic performance may be authorized to shorten the period of enrollment and be granted a Doctoral degree.

of enrollment and be granted a Doctoral degree.

(A) Personality and outlook with a broad perspective

Have an international mindset to see human society from various angles with a global perspective; and the ability to consider the symbiosis between humans and nature as well as public welfare.

(B) Sound ethics and social awareness as highly advanced-level engineers and researchers

Be conscious of specialized and ethical responsibilities as advanced-level engineers and researchers; and have the ability to set, solve and evaluate technical issues in society.

(C) Practical and creative skills to utilize advanced knowledge in an integrated and constructive manner

Have advanced knowledge about electrical and electronic information engineering as well as related fields; have the practical and creative skills to utilize such knowledge for problem solving in an integrated manner.

(D) Communication skills for global success

Have the communication skills to effectively express one's own ideas and results while working on issues faced by a globally changing society in cooperation with other team members.

(E) Inquisitive mind and continuous learning skill for changes in the state-of-the-art technology and in the social environment

Have the skills to voluntarily make plans and learn throughout one's life in response to changes in society, environment and technology.

Computer Science and Engineering

In accordance with the diploma policy for Doctoral Degree Program in Graduate School of Engineering at Toyohashi University of Technology (TUT), Toyohashi University of Technology grants a degree of "Doctor of Philosophy (Engineering)" to the students who have received specialized education from the Department of Computer Science and Engineering; have the knowledge and abilities stated below; and have fulfilled the requirements for graduation and degree granting set forth in TUT's regulations, etc. Those who achieved outstanding academic performance may be authorized to shorten the period of enrollment and be granted a Doctoral degree.

d be granted a Doctoral degree.

(A) Personality and outlook with a broad perspective

Have an international mindset to see human society from various angles with a global perspective; and the ability to consider the symbiosis between humans and nature as well as public welfare.

(B) Sound ethics and social awareness as highly advanced-level engineers and researchers

Be conscious of specialized and ethical responsibilities as advanced-level engineers and researchers; and have the ability to set, solve and evaluate technical issues in society.

(C) Practical and creative skills to utilize advanced knowledge in an integrated and constructive manner

Have advanced knowledge about computer science and engineering as well as related fields; and have the practical and creative skills to utilize such knowledge for problem solving, understanding the methodology of research, creating original technology, and integrating all knowledges organically.

(D) Communication skills for global success

Have the communication skills to effectively express one's own ideas and results while working on the issues faced by a globally changing society in cooperation with other team members.

Have sophisticated ability as a leader to contribute for the achievement the goal of team.

(E) Inquisitive outlook and skills for continuous learning in response to state-of-the-art technology and in the social environment

Have the skills to research the essence of changes in society, environment, and technology.

Have the skills to voluntarily make plans and learn throughout one's life in response to changes in society, environment and technology.

Applied Chemistry and Life Science

In accordance with the diploma policy for Doctoral Degree Program in Graduate School of Engineering at Toyohashi University of Technology (TUT), Toyohashi University of Technology grants a degree of "Doctor of Philosophy (Engineering)" to the students who have received specialized education from the Department of Applied Chemistry and Life Science; have the knowledge and abilities stated below; and have fulfilled the requirements for graduation and degree granting set forth in TUT's regulations, etc. Those who achieved outstanding academic performance may be authorized to shorten the period of enrollment and be granted a Doctoral degree.

and be granted a Doctoral degree.

(A) Personality and outlook with a broad perspective

Have an international mindset to see human society from various angles with a global perspective; and the ability to consider the symbiosis between humans and nature as well as public welfare.

(B) Sound ethics and social awareness as highly advanced-level engineers and researchers

Be conscious of specialized and ethical responsibilities as highly advanced-level engineers and researchers; and have the ability to find, set, solve and evaluate technical issues in society.

(C) Practical and creative skills to utilize advanced knowledge in an integrated and constructive manner

Have the ability to create imaginative technology to solve problems and put them into practice through learning, by experience, methodologies for research and development on the basis of the integration of extensive knowledge about applied chemistry, life science and their related fields.

(D) Communication skills for global success

Have the communication skills to effectively express and disseminate one's own ideas and results while working on the issues faced by a globally changing society in cooperation with other team members as well as leadership ability to contribute to the team's achievements.

(E) Inquisitive outlook and skills for continuous learning in response to state-of-the-art technology and changes in the social environment

Have the ability to explore the nature of changes in society, environment and technology and to voluntarily make plans and learn throughout one's life.

Architecture and Civil Engineering

In accordance with the diploma policy for Doctoral Degree Program in Graduate School of Engineering at Toyohashi University of Technology (TUT), Toyohashi University of Technology grants a degree of "Doctor of Philosophy (Engineering)" to the students who have received specialized education from the Department of Architecture and Civil Engineering; have the knowledge and abilities stated below; and have fulfilled the requirements for graduation and degree granting set forth in TUT's regulations, etc. Those who achieved outstanding academic performance may be authorized to shorten the period of enrollment and be granted a Doctoral degree.

and be granted a Doctoral degree.

(A) Personality and outlook with a broad perspective

Have an international mindset to see human society from various angles with a global perspective; and the ability to consider the symbiosis between humans and nature as well as public welfare with a wide view.

(B) Sound ethics and social awareness as highly advanced-level engineers and researchers

Be conscious of specialized and ethical responsibilities as leading -level engineers and researchers; and have the ability to discover, set, solve and evaluate technical issues in society.

(C) Practical and creative skills to utilize advanced knowledge in an integrated and constructive manner

Have advanced knowledge about architecture and civil engineering as well as related fields; and have the practical and creative skills to utilize such knowledge for problem solving, understanding the methodology of research, creating original technology, and integrating all knowledges organically.

(D) Communication skills for global success

Have the communication skills to effectively express and transmit one's own ideas and results while working on the issues faced by a globally changing society in cooperation with other team members.

Have sophisticated ability as a leader to contribute for the achievement the goal of team.

(E) Inquisitive outlook and skills for continuous learning in response to state-of-the-art technology and changes in the social environment

Have the skills to investigate the essence of changes in society, environment and technology.

Have the skills to voluntarily make plans and learn throughout one's life.

I Requirements for completion

1. Requirements for completion

To complete the doctoral course, a student must participate in the course for three or more years, and must obtain the minimum credits required as follows. A student must carry out a research program under proper guidance by faculty members. In addition, a student must submit a doctoral thesis, and must pass a review and final examination.

Note that students showing excellent achievement may finish in a shorter study period.

Classification	Required credits for completion	Remarks
Mechanical Engineering	12	4 credits in total can be substituted with a combination of the following options , with permission from the student's supervisor and the subject instructor. 1. Specialized subjects from International Master's Degree Program (except for Advanced subjects) 2. Subjects of the other departments from International Doctoral Degree Program 3. Subjects from doctoral program of student's own department held in Japanese (The same subject cannot be taken in both Japanese and English)
Electrical and Electronic Information Engineering	12	
Computer Science and Engineering	12	
Applied Chemistry and Life Science	12	
Architecture and Civil Engineering	12	

2. Application for degree

Only a student who has earned the credits required for completion, or who is expected to earn the required credits can apply for the doctoral degree. Degree application and procedures for submission of a thesis for a doctoral degree shall be posted at "KYOMU JOHO SYSTEM" and on a bulletin board before the submission period.

II Class registration, examination, and attendance period

1. Class registration method

Classes shall be registered according to the program schedule of the student's respective major.

(1) Making study plans

To make study plans, students should read this Guide Book thoroughly, and follow the instructions and advice given during the orientation and by the supervisor.

The Course Schedule is provided at the beginning of each academic year.
Schedules for intensive classes will be posted at "KYOMU JOHO SYSTEM" and on a bulletin board when the details are fixed.

(2) Class registration

Students must register for classes using "KYOMU JOHO SYSTEM" at the TUT website

<https://kyomu.office.tut.ac.jp/portal/>

or by the form "Application for Subjects" during the designated period.

*Classes cannot be registered for after the designated registration period. Classes with no registration will not be accredited in any case.

NOTES

1) To take Specialized subjects from International Master's Degree Program (except for Advanced topics subjects), subjects from your own department held in Japanese, or other department's subjects from International Doctoral Degree Program, Students must obtain approval from their supervisor and the subject instructor with the form "Application for Registration of Subjects in Other Department".

2) If a student does not attend the classes nor take the examinations, credits will not be given even if the registration is made.

3) A student cannot re-register for a subject for which credits are given.

4) Only one subject can be registered for in a given time schedule. Note that this does not apply to intensive subjects.

(3) Confirming and amending the registration

To confirm or amend class registration, students should access "KYOMU JOHO SYSTEM", and follow the manual's instructions.

(4) Class Cancellation

After the end of the course registration period for each semester, students can cancel classes if students find it difficult to earn credits as it is. If students wish to cancel classes, apply for cancellation using "KYOMU JOHO SYSTEM" during the class cancellation application period of each semester.

Only electives and required electives classes can be canceled. However, intensive classes are excluded. Only class cancellation is possible during the class cancellation application period.

Registration of additional courses is not accepted.

If students continue to miss the class or do not take an examination without cancelling the registration, the class will be considered grade "H"(Abandoned course). Please be aware that grade "H" course will have a large impact on your GPA.

(5) Repeating classes

In principle, a student who has failed a subject with regular examinations or has not gained credits for some other reason can take the same subject again in the next academic year. To repeat a subject, the student must register again.

2. Examination

Examination includes regular examinations and make-up examinations.

(1) Regular examination

In principle regular examinations shall be held during the set period at the end of each term.

All students are to check the examination schedule in the academic calendar at "KYOMU JOHO SYSTEM" or on the bulletin boards. Note that examinations may be held at any time found necessary by the subject instructor.

(2) Make-up examination

1) Make-up examinations shall be held only when a student cannot take the regular examination for one of the following reasons. The student must gain the approval of the subject instructor using the form "Request for a make-up examination".

- a) Illness (doctor's medical certificate must be submitted)
- b) Accidents, disaster (certificate must be submitted), or other special reason (a letter explaining the reason must be submitted)

2) When a student cannot take the regular examination, the student has to contact the Educational Affairs Division and the course instructor by the day of the examination.

3) "Request for a make-up examination" must be submitted to the Academic Affairs Division within one week from the final date of the regular examination. In case of Spring semester, if one week from the final examination date is Saturday, Sunday, or holiday, a student must submit the document by the following day.

4) If a student fails to take the make-up examination, further examinations will not be allowed.

(3) Recognition of Credits and Grading System

Course instructors recognize credits for courses based on the results of examinations, etc.

- ① Student performance is graded based on the following standards. S, A, B and C are passing grades while D is a failing grade. Credits are awarded to grade C and above.

S···90 to 100 points

A···80 to 89 points

B···70 to 79 points

- C...60 to 69 points
- D...59 points or less

- ② With the aim of making course grades internationally compatible, TUT has launched a Grade Point Average (GPA) system, providing a barometer to judge the overall performance of students, starting with students who entered TUT in academic year 2018.

The objectives of the GPA system are to fairly grade performance and to enhance students' desire for study by calculating the point average as a barometer to indicate the state and results of students' academic performance.

Grade	Points	Description of Grade	Judgement	Grade Point
S	90 to 100 points	Excellent—Outstanding performance	Pass	4.0
A	80 to 89 points	Good—Excellent performance		3.0
B	70 to 79 points	Satisfactory—Generally sound performance		2.0
C	60 to 69 points	Sufficient—Performance meeting the minimum passing criteria		1.0
D	59 points or less	Failure	Failure	0.0
N	-	Course for credit recognition (not included in GPA)	Pass (Recognition)	N/A
H	-	Abandoned course (Course the student abandoned by continuing to miss the class or no taking an examination without cancelling the registration)	Abandonment	0.0
K	-	Invalidated grade due to misconduct	Invalid	0.0

GPA is an average calculated by converting above letter grades to grade points (GP) ranging from 0.0 to 4.0, multiplying these grade points by the number of credits for each course, and then dividing the total grade points by the total amount of registered credits.

Note, however, that grades from the following courses cannot be used to calculate GPA. Such courses are marked with a hyphen in the GP column of the grade report.

- (1) Courses for which credits were earned on the basis of the credit exchange system conducted with other universities, graduate schools, etc.; courses that were registered at other universities or junior colleges while enrolled in TUT; and courses that were registered at universities, junior colleges or graduate schools in foreign countries
- (2) Courses for which credits were earned before entering TUT and were recognized after entering TUT; courses that were registered at TUT, other universities or junior colleges before entering TUT; and courses registered at universities, junior colleges or graduate schools in foreign countries (including courses registered for as a credited auditor student)
- (3) Courses for which credits were earned through mid-course entry, interschool transfer, readmission, or studying abroad, and were subsequently recognized
- (4) Courses for which credits cannot be counted toward graduation requirements; and courses for which credits were earned through the system for advance registration to

graduate school programs

(5) Courses that are designated separately by each department (On-the-job Training (internships), Supervised Research, Seminars, experimental courses, and practical training courses)

- ③ Each student can check grades and GPA for recognized credits in the "KYOMU JOHO SYSTEM".

(4) System for appealing grades

Students who have concerns about their grades for a particular semester can inquire to the class instructor during the confirmation period. If students have complaints regarding the instructor's response, they can submit an appeal. Students, however, cannot appeal the reason or basis for the grade.

Students should contact the Educational Affairs Division for details.

3. Maximum years of attendance and related matters

(1) Maximum years of attendance

A student may not be in the doctoral course at the university for more than six years.

(2) Leave of absence

If a student cannot attend classes for two or more months consecutively due to illness or other special reasons, the student may submit the form "Request for leave of absence" to the Educational Affairs Division after getting approval from the supervisor, a member of the academic affairs committee, and their department head. Upon approval by the President, the student can take a leave of absence (maximum two years in total).

In order to submit the form "Request for leave of absence", the tuition fees up to the term must have been paid.

The period of this absence will not be counted in the "Maximum years of attendance" mentioned in paragraph (1) above.

To return to school after the approved period ends, the student must submit the form "Notice of return to university".

To return to school before the approved period following the removal of the cause of absence, the student must submit the form "Application for return to university" and obtain approval.

(3) Withdrawal

If a student wants to withdraw from the university, the student must submit the form "Application for withdrawal from university" to the Educational Affairs Division after getting approval from the supervisor, a member of the academic affairs committee, and the department head. Upon approval by the President, the student can withdraw from the university.

In order to submit the form "Application for withdrawal from university", the tuition fees up to the term must have been paid.

Note that the tuition fee has to be paid in full even if the student withdraws in the middle of a term.

(4) Removal from the University



A student will be removed from the university for the following reason.

- 1) A student exceeds the period mentioned above in paragraph (1) "Maximum years of attendance".
- 2) A student cannot return to school after the period of absence mentioned above in paragraph (2) "Leave of absence".
- 3) A student dies, or disappears.
- 4) A student who has been approved for half exemption or postponement of admission fee payment does not pay the admission fee by the designated date.
- 5) A student fails to pay the tuition and does not pay even after a warning.

4. Other matters

(1) Information about canceled or make-up classes

All students should double-check their class schedules and other information using the following means:

Location		information
TUT website	https://kyomu.office.tut.ac.jp/portal/Public/Board/BoardList.aspx 	Canceled or make-up classes Emergency information (STORM WARNING etc.)
TUT website for mobile phones	https://kyomu.office.tut.ac.jp/mobile/Main.aspx  *Mobile tagging by camera phones	Canceled or make-up classes Emergency information (STORM WARNING etc.)

(2) Classes/exams when a STORM WARNING is announced.

If a Storm Warning (*Bo-fu Keiho*) is announced for Toyohashi city or the South-east area of the Mikawa region, TUT will deal with classes or examinations as follows:

- 1) To prevent any accident, all classes will be canceled during the Storm Warning.
- 2) If the Storm Warning is cleared before 7:00 am, all classes will be on schedule.
- 3) If the Storm Warning is cleared between 7:00 am and 11:00 am, all classes will start from the 3rd period. Classes in the 1st and 2nd period will be canceled. Cancelled classes will be held on *YOBIBI* (optional extra day) and final exams will be held on *YOBIBI* for final exam term.
- 4) If the Storm Warning continues after 11:00 am, all classes will be canceled.
*All cancelled classes and examinations will be rescheduled. Cancelled classes will be held on *YOBIBI* (optional extra day) and final exams will be held on *YOBIBI* for final exam term.
- 5) Whether or not a storm warning is announced, classes may be canceled because of suspension of public transportation service or some similar occurrence, at the discretion of the Vice President for Educational Affairs.
- 6) If cancelled classes cannot be held on *YOBIBI* (optional extra day), and final exams,

on the alternate exam day, a Saturday may be used as an alternate day for classes or exams.

7) The above shall not apply to remote classes.

(3) University's e-mail account

TUT strongly recommends all students to set up the e-mail forwarding service in order to receive important information of class-scheduling, grading and other communications from the university.

(4) Absence from classes

When you have to be absent from classes due to illness, bereavement or other reasons, you need to inform these reasons to your subject instructor yourself.

Absences will be dealt with at the discretion of subject instructors.

Reasons for Absence	Documents you should submit	Procedure
Illness/Injury	Medical certificate or medical expense receipts	Students inform lecturers directly
Bereavement leave	Letter or notice of funeral	Students inform lecturers directly
Infectious diseases*	Medical certificate or medical expense receipts	Students inform the TUT Health Care Center (0532-44-6632) in addition to informing lecturers directly..

*TUT may require suspension in order to prevent the spread of infection. Suspension orders will be notified by email from TUT or KYOMU JOHO SYSTEM.

• The TUT Health Care Center (TEL: 0532-44-6632 E-mail: kenkou@office.tut.ac.jp)

III Curriculum

1. Classes and credits

(1) Classes

Classes in Doctoral program are only Specialized Subjects. Numbers of credits are set for each subject.

For the subjects to be offered, see the following pages.
See the web syllabus for the details of each subject.

(2) Compulsory subjects and elective subjects

- 1) Compulsory subjects are the subjects that must be completed as a requirement of the major.
- 2) Elective subjects can be selected and taken from those subjects being offered for the designated numbers of credits.

(3) Calculating credits

Teaching types of classes are lectures, exercises, experiments, practical or hands-on training, and they are offered individually or in combinations, and the standard is that it takes 45 hours of study to earn one credit. This is calculated in the following ways.

- (a) For lectures, 15 hours of class time and 30 hours of preparation and review for one credit.
- (b) For exercises, 30 hours of class time and 15 hours of preparation and review for one credit.
- (c) For experiments, practical or hands-on training, 45 hours of class time for one credit.

(4) Class times and class schedule.

The following are the class times.

Period	1	2	3	4	5	6
Time	8:50 am– 10:20 am	10:30 am– 12:00 (noon)	1:00 pm– 2:30 pm	2:40 pm 4:10 pm	4:20 pm– 5:50 pm	6:00 pm– 7:30 pm

The class schedule is posted on "KYOMU JOHO SYSTEM" at the beginning of each semester. Notification of changes to the class schedule is also posted.

Courses listed in the "Intensive" section of the class schedule are ones that are taught intensively at irregular times. Once the dates of intensive courses are decided, the information is posted.

(5) School term

A School term is determined according to the academic year calendar, and consists of two terms; Spring term (from April 1 to September 30) and Fall term (from October 1 to March 31)

**Mechanical Engineering
(Doctoral Degree Program)**

2024.10

Compulsory / Elective	Subject Name	Class format	Excluded from GPA	Credits	Instructor	1st grade		2nd grade	3rd grade	note
						Fall	Spring			
						2024.10 - 2025.3	2025.4 - 2025.9	2025.10 - 2026.9	2026.10 - 2027.9	
Compulsory	Advanced Seminar on Mechanical Engineering 1	Exercise	○	4	Supervisor	4				
	Advanced Seminar on Mechanical Engineering 2	Exercise	○	1	Supervisor			1		
	Seminar on Interdisciplinary Research	Exercise		1				1		
Elective Required	Ethics for Researchers	Lecture		1		1				※1
Elective	Advanced Mechanical Systems	Lecture		2	S. Kawamura T. Adachi Y. Takeichi		1			
	Advanced Production Processes	Lecture		2	T. Shibata M. Nagai Y. Abe	1				
	Advanced Manufacturing Processes	Lecture		2	M. Kobayashi T. Yasui		1			
	Advanced Materials Science	Lecture		2	H. Miura Y. Todaka N. Adachi Y. Oba	1				
	Advanced Mechatronics	Lecture		2	K. Sato K. Takagi S. Sano		1			
	Advanced Systems and Instrumentation Engineering	Lecture		2	N. Uchiyama K. Takayama J. Takahashi	1				
	Advanced Energy Engineering	Lecture		2	Y. Nakamura K. Doi T. Suzuki T. Matsuoka		1			
	Advanced Environmental Engineering	Lecture		2	A. Iida N. Sekishita H. Yokoyama	1				

◆ "0.5" signifies that this subject will be held in any one of a quarter term (Spring 1, Spring 2, Fall 1 or Fall 2).

※1 Students who have obtained the credit of this subject during Master's program must take another subject among subject in the doctoral program

**Electrical and Electronic Information Engineering
(Doctoral Degree Program)**

2024.10

Compulsory / Elective	Subject Name	Class format	Excluded from GPA	Credits	Instructor	1st grade		2nd grade	3rd grade	note
						Fall	Spring			
						2024.10 - 2025.3	2025.4 - 2025.9	2025.10 - 2026.9	2026.10 - 2027.9	
Compulsory	Seminar on Electrical and Electronic Information Engineering 2	Exercise	○	4	Supervisor	4				
	Seminar on Electrical and Electronic Information Engineering 3	Exercise	○	1	Supervisor			1		
	Seminar on Interdisciplinary Research	Exercise		1				1		
Elective Required	Ethics for Researchers	Lecture		1		1				※1
Elective	Advanced Electronic Materials 1	Lecture		2	H. Uchida T. Yatsui G. Kawamura		1			
	Advanced Electronic Materials 2	Lecture		2	A. Matsuda Y. Nakamura R. Kato	1				
	Advanced Electrical Systems 1	Lecture		2	H. Takikawa R. Inada Y. Murakami	1				
	Advanced Electrical Systems 2	Lecture		2	T. Tojo T. Kawashima		1			
	Advanced Microelectronics 1	Lecture		2	K. Sawada Y. Ishikawa H. Sekiguchi T. Noda		1			
	Advanced Microelectronics 2	Lecture		2	T. Kawano K. Takahashi K. Yamane Y. J. Choi	1				
	Advanced Information and Communication Systems 1	Lecture		2	S. Ichikawa K. Takeuchi N. Haga		1			
	Advanced Information and Communication Systems 2	Lecture		2	H. Uehara M. Tamura X. Shao	1				
	Methodology of R & D	Lecture		2	Supervisor	1				

◆ Please ask your supervisor the availability of the class before registration.

◆ "0.5" signifies that this subject will be held in any one of a quarter term (Spring 1, Spring 2, Fall 1 or Fall 2).

※1 Students who have obtained the credit of this subject during Master's program must take another subject among subject in the doctoral program

**Computer Science and Engineering
(Doctoral Degree Program)**

2024.10

Compulsory / Elective	Subject Name	Class format	Exclude d from GPA	Credits	Instructor	1st grade		2nd grade	3rd grade	note
						Fall	Spring			
						2024.10 - 2025.3	2025.4 - 2025.9	2025.10 - 2026.9	2026.10 - 2027.9	
Compulsory	Seminar on Computer Science and Engineering 1	Exercise	○	4	Supervisor	4				
	Seminar on Computer Science and Engineering 2	Exercise	○	1	Supervisor			1		
	Seminar on Interdisciplinary Research	Exercise		1				1		
Elective Required	Ethics for Researchers	Lecture		1		1				※1
Elective	Advanced Data Science and Analysis 1	Lecture		1	T. Akiba	1		(0.5)		
	Advanced Data Science and Analysis 2	Lecture		1	M. Dall'Arno		1	(0.5)		
	Advanced Robotic Perception and Human-Robot Interaction 1	Lecture		1	J. Miura	1		(0.5)		
	Advanced Robotic Perception and Human-Robot Interaction 2	Lecture		1	R. Ohmura		1	(0.5)		
	Advanced 3D Vision Computation 1	Lecture		1	Y. Kanazawa	1		(0.5)		
	Advanced 3D Vision Computation 2	Lecture		1	Y. Sugaya		1	(0.5)		
	Advanced Molecular Simulation 1	Lecture		1	N. Kurita			0.5		
	Advanced Molecular Simulation 2	Lecture		1	H. Goto			0.5		
	Advanced Computational Intelligence in Brain System	Lecture		1	K. Murakoshi		1	(0.5)		
	Advanced Human Sensation and Perception 1	Lecture		1	S. Nakauchi	1		(0.5)		
	Advanced Human Sensation and Perception 2	Lecture		1	K. Koida		1	(0.5)		
	Information Security, Advanced	Lecture		1	K. Suzuki			1		
	Advanced Statistical Machine Learning Theory	Lecture		1	K. Watanabe			0.5		
	Advanced X Reality and Psychology 1	Lecture		1	M. Kitazaki	1		(0.5)		
	Advanced X Reality and Psychology 2	Lecture		1	T. Minami K. Uehara		1	(0.5)		

◆ Those subjects whose numbers marked with "()" will be held every year.

◆ "0.5" signifies that this subject will be held in any one of a quarter term (Spring 1, Spring 2, Fall 1 or Fall 2).

※1 Students who have obtained the credit of this subject during Master's program must take another subject among subject in the doctoral program

**Applied Chemistry and Life Science
(Doctoral Degree Program)**

2024.10

Compulsory / Elective	Subject Name	Class format	Excluded from GPA	Credits	Instructor	1st grade		2nd grade	3rd grade	note
						Fall	Spring			
						2024.10 - 2025.3	2025.4 - 2025.9	2025.10 - 2026.9	2026.10 - 2027.9	
Compulsory	Seminar on Applied Chemistry and Life Science 1	Exercise	○	4	Supervisor	4				
	Seminar on Applied Chemistry and Life Science 2	Exercise	○	1	Supervisor			1		
	Seminar on Interdisciplinary Research	Exercise		1				1		
Elective Required	Ethics for Researchers	Lecture		1		1				※1
Elective	Advanced Chemical Technology	Lecture		2	A. Matsumoto T. Mizushima T. Oguchi K. Takashima	1				
	Advanced Ecological Engineering	Lecture		2	H. Daimon		1			
	Advanced Biotechnology 1	Lecture		2	T. Eki T. Tanaka A. Nakabachi H. Kurita		1			
	Advanced Biotechnology 2	Lecture		2	E. Yoshida Y. Hirose S. Yoshida	1				
	Advanced Molecular Function Chemistry 1	Lecture		2	K. Shibatomi N. Haraguchi		1			
	Advanced Molecular Function Chemistry 2	Lecture		2	Y. Saito R. Tero Y. Arakawa	1				

※1 Students who have obtained the credit of this subject during Master's program must take another subject among subject in the doctoral program

**Architecture and Civil Engineering
(Doctoral Degree Program)**

2024.10

Compulsory / Elective	Subject Name	Class format	Excluded from GPA	Credits	Instructor	1st grade		2nd grade	3rd grade	note
						Fall	Spring			
						2024.10 - 2025.3	2025.4 - 2025.9	2025.10 - 2026.9	2026.10 - 2027.9	
Compulsory	Seminar on Architecture and Civil Engineering 1	Exercise	○	4	Supervisor	4				
	Seminar on Architecture and Civil Engineering 2	Exercise	○	1	Supervisor			1		
	Seminar on Interdisciplinary Research	Exercise		1				1		
Elective Required	Ethics for Researchers	Lecture		1		1				※1
Elective	Advanced Mechanics and Design of Spatial Structure Systems	Lecture		2	S. Nakazawa Y. Matsumoto	1				
	Advanced Structural Design	Lecture		2	T. Saito T. Matsui	1				
	Advanced Building Environmental Engineering and Building Services	Lecture		2	M. Tajima Y. Shimazaki		1			
	Advanced Theory in Architectural Design	Lecture		2	D. Fujita	1				
	Sustainable Urban Planning	Lecture		2	J. Asano H. Ono	1				
	Advanced Geologic Hazard Mitigation Planning	Lecture		2	T. Matsuda	1				
	Advanced Water Environmental Engineering	Lecture		2	T. Inoue S. Kato	1				
	Advanced Environmental Management	Lecture		2	K. Yokota T. Tokairin		1			
	Advanced Transportation Systems and Economics	Lecture		2	H. Shibusawa N. Sugiki K. Matsuo H. Miyamoto		1			

※1 Students who have obtained the credit of this subject during Master's program must take another subject among subject in the doctoral program

Double Degree Program Course Requirement Guide Book

(October 2024)

International Doctoral Degree Program



Diploma Policy

Diploma Policy for Doctoral Degree Program in Graduate School of Engineering

With a view to develop talented people in accordance with the basic philosophy and educational objectives, Toyohashi University of Technology (TUT) grants a degree of “Doctor of Philosophy (Engineering)” to students who have received specialized education in the engineering field, including Mechanical Engineering, Electrical and Electronic Information Engineering, Computer Science and Engineering, Applied Chemistry and Life Science and Architecture and Civil Engineering; acquired the knowledge and abilities stated in 1 to 4 below; and fulfilled the requirements for graduation and degree granting set forth in TUT’s regulations, etc. Those who achieved outstanding academic performance may be authorized to shorten the period of enrollment and be granted a Doctoral degree.

1. Keep an international mindset to see things from various angles with a global perspective and have a wide range of knowledge to consider comprehensively the symbiosis between humans and nature as well as linkage with society.
2. Have a high ability to contribute to team’s goal attainment as a leader through effectively expressing and sending out one’s own ideas, points in question and research results; deeply understanding others’ values; and working together with various people.
3. Have social and ethical responsibilities as advanced-level leading engineers or researchers; and have the ability to voluntarily learn new things continuously in response to changes in society, environment, technology, etc.
4. Acquire advanced knowledge on an expertise in the fields of natural science and technological science; and have the practical, creative and leading skills to understand and solve problems leveraging such knowledge in an integrated and progressive manner.

Computer Science and Engineering

In accordance with the diploma policy for Doctoral Degree Program in Graduate School of Engineering at Toyohashi University of Technology (TUT), Toyohashi University of Technology grants a degree of "Doctor of Philosophy (Engineering)" to the students who have received specialized education from the Department of Computer Science and Engineering; have the knowledge and abilities stated below; and have fulfilled the requirements for graduation and degree granting set forth in TUT's regulations, etc. Those who achieved outstanding academic performance may be authorized to shorten the period of enrollment and be granted a Doctoral degree.

d be granted a Doctoral degree.

(A) Personality and outlook with a broad perspective

Have an international mindset to see human society from various angles with a global perspective; and the ability to consider the symbiosis between humans and nature as well as public welfare.

(B) Sound ethics and social awareness as highly advanced-level engineers and researchers

Be conscious of specialized and ethical responsibilities as advanced-level engineers and researchers; and have the ability to set, solve and evaluate technical issues in society.

(C) Practical and creative skills to utilize advanced knowledge in an integrated and constructive manner

Have advanced knowledge about computer science and engineering as well as related fields; and have the practical and creative skills to utilize such knowledge for problem solving, understanding the methodology of research, creating original technology, and integrating all knowledges organically.

(D) Communication skills for global success

Have the communication skills to effectively express one's own ideas and results while working on the issues faced by a globally changing society in cooperation with other team members.

Have sophisticated ability as a leader to contribute for the achievement the goal of team.

(E) Inquisitive outlook and skills for continuous learning in response to state-of-the-art technology and in the social environment

Have the skills to research the essence of changes in society, environment, and technology.

Have the skills to voluntarily make plans and learn throughout one's life in response to changes in society, environment and technology.

I Requirements for completion

1. Requirements for completion

To complete the doctoral course, a student must participate in the course for three or more years, and must obtain the minimum credits required as follows. A student must carry out a research program under proper guidance by faculty members. In addition, a student must submit a doctoral thesis, and must pass a review and final examination.

Classification	Required credits for completion	Remarks
Computer Science and Engineering	12	

For students in the Double Degree Program, up to 15 credits that the students had acquired at their home university before coming to TUT can be transferred to TUT Doctoral degree program only if TUT admits after being examined. Those 15 credits shall be determined by TUT's criteria. However, credit transfer for compulsory courses will not be accepted.

2. Application for degree

Only a student who has earned the credits required for completion, or who is expected to earn the required credits can apply for the doctoral degree. Degree application and procedures for submission of a thesis for a doctoral degree shall be posted at "KYOMU JOHO SYSTEM" and on a bulletin board before the submission period.

II Class registration, examination, and attendance period

1. Class registration method

Classes shall be registered according to the program schedule of the student's respective major.

(1) Making study plans

To make study plans, students should read this Guide Book thoroughly, and follow the instructions and advice given during the orientation and by the supervisor.

The Course Schedule is provided at the beginning of each academic year.
Schedules for intensive classes will be posted at "KYOMU JOHO SYSTEM" and on a bulletin board when the details are fixed.

(2) Class registration

Students must register for classes using "KYOMU JOHO SYSTEM" at the TUT website

<https://kyomu.office.tut.ac.jp/portal/>

or by the form "Application for Subjects" during the designated period.

*Classes cannot be registered for after the designated registration period. Classes with no registration will not be accredited in any case.

NOTES

1) If a student does not attend the classes nor take the examinations, credits will not be given even if the registration is made.

2) A student cannot re-register for a subject for which credits are given.

3) Only one subject can be registered for in a given time schedule. Note that this does not apply to intensive subjects.

(3) Confirming and amending the registration

To confirm or amend class registration, students should access "KYOMU JOHO SYSTEM", and follow the manual's instructions.

(4) Class Cancellation

After the end of the course registration period for each semester, students can cancel classes if students find it difficult to earn credits as it is. If students wish to cancel classes, apply for cancellation using "KYOMU JOHO SYSTEM" during the class cancellation application period of each semester.

Only electives and required electives classes can be canceled. However, intensive classes are excluded. Only class cancellation is possible during the class cancellation application period. Registration of additional courses is not accepted.

If students continue to miss the class or do not take an examination without cancelling the registration, the class will be considered grade "H"(Abandoned course). Please be aware that grade "H" course will have a large impact on your GPA.

(5) Repeating classes

In principle, a student who has failed a subject with regular examinations or has not gained credits for some other reason can take the same subject again in the next academic year. To repeat a subject, the student must register again.

2. Examination

Examination includes regular examinations and make-up examinations.

(1) Regular examination

In principle regular examinations shall be held during the set period at the end of each term.

All students are to check the examination schedule in the academic calendar at "KYOMU JOHO SYSTEM" or on the bulletin boards. Note that examinations may be held at any time found necessary by the subject instructor.

(2) Make-up examination

1) Make-up examinations shall be held only when a student cannot take the regular examination for one of the following reasons. The student must gain the approval of the subject instructor using the form "Request for a make-up examination".

- a) Illness (doctor's medical certificate must be submitted)
- b) Accidents, disaster (certificate must be submitted), or other special reason (a letter explaining the reason must be submitted)

2) When a student cannot take the regular examination, the student has to contact the Educational Affairs Division and the course instructor by the day of the examination.

3) "Request for a make-up examination" must be submitted to the Academic Affairs Division within one week from the final date of the regular examination. In case of Spring semester, if one week from the final examination date is Saturday, Sunday, or holiday, a student must submit the document by the following day.

4) If a student fails to take the make-up examination, further examinations will not be allowed.

(3) Recognition of Credits and Grading System

Course instructors recognize credits for courses based on the results of examinations, etc.

- ① Student performance is graded based on the following standards. S, A, B and C are passing grades while D is a failing grade. Credits are awarded to grade C and above.

S···90 to 100 points

A···80 to 89 points

B···70 to 79 points

C···60 to 69 points

D···59 points or less

- ② With the aim of making course grades internationally compatible, TUT has launched a Grade Point Average (GPA) system, providing a barometer to judge the overall performance of students, starting with students who entered TUT in academic year 2018. The objectives of the GPA system are to fairly grade performance and to enhance students' desire for study by calculating the point average as a barometer to indicate the state and results of students' academic performance.

Grade	Points	Description of Grade	Judgement	Grade Point
S	90 to 100 points	Excellent—Outstanding performance	Pass	4.0
A	80 to 89 points	Good—Excellent performance		3.0
B	70 to 79 points	Satisfactory—Generally sound performance		2.0
C	60 to 69 points	Sufficient—Performance meeting the minimum passing criteria		1.0
D	59 points or less	Failure	Failure	0.0
N	-	Course for credit recognition (not included in GPA)	Pass (Recognition)	N/A
H	-	Abandoned course (Course the student abandoned by continuing to miss the class or no taking an examination without cancelling the registration)	Abandonment	0.0
K	-	Invalidated grade due to misconduct	Invalid	0.0

GPA is an average calculated by converting above letter grades to grade points (GP) ranging from 0.0 to 4.0, multiplying these grade points by the number of credits for each course, and then dividing the total grade points by the total amount of registered credits.

Note, however, that grades from the following courses cannot be used to calculate GPA. Such courses are marked with a hyphen in the GP column of the grade report.

(1) Courses for which credits were earned on the basis of the credit exchange system conducted with other universities, graduate schools, etc.; courses that were registered at other universities or junior colleges while enrolled in TUT; and courses that were registered at universities, junior colleges or graduate schools in foreign countries

(2) Courses for which credits were earned before entering TUT and were recognized after entering TUT; courses that were registered at TUT, other universities or junior colleges before entering TUT; and courses registered at universities, junior colleges or graduate schools in foreign countries (including courses registered for as a credited auditor student)

(3) Courses for which credits were earned through mid-course entry, interschool transfer, readmission, or studying abroad, and were subsequently recognized

(4) Courses for which credits cannot be counted toward graduation requirements; and courses for which credits were earned through the system for advance registration to graduate school programs

(5) Courses that are designated separately by each department (On-the-job Training (internships), Supervised Research, Seminars, experimental courses, and practical training courses)

- ③ Each student can check grades and GPA for recognized credits in the "KYOMU JOHO SYSTEM".

(4) System for appealing grades

Students who have concerns about their grades for a particular semester can inquire to the class instructor during the confirmation period. If students have complaints regarding the instructor's response, they can submit an appeal. Students, however, cannot appeal the reason or basis for the grade.

Students should contact the Educational Affairs Division for details.

3. Maximum years of attendance and related matters

(1) Maximum years of attendance

A student may not be in the doctoral course at TUT for more than six years, counting from the enrollment at the home university.

(2) Leave of absence

If a student cannot attend classes for two or more months consecutively due to illness or other special reasons, the student may submit the form "Request for leave of absence" to the Educational Affairs Division after getting approval from the supervisor, a member of the academic affairs committee, and their department head. Upon approval by the President, the student can take a leave of absence (maximum two years in total).

In order to submit the form "Request for leave of absence", the tuition fees up to the term must have been paid.

The period of this absence will not be counted in the "Maximum years of attendance" mentioned in paragraph (1) above.

To return to school after the approved period ends, the student must submit the form "Notice of return to university".

To return to school before the approved period following the removal of the cause of absence, the student must submit the form "Application for return to university" and obtain approval.

(3) Withdrawal

If a student wants to withdraw from the university, the student must submit the form "Application for withdrawal from university" to the Educational Affairs Division after getting approval from the supervisor, a member of the academic affairs committee, and the department head. Upon approval by the President, the student can withdraw from the university.

In order to submit the form "Application for withdrawal from university", the tuition fees up to the term must have been paid.

Note that the tuition fee has to be paid in full even if the student withdraws in the middle of a term.

(4) Removal from the University



A student will be removed from the university for the following reason.

- 1) A student exceeds the period mentioned above in paragraph (1) "Maximum years of attendance".
- 2) A student cannot return to school after the period of absence mentioned above in paragraph (2) "Leave of absence".
- 3) A student dies, or disappears.
- 4) A student who has been approved for half exemption or postponement of admission fee payment does not pay the admission fee by the designated date.
- 5) A student fails to pay the tuition and does not pay even after a warning.

4. Other matters

(1) Information about canceled or make-up classes

All students should double-check their class schedules and other information using the following means:

Location		information
TUT website	https://kyomu.office.tut.ac.jp/portal/Public/Board/BoardList.aspx 	Canceled or make-up classes Emergency information (STORM WARNING etc.)
TUT website for mobile phones	https://kyomu.office.tut.ac.jp/mobile/Main.aspx  <p>*Mobile tagging by camera phones</p>	Canceled or make-up classes Emergency information (STORM WARNING etc.)

(2) Classes/exams when a STORM WARNING is announced.

If a Storm Warning (*Bo-fu Keiho*) is announced for Toyohashi city or the South-east area of the Mikawa region, TUT will deal with classes or examinations as follows:

- 1) To prevent any accident, all classes will be canceled during the Storm Warning.
- 2) If the Storm Warning is cleared before 7:00 am, all classes will be on schedule.
- 3) If the Storm Warning is cleared between 7:00 am and 11:00 am, all classes will start from the 3rd period *Classes in the 1st and 2nd period will be canceled. Cancelled classes will be held on *YOBIBI* (optional extra day) and final exams will be held on *YOBIBI* for final exam term.

- 4) If the Storm Warning continues after 11:00 am, all classes will be canceled.

*All cancelled classes and examinations will be rescheduled. Cancelled classes will be held on *YOBIBI* (optional extra day) and final exams will be held on *YOBIBI* for final exam term.

- 5) Whether or not a storm warning is announced, classes may be canceled because of

suspension of public transportation service or some similar occurrence, at the discretion of the Vice President for Educational Affairs.

6) If cancelled classes cannot be held on *YOBIBI* (optional extra day), and final exams, on the alternate exam day, a Saturday may be used as an alternate day for classes or exams.

7) The above shall not apply to remote classes.

(3) University's e-mail account

TUT strongly recommends all students to set up the e-mail forwarding service in order to receive important information of class-scheduling, grading and other communications from the university.

(4) Absence from classes

When you have to be absent from classes due to illness, bereavement or other reasons, you need to inform these reasons to your subject instructor yourself.

Absences will be dealt with at the discretion of subject instructors.

Reasons for Absence	Documents you should submit	Procedure
Illness/Injury	Medical certificate or medical expense receipts	Students inform lecturers directly
Bereavement leave	Letter or notice of funeral	Students inform lecturers directly
Infectious diseases*	Medical certificate or medical expense receipts	Students inform the TUT Health Care Center (0532-44-6632) in addition to informing lecturers directly.

*TUT may require suspension in order to prevent the spread of infection.

Suspension orders will be notified by email from TUT or KYOMU JOHO SYSTEM.

- The TUT Health Care Center (TEL: 0532-44-6632 E-mail: kenkou@office.tut.ac.jp)

III Curriculum

1. Classes and credits

(1) Classes

Classes in Doctoral program are only Specialized Subjects. Numbers of credits are set for each subject.

For the subjects to be offered, see the following pages.
See the web syllabus for the details of each subject.

(2) Compulsory subjects and elective subjects

- 1) Compulsory subjects are the subjects that must be completed as a requirement of the major.
- 2) Elective subjects can be selected and taken from those subjects being offered for the designated numbers of credits.

(3) Calculating credits

Teaching types of classes are lectures, exercises, experiments, practical or hands-on training, and they are offered individually or in combinations, and the standard is that it takes 45 hours of study to earn one credit. This is calculated in the following ways.

- (a) For lectures, 15 hours of class time and 30 hours of preparation and review for one credit.
- (b) For exercises, 30 hours of class time and 15 hours of preparation and review for one credit.
- (c) For experiments, practical or hands-on training, 45 hours of class time for one credit.

(4) Class times and class schedule.

The following are the class times.

Period	1	2	3	4	5	6
Time	8:50 am– 10:20 am	10:30 am– 12:00 (noon)	1:00 pm– 2:30 pm	2:40 pm 4:10 pm	4:20 pm– 5:50 pm	6:00 pm– 7:30 pm

The class schedule is posted on "KYOMU JOHO SYSTEM" at the beginning of each semester. Notification of changes to the class schedule is also posted.

Courses listed in the "Intensive" section of the class schedule are ones that are taught intensively at irregular times. Once the dates of intensive courses are decided, the information is posted.

(5) School term

A School term is determined according to the academic year calendar, and consists of two terms; Spring term (from April 1 to September 30) and Fall term (from October 1 to March 31)

**Computer Science and Engineering
(Double Doctoral Degree Program)**

2024.10

Compulsory / Elective	Subject Name	Class format	Excluded from GPA	Credits	Instructor	2nd grade				3rd grade	note
						Fall 1	Fall 2	Spring1	Spring2		
						2024.10 - 2025.3		2025.4 - 2025.9		2025.10 - 2026.9	
Compulsory	Seminar on Computer Science and Engineering for DDDP	Exercise	O	5	Supervisor	5					
	Seminar on Interdisciplinary Research	Exercise		1		1					
Elective Required	Ethics for Researchers	Lecture		1		1					※1
Elective	Advanced Data Science and Analysis 1	Lecture		1	T. Akiba	1				(0.5)	
	Advanced Data Science and Analysis 2	Lecture		1	M. Dall'Arno		1			(0.5)	
	Advanced Robotic Perception and Human-Robot Interaction 1	Lecture		1	J. Miura	1				(0.5)	
	Advanced Robotic Perception and Human-Robot Interaction 2	Lecture		1	R. Ohmura		1			(0.5)	
	Advanced 3D Vision Computation 1	Lecture		1	Y. Kanazawa	1				(0.5)	
	Advanced 3D Vision Computation 2	Lecture		1	Y. Sugaya		1			(0.5)	
	Advanced Molecular Simulation 1	Lecture		1	N. Kurita					0.5	
	Advanced Molecular Simulation 2	Lecture		1	H. Goto					0.5	
	Advanced Computational Intelligence in Brain System	Lecture		1	K. Murakoshi			1		(0.5)	
	Advanced Human Sensation and Perception 1	Lecture		1	S. Nakauchi	1				(0.5)	
	Advanced Human Sensation and Perception 2	Lecture		1	K. Koida		1			(0.5)	
	Information Security, Advanced	Lecture		1	K. Suzuki				1		
	Advanced Statistical Machine Learning Theory	Lecture		1	K. Watanabe					0.5	
	Advanced X Reality and Psychology 1	Lecture		1	M. Kitazaki	1				(0.5)	
	Advanced X Reality and Psychology 2	Lecture		1	T. Minami K. Uehara		1			(0.5)	

◆ Those subjects whose numbers marked with "()" will be held every year.

◆ "0.5" signifies that this subject will be held in any one of a quarter (Spring 1, Spring 2, Fall 1 or Fall 2).

※1 Students who have obtained the credit of this subject during Master's program must take another subject among subject in the doctoral program

Course Requirement Guide Book

(October 2024)

1. Global Rotation Program for Architecture and Civil Engineering Education Bridging ASEAN and African Countries

2. Program on Training University Teachers and Leaders for Architecture and Civil Engineering through Multi-Institutional Collaboration

International Master's Degree Program

International Doctoral Degree Program



International Master's Degree Program

Diploma Policy

Diploma Policy for Master's Degree Program in Graduate School of Engineering

With a view to develop talented people in accordance with the basic philosophy and educational objectives, Toyohashi University of Technology (TUT) grants a degree of "Master (of Engineering)" to students who have received specialized education in the engineering field, including Mechanical Engineering, Electrical and Electronic Information Engineering, Computer Science and Engineering, Applied Chemistry and Life Science and Architecture and Civil Engineering, as well as liberal arts education; acquired the knowledge and abilities stated in 1 to 4 below; and fulfilled the requirements for graduation and degree granting set forth in TUT's regulations, etc. Those who achieved outstanding academic performance may be authorized to shorten the period of enrollment and be granted a master's degree.

1. Keep an international mindset to see things from various angles with a global perspective and have a wide range of knowledge to consider the symbiosis between humans and nature as well as linkage with society.
2. Have a high ability to contribute to team's goal attainment through effectively expressing and sending out one's own ideas, points in question and research results; deeply understanding others' values; and working together with various people.
3. Have social and ethical responsibilities as advanced-level engineers or researchers; and have the ability to voluntarily learn new things continuously in response to changes in society, environment, technology, etc.
4. Acquire advanced knowledge on an expertise in the fields of natural science and technological science; and have the practical and creative skills to understand and solve problems leveraging such knowledge in an integrated manner.

Architecture and Civil Engineering

In accordance with the diploma policy for Master's Degree Program in Graduate School of Engineering at Toyohashi University of Technology (TUT), Toyohashi University of Technology grants a degree of "Master (of Engineering)" to the students who have received specialized education from the Department of Architecture and Civil Engineering; have the knowledge and abilities stated below; and have fulfilled the requirements for graduation and degree granting set forth in TUT's regulations, etc. Those who achieved outstanding academic performance may be authorized to shorten the period of enrollment and be granted a master's degree.

(A) Personality and outlook with a broad perspective

Have an international mindset to see human society from various angles with a global perspective; and the ability to consider the symbiosis between humans and nature as well as public welfare.

(B) Sound ethics and social awareness as advanced-level engineers and researchers

Be conscious of specialized and ethical responsibilities as advanced-level engineers and researchers; and have the ability to set, solve and evaluate technical issues in society.

(C) Practical and creative skills to utilize advanced knowledge in an integrated manner

Have advanced knowledge about architecture and civil engineering as well as related fields; and have the practical and creative skills to utilize such knowledge for problem solving in an integrated manner.

(C1) Have the skills to voluntarily acquire theories and applied knowledge about architecture and civil engineering as well as related fields; and to utilize such knowledge in an integrated manner.

(C2) Have the skills to learn, by experience, methodologies for research and development through integrating extensive knowledge about architecture and civil engineering as well as related fields; to make plans for research and development and put them into practice; and to create new technologies to solve problems.

(D) Communication skills for global success

Have the communication skills to effectively express one's own ideas and results while working on the issues faced by a globally changing society in cooperation with other team members.

(D1) Have the skills to effectively express and communicate one's own ideas as well as points in question at home and abroad through papers, oral reports or information media.

(D2) Have high-level skills to mutually respect the values of individual team member; and to contribute to the team's achievements through working cooperatively with other team members.

(E) Inquisitive outlook and skills for continuous learning in response to state-of-the-art technology and changes in the social environment

Have the skills to voluntarily make plans and learn throughout one's life in response to changes in society, environment and technology.

I Requirements for completion

1. Requirements for completion

To complete the master's course, a student must participate in the course for two or more years, and must acquire the minimum credits required as follows. A student must carry out a research program under proper guidance by faculty members. In addition, a student must submit a master's thesis, and must pass a review and final examination.

Note that students showing excellent achievement may finish in a shorter study period.

Classification	Required credits for completion	Remarks
General subjects	6	
Specialized subjects		
Architecture and Civil Engineering	24	6 credits in total can be substituted with a combination of the following options, with permission from the student's supervisor and the subject instructor. 1. Specialized master's subjects from the other departments 2. Specialized master's subjects held in Japanese (The same subject cannot be taken in both Japanese and English)
Grand total	30	

2. Application for degree

Only a student who has earned the credits required for completion, or who is expected to earn the required credits can apply for the master's degree. Degree application and procedures for submission of a thesis for a master's degree shall be posted at "KYOMU JOHO SYSTEM" and on a bulletin board before the submission period.

II Class registration, examination, and attendance period

1. Class registration method

Classes shall be registered according to the program schedule of the student's respective major.

(1) Making study plans

To make study plans, students should read this Guide Book thoroughly, and follow the instructions and advice given during the orientation and by the supervisors.

The Course Schedule is provided at the beginning of each academic year.
Schedules for intensive classes will be posted at "KYOMU JOHO SYSTEM" and on a bulletin board when the details are fixed.

(2) Class Registration

Students must register for classes using "KYOMU JOHO SYSTEM" at the TUT website

<https://kyomu.office.tut.ac.jp/portal/>

or by the form "Application for Subjects" during the designated period.

*Classes cannot be registered for after the designated registration period. Classes with no registration will not be accredited in any case.

NOTES

1) To take specialized subjects given in other departments, or given in Japanese, students must obtain approval from their supervisor and the subject instructor with the form "Application for Registration of Subjects in Other Department," before registering.

2) If a student does not attend the classes nor take the examinations, credits will not be given even if the registration is made.

3) A student cannot re-register for a subject once credits are given.

4) Only one subject can be registered for in a given time schedule. Note that this does not apply to intensive subjects.

(3) Confirming and amending the registration

To confirm or amend class registration, students should access "KYOMU JOHO SYSTEM", and follow the manual's instructions.

(4) Class Cancellation

After the end of the course registration period for each semester, students can cancel classes if students find it difficult to earn credits as it is. If students wish to cancel classes, apply for cancellation using "KYOMU JOHO SYSTEM" during the class cancellation application period of each semester.

Only electives and required electives classes can be canceled. However, intensive classes are excluded. Only class cancellation is possible during the class cancellation application period. Registration of additional courses is not accepted.

If students continue to miss the class or do not take an examination without cancelling the registration, the class will be considered grade "H"(Abandoned course). Please be aware

that grade "H" course will have a large impact on your GPA.

(5) Repeating classes

In principle, a student who has failed a subject with regular examinations or has not gained credits for some other reasons can take the same subject again in the next academic year. To repeat a subject, the student must register again.

2. Examination

Examinations include regular examinations and make-up examinations.

(1) Regular examination

In principle regular examinations shall be held during the set period at the end of each term.

All students are to check the examination schedule in the academic calendar at "KYOMU JOHO SYSTEM" or on the bulletin boards. Note that examinations may be held at any time found necessary by the subject instructor.

(2) Make-up examination

1) Make-up examinations shall be held only when a student cannot take the regular examination for one of the following reasons. The student must gain the approval of the subject instructor using the form "Request for a make-up examination".

- a) Illness (doctor's medical certificate must be submitted)
- b) Accidents, disaster (certificate must be submitted), or other special reason (a letter explaining the reason must be submitted)

2) When a student cannot take the regular examination, the student has to contact the Educational Affairs Division and the course instructor by the day of the examination.

3) "Request for a make-up examination" must be submitted to the Educational Affairs Division within one week from the final date of the regular examination. In case of Spring semester, if one week from the final examination date is Saturday, Sunday, or holiday, a student must submit the document by the following day.

4) If a student fails to take the make-up examination, further examinations will not be allowed.

(3) Recognition of Credits and Grading System

Course instructors recognize credits for courses based on the results of examinations, etc.

① Student performance is graded based on the following standards. S, A, B and C are passing grades while D is a failing grade. Credits are awarded to grade C and above.

S···90 to 100 points

A···80 to 89 points

B···70 to 79 points

C···60 to 69 points

D···59 points or less

- ② With the aim of making course grades internationally compatible, TUT has launched a Grade Point Average (GPA) system, providing a barometer to judge the overall performance of students, starting with students who entered TUT in academic year 2018. The objectives of the GPA system are to fairly grade performance and to enhance students' desire for study by calculating the point average as a barometer to indicate the state and results of students' academic performance.

Grade	Points	Description of Grade	Judgement	Grade Point
S	90 to 100 points	Excellent—Outstanding performance	Pass	4.0
A	80 to 89 points	Good—Excellent performance		3.0
B	70 to 79 points	Satisfactory—Generally sound performance		2.0
C	60 to 69 points	Sufficient—Performance meeting the minimum passing criteria		1.0
D	59 points or less	Failure	Failure	0.0
N	-	Course for credit recognition (not included in GPA)	Pass (Recognition)	N/A
H	-	Abandoned course (Course the student abandoned by continuing to miss the class or no taking an examination without cancelling the registration)	Abandonment	0.0
K	-	Invalidated grade due to misconduct etc.	Invalid	0.0

GPA is an average calculated by converting above letter grades to grade points (GP) ranging from 0.0 to 4.0, multiplying these grade points by the number of credits for each course, and then dividing the total grade points by the total amount of registered credits.

Note, however, that grades from the following courses cannot be used to calculate GPA. Such courses are marked with a hyphen in the GP column of the grade report.

- (1) Courses for which credits were earned on the basis of the credit exchange system conducted with other universities, graduate schools, etc.; courses that were registered at other universities or junior colleges while enrolled in TUT; and courses that were registered at universities, junior colleges or graduate schools in foreign countries
- (2) Courses for which credits were earned before entering TUT and were recognized after entering TUT; courses that were registered at TUT, other universities or junior colleges before entering TUT; and courses registered at universities, junior colleges or graduate schools in foreign countries (including courses registered for as a credited auditor student)
- (3) Courses for which credits were earned through mid-course entry, interschool transfer, readmission, or studying abroad, and were subsequently recognized
- (4) Courses for which credits cannot be counted toward graduation requirements; and courses for which credits were earned through the system for advance registration to graduate school programs

(5) Courses that are designated separately by each department (On-the-job Training (internships), Supervised Research, Seminars, experimental courses, and practical training courses)

- ③ Each student can check grades and GPA for recognized credits in the "KYOMU JOHO SYSTEM".

(4) System for appealing grades

Students who have concerns about their grades for a particular semester can inquire to the class instructor during the confirmation period. If students have complaints regarding the instructor's response, they can submit an appeal. Students, however, cannot appeal the reason or basis for the grade.

Students should contact the Educational Affairs Division for details.

3. Maximum years of attendance and related matters

(1) Maximum years of attendance

A student may not be in the master's course at the university for more than four years.

(2) Leave of absence

If a student cannot attend classes for two or more months consecutively due to illness or other special reasons, the student may submit the form "Request for leave of absence" to the Educational Affairs Division after getting approval from the supervisor, a member of the academic affairs committee, and their department head. Upon approval by the President, the student can take a leave of absence (maximum two years in total).

In order to submit the form "Request for leave of absence", the tuition fees up to the term must have been paid. The period of this absence will not be counted in the "Maximum years of attendance" mentioned in paragraph (1) above.

To return to school after the approved period ends, the student must submit the form "Notice of return to university".

To return to school before the approved period following the removal of cause of absence, the student must submit the form "Application for return to university" and obtain approval.

(3) Withdrawal

If a student wants to withdraw from the university, the student must submit the form "Application for withdrawal from university" to the Educational Affairs Division after getting the approval from the supervisor, a member of the academic affairs committee, and the department head. Upon approval by the President, the student can withdraw from the university.

In order to submit the form "Application for withdrawal from university", the tuition fees up to the term must have been paid.

Note that the tuition fee has to be paid in full even if the student withdraws in the middle of a term.

(4) Removal from the University



A student will be removed from the university for the following reason.

- 1) A student exceeds the period mentioned above in paragraph (1) "Maximum years of attendance".
- 2) A student cannot return to school after the period of absence mentioned above in paragraph (2) "Leave of absence".
- 3) A student dies, or disappears.
- 4) A student who has been approved for half exemption or postponement of admission fee payment does not pay the admission fee by the designated date.
- 5) A student fails to pay the tuition and does not pay even after a warning.

4. Other matters

(1) Information about canceled or make-up classes

All students should double-check their class schedules and other information using the following means:

Location		information
TUT website	https://kyomu.office.tut.ac.jp/portal/Public/Board/BoardList.aspx 	Canceled or make-up classes Emergency information (STORM WARNING etc.)
TUT website for mobile phones	https://kyomu.office.tut.ac.jp/mobile/Main.aspx  *Mobile tagging by camera phones	Canceled or make-up classes Emergency information (STORM WARNING etc.)

(2) Classes/exams when a STORM WARNING is announced.

If a Storm Warning (*Bo-fu Keiho*) is announced for Toyohashi city or the South-east area of the Mikawa region, TUT will deal with classes or examinations as follows:

- 1) To prevent any accident, all classes will be canceled during the Storm Warning.
- 2) If the Storm Warning is cleared before 7:00 am, all classes will be on schedule.
- 3) If the Storm Warning is cleared between 7:00 am and 11:00 am, all classes will start from the 3rd period. Classes in the 1st and 2nd period will be canceled. Cancelled classes will be held on *YOBIBI* (optional extra day) and final exams will be held on *YOBIBI* for final exam term.
- 4) If the Storm Warning continues after 11:00 am, all classes will be canceled. All cancelled classes and examinations will be rescheduled. Cancelled classes will be held on *YOBIBI* (optional extra day) and final exams will be held on *YOBIBI* for final exam term.
- 5) Whether or not a storm warning is announced, classes may be canceled because of suspension of public transportation service or some similar occurrence, at the discretion of the Vice President for Educational Affairs.

6) If cancelled classes cannot be held on *YOBIBI* (optional extra day), and final exams, on the alternate exam day, a Saturday may be used as an alternate day for classes or exams.

7) The above shall not apply to remote classes.

(3) University's e-mail account

TUT strongly recommends all students to set up the e-mail forwarding service in order to receive important information of class-scheduling, grading and other communications from the university.

(4) Absence from classes

When you have to be absent from classes due to illness, bereavement or other reasons, you need to inform these reasons to your subject instructor yourself.

Absences will be dealt with at the discretion of subject instructors.

Reasons for Absence	Documents you should submit	Procedure
Illness/Injury	Medical certificate or medical expense receipts	Students inform lecturers directly
Bereavement leave	Letter or notice of funeral	Students inform lecturers directly
Infectious diseases*	Medical certificate or medical expense receipts	Students inform the TUT Health Care Center (0532-44-6632) in addition to informing lecturers directly.

*TUT may require suspension in order to prevent the spread of infection. Suspension orders will be notified by email from TUT or KYOMU JOHO SYSTEM.

- The TUT Health Care Center (TEL: 0532-44-6632 E-mail: kenkou@office.tut.ac.jp)

III Curriculum

1. Classes and credits

(1) Classes

Classes are divided into General Subjects and Specialized Subjects. Numbers of credits are set for each subject.

(For the subjects to be offered, see the following pages.
See the web syllabus for the details of each subject.)

(2) Compulsory subjects and elective subjects

- 1) Compulsory subjects are the subjects that must be completed as a requirement of the major.
- 2) Elective Required subjects are the subjects that must be selected from among designated subject groups and taken at least a set number of subjects or credits.
- 3) Elective subjects can be selected and taken from those subjects being offered for the designated numbers of credits.

(3) Calculating credits

Teaching types of classes are lectures, exercises, experiments, practical or hands-on training, and they are offered individually or in combinations, and the standard is that it takes 45 hours of study to earn one credit. This is calculated in the following ways.

- (a) For lectures, 15 hours of class time and 30 hours of preparation and review for one credit.
- (b) For exercises, 30 hours of class time and 15 hours of preparation and review for one credit.
- (c) For experiments, practical or hands-on training, 45 hours of class time for one credit.

(4) Class times and class schedule.

The following are the class times.

Period	1	2	3	4	5	6
Time	8:50 am– 10:20 am	10:30 am– 12:00 (noon)	1:00 pm– 2:30 pm	2:40 pm 4:10 pm	4:20 pm– 5:50 pm	6:00 pm– 7:30pm

The class schedule is posted on "KYOMU JOHO SYSTEM" at the beginning of each semester. Notification of changes to the class schedule is also posted.

Courses listed in the "Intensive" section of the class schedule are ones that are taught intensively at irregular times. Once the dates of intensive courses are decided, the information is posted.

(5) School term

A school term is determined according to the academic year calendar, and consists of two terms; Spring term (from April 1 to September 30) and Fall term (from October 1 to March 31)

General subjects

2024.10

Compulsory / Elective	Subject Name	Class format	Excluded from GPA	Credits	Classes/Week				Instructor	note	
					1st grade						2nd grade
					Fall 1	Fall 2	Spring 1	Spring 2			
					2024.10 - 2025.3		2025.4 - 2025.9				2025.10 - 2026.9
Compulsory	Ethics for Researchers	Lecture		1	1			(0.5)			
Elective	Culture and Communication I	Lecture		2	1			(1)	E. Ryan		
	Culture and Communication II	Lecture		2			1	(1)	E. Ryan		
	Principles of Japanese Conversation	Lecture		2			1	(1)	Y. Muramatsu		
	Principles of Japanese Grammar	Lecture		2	1			(1)	J. Ishige		
	Japanese Life Today	Lecture		2			1	(1)		※	
	Japanese Industrial Technologies and Innovations	Lecture		2	1			(1)			

※JICA Trainees have to register for the 2 subjects: "Japanese Life Today" and

"Japanese Industrial Technologies and Innovations" and are required to earn these academic credits.

◆ Those subjects whose numbers marked with "()" will be held every year.

◆ "0.5" signifies that this subject will be held in any one of a quarter term (Spring 1, Spring 2, Fall 1 or Fall 2).

Architecture and Civil Engineering (Master Degree Program)

Global Rotation Program for Architecture and Civil Engineering Education Bridging ASEAN and African Countries

2024.10

Compulsory / Elective	Subject Name	Class format	Excluded from GPA	Credits	Classes/Week				Instructor	note	
					1st grade						2nd grade
					Fall 1	Fall 2	Spring 1	Spring 2			
					2024.10 - 2025.3		2025.4 - 2025.9				
Compulsory	Seminar on Architecture and Civil Engineering I	Exercise	○	3	3				Supervisor		
	Seminar on Architecture and Civil Engineering II	Exercise	○	3				3	Supervisor		
	Problem-Based Learning Program A	Exercise		1	1				Supervisor		
	Theory and Practice of Architectural and Civil Engineer A	Lecture		1		1			H. Ono		
	Thesis Research on Architecture and Civil Engineering	Experiment	○	6	9				Supervisor		
Elective	Elasticity and Stability	Lecture		2				1	Y. Matsumoto		
	Finite Element Method for Continua and Bar Structures	Lecture		2	1				S. Nakazawa		
	Seismic Evaluation of Existing Buildings	Lecture		2		1		(1)	T. Matsui		
	Seismic Design of Structures	Lecture		2	1			(1)	T. Saito		
	Geohazards	Lecture		2				1	T. Matsuda		
	Building Science: Indoor Air Quality and Ventilation	Lecture		2				1	M. Tajima Y. Shimazaki		
	Building science: Thermal Environment and vernacular building	Lecture		2		1			M. Tajima Y. Shimazaki		
	Coastal Hydraulics	Lecture		2				1	S. Kato		
	Water Environment Engineering	Lecture		2		1			T. Inoue		
	Environmental Management	Lecture		2		1			T. Tokairin K. Yokota		
	Advanced Urban Planning	Lecture		2				1	J. AsanoH. Ono		
	Advanced Architectural Design	Lecture		2				1	D. Fujita		
	Advanced Transportation and Urban Planning	Lecture		2				1	N. Sugiki		
	Advanced Computational Economics	Lecture		2				1	H. Shibusawa		
	Advanced Transportation Engineering	Lecture		2	1				K. Matsuo		
	Computational Structural Design	Lecture		2			1		Y.Takiuchi		
	※ Advanced Structural System Planning and Design I	Lecture		2	1			(1)	T. Saito S. Nakazawa T. Matsui		
	※ Advanced Structural System Planning and Design II	Lecture		2			1		(1) Y. Matsumoto T. Matsuda		
	※ Advanced Environmental System Planning and Design I	Lecture		2	1			(1)	M. Tajima T. Inoue S. Kato		
	※ Advanced Environmental System Planning and Design II	Lecture		2			1		(1) Y. Shimazaki K. Yokota T. Tokairin		
	※ Advanced Regional System Planning and Design I	Lecture		2	1			(1)	J. Asano H. Shibusawa D. Fujita H. Ono		
	※ Advanced Regional System Planning and Design II	Lecture		2			1		(1) N. Sugiki K. Matsuo		

◆ Up to two subjects marked with ※ can be acquired from courses taught by your supervisor. Consult your supervisor about details.

◆ Those subjects whose numbers marked with "()" will be held every year.

Architecture and Civil Engineering (Master Degree Program)

Program on Training University Teachers and Leaders for Architecture and Civil Engineering through Multi-Institutional Collaboration

2024.10

Compulsory / Elective	Subject Name	Class format	Excluded from GPA	Credits	Classes/Week				Instructor	note	
					1st grade						2nd grade
					Fall 1	Fall 2	Spring 1	Spring 2			
					2024.10 - 2025.3	2025.4 - 2025.9	2025.10 - 2026.9				
Compulsory	Seminar on Architecture and Civil Engineering I	Exercise	○	3	3				Supervisor		
	Seminar on Architecture and Civil Engineering II	Exercise	○	3				3	Supervisor		
	Problem-Based Learning Program A	Exercise		1	1				Supervisor		
	Theory and Practice of Architectural and Civil Engineer A	Lecture		1	1				H. Ono		
	Thesis Research on Architecture and Civil Engineering	Experiment	○	6	9				Supervisor		
Elective	Elasticity and Stability	Lecture		2				1	Y. Matsumoto		
	Finite Element Method for Continua and Bar Structures	Lecture		2	1				S. Nakazawa		
	Seismic Evaluation of Existing Buildings	Lecture		2			1	(1)	T. Matsui		
	Seismic Design of Structures	Lecture		2	1			(1)	T. Saito		
	Geohazards	Lecture		2				1	T. Matsuda		
	Building Science: Indoor Air Quality and Ventilation	Lecture		2				1	M. Tajima Y. Shimazaki		
	Building science: Thermal Environment and vernacular building	Lecture		2			1		M. Tajima Y. Shimazaki		
	Coastal Hydraulics	Lecture		2				1	S. Kato		
	Water Environment Engineering	Lecture		2			1		T. Inoue		
	Environmental Management	Lecture		2			1		T. Tokairin K. Yokota		
	Advanced Urban Planning	Lecture		2				1	J. AsanoH. Ono		
	Advanced Architectural Design	Lecture		2				1	D. Fujita		
	Advanced Transportation and Urban Planning	Lecture		2				1	N. Sugiki		
	Advanced Computational Economics	Lecture		2				1	H. Shibusawa		
	Advanced Transportation Engineering	Lecture		2	1				K. Matsuo		
	Computational Structural Design	Lecture		2			1		Y.Takiuchi		
	Institutional Collaboration Program	Practical training	○	1				intensive lecture	Supervisor		
	※ Advanced Structural System Planning and Design I	Lecture		2	1			(1)	T. Saito S. Nakazawa T. Matsui		
	※ Advanced Structural System Planning and Design II	Lecture		2			1	(1)	Y. Matsumoto T. Matsuda		
	※ Advanced Environmental System Planning and Design I	Lecture		2	1			(1)	M. Tajima T. Inoue S. Kato		
	※ Advanced Environmental System Planning and Design II	Lecture		2			1	(1)	Y. Shimazaki K. Yokota T. Tokairin		
	※ Advanced Regional System Planning and Design I	Lecture		2	1			(1)	J. Asano H. Shibusawa D. Fujita H. Ono		
	※ Advanced Regional System Planning and Design II	Lecture		2			1	(1)	N. Sugiki K. Matsuo		

◆ Up to two subjects marked with ※ can be acquired from courses taught by your supervisor. Consult your supervisor about details.

◆ Those subjects whose numbers marked with "()" will be held every year.

International Doctoral Degree Program

Diploma Policy

Diploma Policy for Doctoral Degree Program in Graduate School of Engineering

With a view to develop talented people in accordance with the basic philosophy and educational objectives, Toyohashi University of Technology (TUT) grants a degree of “Doctor of Philosophy (Engineering)” to students who have received specialized education in the engineering field, including Mechanical Engineering, Electrical and Electronic Information Engineering, Computer Science and Engineering, Applied Chemistry and Life Science and Architecture and Civil Engineering; acquired the knowledge and abilities stated in 1 to 4 below; and fulfilled the requirements for graduation and degree granting set forth in TUT’s regulations, etc. Those who achieved outstanding academic performance may be authorized to shorten the period of enrollment and be granted a Doctoral degree.

1. Keep an international mindset to see things from various angles with a global perspective and have a wide range of knowledge to consider comprehensively the symbiosis between humans and nature as well as linkage with society.
2. Have a high ability to contribute to team’s goal attainment as a leader through effectively expressing and sending out one’s own ideas, points in question and research results; deeply understanding others’ values; and working together with various people.
3. Have social and ethical responsibilities as advanced-level leading engineers or researchers; and have the ability to voluntarily learn new things continuously in response to changes in society, environment, technology, etc.
4. Acquire advanced knowledge on an expertise in the fields of natural science and technological science; and have the practical, creative and leading skills to understand and solve problems leveraging such knowledge in an integrated and progressive manner.

Architecture and Civil Engineering

In accordance with the diploma policy for Doctoral Degree Program in Graduate School of Engineering at Toyohashi University of Technology (TUT), Toyohashi University of Technology grants a degree of "Doctor of Philosophy (Engineering)" to the students who have received specialized education from the Department of Architecture and Civil Engineering; have the knowledge and abilities stated below; and have fulfilled the requirements for graduation and degree granting set forth in TUT's regulations, etc. Those who achieved outstanding academic performance may be authorized to shorten the period of enrollment and be granted a Doctoral degree.

(A) Personality and outlook with a broad perspective

Have an international mindset to see human society from various angles with a global perspective; and the ability to consider the symbiosis between humans and nature as well as public welfare with a wide view.

(B) Sound ethics and social awareness as highly advanced-level engineers and researchers

Be conscious of specialized and ethical responsibilities as leading -level engineers and researchers; and have the ability to discover, set, solve and evaluate technical issues in society.

(C) Practical and creative skills to utilize advanced knowledge in an integrated and constructive manner

Have advanced knowledge about architecture and civil engineering as well as related fields; and have the practical and creative skills to utilize such knowledge for problem solving, understanding the methodology of research, creating original technology, and integrating all knowledges organically.

(D) Communication skills for global success

Have the communication skills to effectively express and transmit one's own ideas and results while working on the issues faced by a globally changing society in cooperation with other team members.

Have sophisticated ability as a leader to contribute for the achievement the goal of team.

(E) Inquisitive outlook and skills for continuous learning in response to state-of-the-art technology and changes in the social environment

Have the skills to investigate the essence of changes in society, environment and technology.

Have the skills to voluntarily make plans and learn throughout one's life.

I Requirements for completion

1. Requirements for completion

To complete the doctoral course, a student must participate in the course for three or more years, and must obtain the minimum credits required as follows. A student must carry out a research program under proper guidance by faculty members. In addition, a student must submit a doctoral thesis, and must pass a review and final examination.

Note that students showing excellent achievement may finish in a shorter study period.

Classification	Required credits for completion	Remarks
Architecture and Civil Engineering	12	<p>4 credits in total can be substituted with a combination of the following options, with permission from the student's supervisor and the subject instructor.</p> <ol style="list-style-type: none">1. Specialized subjects from International Master's Degree Program (except for Advanced subjects)2. Subjects of the other departments from International Doctoral Degree Program3. Subjects from doctoral program of student's own department held in Japanese (The same subject cannot be taken in both Japanese and English)

2. Application for degree

Only a student who has earned the credits required for completion, or who is expected to earn the required credits can apply for the doctoral degree. Degree application and procedures for submission of a thesis for a doctoral degree shall be posted at "KYOMU JOHO SYSTEM" and on a bulletin board before the submission period.

II Class registration, examination, and attendance period

1. Class registration method

Classes shall be registered according to the program schedule of the student's respective major.

(1) Making study plans

To make study plans, students should read this Guide Book thoroughly, and follow the instructions and advice given during the orientation and by the supervisor.

The Course Schedule is provided at the beginning of each academic year.
Schedules for intensive classes will be posted at "KYOMU JOHO SYSTEM" and on a bulletin board when the details are fixed.

(2) Class registration

Students must register for classes using "KYOMU JOHO SYSTEM" at the TUT website

<https://kyomu.office.tut.ac.jp/portal/>

or by the form "Application for Subjects" during the designated period.

*Classes cannot be registered for after the designated registration period. Classes with no registration will not be accredited in any case.

NOTES

1) To take Specialized subjects from International Master's Degree Program (except for Advanced topics subjects), subjects from your own department held in Japanese, or other department's subjects from International Doctoral Degree Program, Students must obtain approval from their supervisor and the subject instructor with the form "Application for Registration of Subjects in Other Department".

2) If a student does not attend the classes nor take the examinations, credits will not be given even if the registration is made.

3) A student cannot re-register for a subject for which credits are given.

4) Only one subject can be registered for in a given time schedule. Note that this does not apply to intensive subjects.

(3) Confirming and amending the registration

To confirm or amend class registration, students should access "KYOMU JOHO SYSTEM", and follow the manual's instructions.

(4) Class Cancellation

After the end of the course registration period for each semester, students can cancel classes if students find it difficult to earn credits as it is. If students wish to cancel classes, apply for cancellation using "KYOMU JOHO SYSTEM" during the class cancellation application period of each semester.

Only electives and required electives classes can be canceled. However, intensive classes are excluded. Only class cancellation is possible during the class cancellation application

period. Registration of additional courses is not accepted.

If students continue to miss the class or do not take an examination without cancelling the registration, the class will be considered grade "H"(Abandoned course). Please be aware that grade "H" course will have a large impact on your GPA.

(5) Repeating classes

In principle, a student who has failed a subject with regular examinations or has not gained credits for some other reason can take the same subject again in the next academic year. To repeat a subject, the student must register again.

2. Examination

Examination includes regular examinations and make-up examinations.

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In principle regular examinations shall be held during the set period at the end of each term.

All students are to check the examination schedule in the academic calendar at "KYOMU JOHO SYSTEM" or on the bulletin boards. Note that examinations may be held at any time found necessary by the subject instructor.

(2) Make-up examination

1) Make-up examinations shall be held only when a student cannot take the regular examination for one of the following reasons. The student must gain the approval of the subject instructor using the form "Request for a make-up examination".

- a) Illness (doctor's medical certificate must be submitted)
- b) Accidents, disaster (certificate must be submitted), or other special reason (a letter explaining the reason must be submitted)

2) When a student cannot take the regular examination, the student has to contact the Educational Affairs Division and the course instructor by the day of the examination.

3) "Request for a make-up examination" must be submitted to the Academic Affairs Division within one week from the final date of the regular examination. In case of Spring semester, if one week from the final examination date is Saturday, Sunday, or holiday, a student must submit the document by the following day.

4) If a student fails to take the make-up examination, further examinations will not be allowed.

(3) Recognition of Credits and Grading System

Course instructors recognize credits for courses based on the results of examinations, etc.

- ① Student performance is graded based on the following standards. S, A, B and C are passing grades while D is a failing grade. Credits are awarded to grade C and above.

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A···80 to 89 points

- B...70 to 79 points
- C...60 to 69 points
- D...59 points or less

- ② With the aim of making course grades internationally compatible, TUT has launched a Grade Point Average (GPA) system, providing a barometer to judge the overall performance of students, starting with students who entered TUT in academic year 2018. The objectives of the GPA system are to fairly grade performance and to enhance students' desire for study by calculating the point average as a barometer to indicate the state and results of students' academic performance.

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C	60 to 69 points	Sufficient—Performance meeting the minimum passing criteria		1.0
D	59 points or less	Failure	Failure	0.0
N	-	Course for credit recognition (not included in GPA)	Pass (Recognition)	N/A
H	-	Abandoned course (Course the student abandoned by continuing to miss the class or no taking an examination without cancelling the registration)	Abandonment	0.0
K	-	Invalidated grade due to misconduct	Invalid	0.0

GPA is an average calculated by converting above letter grades to grade points (GP) ranging from 0.0 to 4.0, multiplying these grade points by the number of credits for each course, and then dividing the total grade points by the total amount of registered credits.

Note, however, that grades from the following courses cannot be used to calculate GPA. Such courses are marked with a hyphen in the GP column of the grade report.

- (1) Courses for which credits were earned on the basis of the credit exchange system conducted with other universities, graduate schools, etc.; courses that were registered at other universities or junior colleges while enrolled in TUT; and courses that were registered at universities, junior colleges or graduate schools in foreign countries
- (2) Courses for which credits were earned before entering TUT and were recognized after entering TUT; courses that were registered at TUT, other universities or junior colleges before entering TUT; and courses registered at universities, junior colleges or graduate schools in foreign countries (including courses registered for as a credited auditor student)
- (3) Courses for which credits were earned through mid-course entry, interschool transfer,

readmission, or studying abroad, and were subsequently recognized

(4) Courses for which credits cannot be counted toward graduation requirements; and courses for which credits were earned through the system for advance registration to graduate school programs

(5) Courses that are designated separately by each department (On-the-job Training (internships), Supervised Research, Seminars, experimental courses, and practical training courses)

- ③ Each student can check grades and GPA for recognized credits in the "KYOMU JOHO SYSTEM".

(4) System for appealing grades

Students who have concerns about their grades for a particular semester can inquire to the class instructor during the confirmation period. If students have complaints regarding the instructor's response, they can submit an appeal. Students, however, cannot appeal the reason or basis for the grade.

Students should contact the Educational Affairs Division for details.

3. Maximum years of attendance and related matters

(1) Maximum years of attendance

A student may not be in the doctoral course at the university for more than six years.

(2) Leave of absence

If a student cannot attend classes for two or more months consecutively due to illness or other special reasons, the student may submit the form "Request for leave of absence" to the Educational Affairs Division after getting approval from the supervisor, a member of the academic affairs committee, and their department head. Upon approval by the President, the student can take a leave of absence (maximum two years in total).

In order to submit the form "Request for leave of absence", the tuition fees up to the term must have been paid.

The period of this absence will not be counted in the "Maximum years of attendance" mentioned in paragraph (1) above.

To return to school after the approved period ends, the student must submit the form "Notice of return to university".

To return to school before the approved period following the removal of the cause of absence, the student must submit the form "Application for return to university" and obtain approval.

(3) Withdrawal

If a student wants to withdraw from the university, the student must submit the form "Application for withdrawal from university" to the Educational Affairs Division after getting approval from the supervisor, a member of the academic affairs committee, and the department head. Upon approval by the President, the student can withdraw from the

university.

In order to submit the form "Application for withdrawal from university", the tuition fees up to the term must have been paid.

Note that the tuition fee has to be paid in full even if the student withdraws in the middle of a term.

(4) Removal from the University



A student will be removed from the university for the following reason.

- 1) A student exceeds the period mentioned above in paragraph (1) "Maximum years of attendance".
- 2) A student cannot return to school after the period of absence mentioned above in paragraph (2) "Leave of absence".
- 3) A student dies, or disappears.
- 4) A student who has been approved for half exemption or postponement of admission fee payment does not pay the admission fee by the designated date.
- 5) A student fails to pay the tuition and does not pay even after a warning.

4. Other matters

(1) Information about canceled or make-up classes

All students should double-check their class schedules and other information using the following means:

Location		information
TUT website	https://kyomu.office.tut.ac.jp/portal/Public/Board/BoardList.aspx 	Canceled or make-up classes Emergency information (STORM WARNING etc.)
TUT website for mobile phones	https://kyomu.office.tut.ac.jp/mobile/Main.aspx  *Mobile tagging by camera phones	Canceled or make-up classes Emergency information (STORM WARNING etc.)

(2) Classes/exams when a STORM WARNING is announced.

If a Storm Warning (*Bo-fu Keiho*) is announced for Toyohashi city or the South-east area of the Mikawa region, TUT will deal with classes or examinations as follows:

- 1) To prevent any accident, all classes will be canceled during the Storm Warning.
- 2) If the Storm Warning is cleared before 7:00 am, all classes will be on schedule.
- 3) If the Storm Warning is cleared between 7:00 am and 11:00 am, all classes will start from the 3rd period. Classes in the 1st and 2nd period will be canceled. Cancelled classes will be held on *YOBIBI* (optional extra day) and final exams will be held on *YOBIBI* for final exam term.
- 4) If the Storm Warning continues after 11:00 am, all classes will be canceled.

*All cancelled classes and examinations will be rescheduled. Cancelled classes will be

held on *YOBIBI* (optional extra day) and final exams will be held on *YOBIBI* for final exam term.

5) Whether or not a storm warning is announced, classes may be canceled because of suspension of public transportation service or some similar occurrence, at the discretion of the Vice President for Educational Affairs.

6) If cancelled classes cannot be held on *YOBIBI* (optional extra day), and final exams, on the alternate exam day, a Saturday may be used as an alternate day for classes or exams.

7) The above shall not apply to remote classes.

(3) University's e-mail account

TUT strongly recommends all students to set up the e-mail forwarding service in order to receive important information of class-scheduling, grading and other communications from the university.

(4) Absence from classes

When you have to be absent from classes due to illness, bereavement or other reasons, you need to inform these reasons to your subject instructor yourself.

Absences will be dealt with at the discretion of subject instructors.

Reasons for Absence	Documents you should submit	Procedure
Illness/Injury	Medical certificate or medical expense receipts	Students inform lecturers directly
Bereavement leave	Letter or notice of funeral	Students inform lecturers directly
Infectious diseases*	Medical certificate or medical expense receipts	Students inform the TUT Health Care Center (0532-44-6632) in addition to informing lecturers directly..

*TUT may require suspension in order to prevent the spread of infection. Suspension orders will be notified by email from TUT or KYOMU JOHO SYSTEM.

• The TUT Health Care Center (TEL: 0532-44-6632 E-mail: kenkou@office.tut.ac.jp)

III Curriculum

1. Classes and credits

(1) Classes

Classes in Doctoral program are only Specialized Subjects. Numbers of credits are set for each subject.

(For the subjects to be offered, see the following pages.
See the web syllabus for the details of each subject.)

(2) Compulsory subjects and elective subjects

- 1) Compulsory subjects are the subjects that must be completed as a requirement of the major.
- 2) Elective subjects can be selected and taken from those subjects being offered for the designated numbers of credits.

(3) Calculating credits

Teaching types of classes are lectures, exercises, experiments, practical or hands-on training, and they are offered individually or in combinations, and the standard is that it takes 45 hours of study to earn one credit. This is calculated in the following ways.

- (a) For lectures, 15 hours of class time and 30 hours of preparation and review for one credit.
- (b) For exercises, 30 hours of class time and 15 hours of preparation and review for one credit.
- (c) For experiments, practical or hands-on training, 45 hours of class time for one credit.

(4) Class times and class schedule.

The following are the class times.

Period	1	2	3	4	5	6
Time	8:50 am– 10:20 am	10:30 am– 12:00 (noon)	1:00 pm– 2:30 pm	2:40 pm 4:10 pm	4:20 pm– 5:50 pm	6:00 pm– 7:30 pm

The class schedule is posted on "KYOMU JOHO SYSTEM" at the beginning of each semester. Notification of changes to the class schedule is also posted.

Courses listed in the "Intensive" section of the class schedule are ones that are taught intensively at irregular times. Once the dates of intensive courses are decided, the information is posted.

(5) School term

A School term is determined according to the academic year calendar, and consists of two terms; Spring term (from April 1 to September 30) and Fall term (from October 1 to March 31)

Architecture and Civil Engineering (Doctoral Degree Program)
Global Rotation Program for Architecture and Civil Engineering Education Bridging ASEAN and African Countries

2024.10

Compulsory / Elective	Subject Name	Class format	Excluded from GPA	Credits	Instructor	1st grade		2nd grade	3rd grade	note
						Fall	Spring			
						2024.10 - 2025.3	2025.4 - 2025.9	2025.10 - 2026.9	2026.10 - 2027.9	
Compulsory	Seminar on Architecture and Civil Engineering 1	Exercise	○	4	Supervisor	4				
	Seminar on Architecture and Civil Engineering 2	Exercise	○	1	Supervisor			1		
	Problem-Based Learning Program B	Exercise		1	Supervisor	1				
	Theory and Practice of Architectural and Civil Engineer B	Lecture		1	H. Ono		1			
	Teaching Practice on Global Education	Exercise	○	1	Supervisor	Intensive lecture				
	Japanese Industrial Internship Program	Practical training	○	1	Supervisor			Intensive lecture		
Elective Required	Ethics for Researchers	Lecture		1		1				※1
Elective	Seminar on Interdisciplinary Research	Exercise		1				1		
	Advanced Mechanics and Design of Spatial Structure Systems	Lecture		2	S. Nakazawa Y. Matsumoto	1				
	Advanced Structural Design	Lecture		2	T. Saito T. Matsui	1				
	Advanced Building Environmental Engineering and Building Services	Lecture		2	M. Tajima Y. Shimazaki		1			
	Advanced Theory in Architectural Design	Lecture		2	D. Fujita	1				
	Sustainable Urban Planning	Lecture		2	J. Asano H. Ono	1				
	Advanced Geologic Hazard Mitigation Planning	Lecture		2	T. Matsuda	1				
	Advanced Water Environmental Engineering	Lecture		2	T. Inoue S. Kato	1				
	Advanced Environmental Management	Lecture		2	K. Yokota T. Tokairin		1			
	Advanced Transportation Systems and Economics	Lecture		2	H. Shibusawa N. Sugiki K. Matsuo H. Miyamoto		1			

※1 Students who have obtained the credit of this subject during Master's program must take another subject among subject in the doctoral program

Architecture and Civil Engineering (Doctoral Degree Program)
Program on Training University Teachers and Leaders for Architecture and Civil Engineering through Multi-Institutional Collaboration

2024.10

Compulsory / Elective	Subject Name	Class format	Excluded from GPA	Credits	Instructor	1st grade		2nd grade	3rd grade	note
						Fall	Spring			
						2024.10 - 2025.3	2025.4 - 2025.9	2025.10 - 2026.9	2026.10 - 2027.9	
Compulsory	Seminar on Architecture and Civil Engineering 1	Exercise	○	4	Supervisor	4				
	Seminar on Architecture and Civil Engineering 2	Exercise	○	1	Supervisor			1		
	Problem-Based Learning Program B	Exercise		1	Supervisor	1				
	Theory and Practice of Architectural and Civil Engineer B	Lecture		1	H. Ono		1			
	Teaching Practice on Global Education	Exercise	○	1	Supervisor	Intensive lecture				
Elective Required	Ethics for Researchers	Lecture		1		1				※1
Elective	Seminar on Interdisciplinary Research	Exercise		1				1		
	Advanced Mechanics and Design of Spatial Structure Systems	Lecture		2	S. Nakazawa Y. Matsumoto	1				
	Advanced Structural Design	Lecture		2	T. Saito T. Matsui	1				
	Advanced Building Environmental Engineering and Building Services	Lecture		2	M. Tajima Y. Shimazaki		1			
	Advanced Theory in Architectural Design	Lecture		2	D. Fujita	1				
	Sustainable Urban Planning	Lecture		2	J. Asano H. Ono	1				
	Advanced Geologic Hazard Mitigation Planning	Lecture		2	T. Matsuda	1				
	Advanced Water Environmental Engineering	Lecture		2	T. Inoue S. Kato	1				
	Advanced Environmental Management	Lecture		2	K. Yokota T. Tokairin		1			
	Advanced Transportation Systems and Economics	Lecture		2	H. Shibusawa N. Sugiki K. Matsuo H. Miyamoto		1			
	Advanced Institutional Collaboration Program	Practical training	○	1	Supervisor			Intensive lecture		

※1 Students who have obtained the credit of this subject during Master's program must take another subject among subject in the doctoral program

Course Requirement Guide Book

(October 2024)

Educational Program for Digital-Mechanical Engineers Promoting Industry DX (M-DX)

International Master's Degree Program

International Doctoral Degree Program



International Master's Degree Program

Diploma Policy

Diploma Policy for Master's Degree Program in Graduate School of Engineering

With a view to develop talented people in accordance with the basic philosophy and educational objectives, Toyohashi University of Technology (TUT) grants a degree of "Master (of Engineering)" to students who have received specialized education in the engineering field, including Mechanical Engineering, Electrical and Electronic Information Engineering, Computer Science and Engineering, Applied Chemistry and Life Science and Architecture and Civil Engineering, as well as liberal arts education; acquired the knowledge and abilities stated in 1 to 4 below; and fulfilled the requirements for graduation and degree granting set forth in TUT's regulations, etc. Those who achieved outstanding academic performance may be authorized to shorten the period of enrollment and be granted a master's degree.

1. Keep an international mindset to see things from various angles with a global perspective and have a wide range of knowledge to consider the symbiosis between humans and nature as well as linkage with society.
2. Have a high ability to contribute to team's goal attainment through effectively expressing and sending out one's own ideas, points in question and research results; deeply understanding others' values; and working together with various people.
3. Have social and ethical responsibilities as advanced-level engineers or researchers; and have the ability to voluntarily learn new things continuously in response to changes in society, environment, technology, etc.
4. Acquire advanced knowledge on an expertise in the fields of natural science and technological science; and have the practical and creative skills to understand and solve problems leveraging such knowledge in an integrated manner.

Mechanical Engineering

In accordance with the diploma policy for Master's Degree Program in Graduate School of Engineering at Toyohashi University of Technology (TUT), Toyohashi University of Technology grants a degree of "Master (of Engineering)" to the students who have received specialized education from the Department of Mechanical Engineering; have the knowledge and abilities stated below; and have fulfilled the requirements for graduation and degree granting set forth in TUT's regulations, etc. Those who achieved outstanding academic performance may be authorized to shorten the period of enrollment and be granted a master's degree.

(A) Personality and outlook with a broad perspective

Have an international mindset to see human society from various angles with a global perspective; and the ability to consider the symbiosis between humans and nature as well as public welfare.

(B) Sound ethics and social awareness as advanced-level engineers and researchers

Be conscious of specialized and ethical responsibilities as advanced-level engineers and researchers; and have the ability to set, solve and evaluate technical issues in society.

(C) Practical and creative skills to utilize advanced knowledge in an integrated manner

Have advanced knowledge about mechanical engineering and related fields; and have the practical and creative skills to utilize such knowledge for problem solving in an integrated manner.

(C1) Have the skills to voluntarily acquire theories and applied knowledge about mechanical engineering and related fields; and to utilize such knowledge in an integrated manner.

(C2) Have the skills to learn, by experience, methodologies for research and development through integrating extensive knowledge about mechanical engineering and related fields; to make plans for research and development and put them into practice; and to create new technologies to solve problems.

(D) Communication skills for global success

Have the communication skills to effectively express one's own ideas and results while working on issues faced by a globally changing society in cooperation with other team members.

(D1) Have the skills to effectively express and communicate one's own ideas as well as points in question at home and abroad through papers, oral reports or information media.

(D2) Have high skills to mutually respect the values of individual team members; and to contribute to the team's achievements through working cooperatively with other team members.

(E) Inquisitive outlook and skills for continuous learning in response to state-of-the-art technology and changes in the social environment

Have the skills to voluntarily make plans and learn throughout one's life in response to changes in society, environment and technology.

I Requirements for completion

1. Requirements for completion

To complete the master's course, a student must participate in the course for two or more years, and must acquire the minimum credits required as follows. A student must carry out a research program under proper guidance by faculty members. In addition, a student must submit a master's thesis, and must pass a review and final examination.

Note that students showing excellent achievement may finish in a shorter study period.

Classification	Required credits for completion	Remarks
General subjects	6	
Specialized subjects		
Mechanical Engineering	24	6 credits in total can be substituted with a combination of the following options, with permission from the student's supervisor and the subject instructor. 1. Specialized master's subjects from the other departments 2. Specialized master's subjects held in Japanese (The same subject cannot be taken in both Japanese and English)
Grand total	30	

2. Application for degree

Only a student who has earned the credits required for completion, or who is expected to earn the required credits can apply for the master's degree. Degree application and procedures for submission of a thesis for a master's degree shall be posted at "KYOMU JOHO SYSTEM" and on a bulletin board before the submission period.

II Class registration, examination, and attendance period

1. Class registration method

Classes shall be registered according to the program schedule of the student's respective major.

(1) Making study plans

To make study plans, students should read this Guide Book thoroughly, and follow the instructions and advice given during the orientation and by the supervisors.

The Course Schedule is provided at the beginning of each academic year.
Schedules for intensive classes will be posted at "KYOMU JOHO SYSTEM" and on a bulletin board when the details are fixed.

(2) Class Registration

Students must register for classes using "KYOMU JOHO SYSTEM" at the TUT website

<https://kyomu.office.tut.ac.jp/portal/>

or by the form "Application for Subjects" during the designated period.

*Classes cannot be registered for after the designated registration period. Classes with no registration will not be accredited in any case.

NOTES

1) To take specialized subjects given in other departments, or given in Japanese, students must obtain approval from their supervisor and the subject instructor with the form "Application for Registration of Subjects in Other Department," before registering.

2) If a student does not attend the classes nor take the examinations, credits will not be given even if the registration is made.

3) A student cannot re-register for a subject once credits are given.

4) Only one subject can be registered for in a given time schedule. Note that this does not apply to intensive subjects.

(3) Confirming and amending the registration

To confirm or amend class registration, students should access "KYOMU JOHO SYSTEM", and follow the manual's instructions.

(4) Class Cancellation

After the end of the course registration period for each semester, students can cancel classes if students find it difficult to earn credits as it is. If students wish to cancel classes, apply for cancellation using "KYOMU JOHO SYSTEM" during the class cancellation application period of each semester.

Only electives and required electives classes can be canceled. However, intensive classes are excluded. Only class cancellation is possible during the class cancellation application period. Registration of additional courses is not accepted.

If students continue to miss the class or do not take an examination without cancelling the registration, the class will be considered grade "H"(Abandoned course). Please be aware

that grade "H" course will have a large impact on your GPA.

(5) Repeating classes

In principle, a student who has failed a subject with regular examinations or has not gained credits for some other reasons can take the same subject again in the next academic year. To repeat a subject, the student must register again.

2. Examination

Examinations include regular examinations and make-up examinations.

(1) Regular examination

In principle regular examinations shall be held during the set period at the end of each term.

All students are to check the examination schedule in the academic calendar at "KYOMU JOHO SYSTEM" or on the bulletin boards. Note that examinations may be held at any time found necessary by the subject instructor.

(2) Make-up examination

1) Make-up examinations shall be held only when a student cannot take the regular examination for one of the following reasons. The student must gain the approval of the subject instructor using the form "Request for a make-up examination".

- a) Illness (doctor's medical certificate must be submitted)
- b) Accidents, disaster (certificate must be submitted), or other special reason (a letter explaining the reason must be submitted)

2) When a student cannot take the regular examination, the student has to contact the Educational Affairs Division and the course instructor by the day of the examination.

3) "Request for a make-up examination" must be submitted to the Educational Affairs Division within one week from the final date of the regular examination. In case of Spring semester, if one week from the final examination date is Saturday, Sunday, or holiday, a student must submit the document by the following day.

4) If a student fails to take the make-up examination, further examinations will not be allowed.

(3) Recognition of Credits and Grading System

Course instructors recognize credits for courses based on the results of examinations, etc.

① Student performance is graded based on the following standards. S, A, B and C are passing grades while D is a failing grade. Credits are awarded to grade C and above.

S···90 to 100 points

A···80 to 89 points

B···70 to 79 points

C···60 to 69 points

D···59 points or less

- ② With the aim of making course grades internationally compatible, TUT has launched a Grade Point Average (GPA) system, providing a barometer to judge the overall performance of students, starting with students who entered TUT in academic year 2018. The objectives of the GPA system are to fairly grade performance and to enhance students' desire for study by calculating the point average as a barometer to indicate the state and results of students' academic performance.

Grade	Points	Description of Grade	Judgement	Grade Point
S	90 to 100 points	Excellent—Outstanding performance	Pass	4.0
A	80 to 89 points	Good—Excellent performance		3.0
B	70 to 79 points	Satisfactory—Generally sound performance		2.0
C	60 to 69 points	Sufficient—Performance meeting the minimum passing criteria		1.0
D	59 points or less	Failure	Failure	0.0
N	-	Course for credit recognition (not included in GPA)	Pass (Recognition)	N/A
H	-	Abandoned course (Course the student abandoned by continuing to miss the class or no taking an examination without cancelling the registration)	Abandonment	0.0
K	-	Invalidated grade due to misconduct etc.	Invalid	0.0

GPA is an average calculated by converting above letter grades to grade points (GP) ranging from 0.0 to 4.0, multiplying these grade points by the number of credits for each course, and then dividing the total grade points by the total amount of registered credits.

Note, however, that grades from the following courses cannot be used to calculate GPA. Such courses are marked with a hyphen in the GP column of the grade report.

- (1) Courses for which credits were earned on the basis of the credit exchange system conducted with other universities, graduate schools, etc.; courses that were registered at other universities or junior colleges while enrolled in TUT; and courses that were registered at universities, junior colleges or graduate schools in foreign countries
- (2) Courses for which credits were earned before entering TUT and were recognized after entering TUT; courses that were registered at TUT, other universities or junior colleges before entering TUT; and courses registered at universities, junior colleges or graduate schools in foreign countries (including courses registered for as a credited auditor student)
- (3) Courses for which credits were earned through mid-course entry, interschool transfer, readmission, or studying abroad, and were subsequently recognized
- (4) Courses for which credits cannot be counted toward graduation requirements; and courses for which credits were earned through the system for advance registration to graduate school programs

(5) Courses that are designated separately by each department (On-the-job Training (internships), Supervised Research, Seminars, experimental courses, and practical training courses)

- ③ Each student can check grades and GPA for recognized credits in the "KYOMU JOHO SYSTEM".

(4) System for appealing grades

Students who have concerns about their grades for a particular semester can inquire to the class instructor during the confirmation period. If students have complaints regarding the instructor's response, they can submit an appeal. Students, however, cannot appeal the reason or basis for the grade.

Students should contact the Educational Affairs Division for details.

3. Maximum years of attendance and related matters

(1) Maximum years of attendance

A student may not be in the master's course at the university for more than four years.

(2) Leave of absence

If a student cannot attend classes for two or more months consecutively due to illness or other special reasons, the student may submit the form "Request for leave of absence" to the Educational Affairs Division after getting approval from the supervisor, a member of the academic affairs committee, and their department head. Upon approval by the President, the student can take a leave of absence (maximum two years in total).

In order to submit the form "Request for leave of absence", the tuition fees up to the term must have been paid. The period of this absence will not be counted in the "Maximum years of attendance" mentioned in paragraph (1) above.

To return to school after the approved period ends, the student must submit the form "Notice of return to university".

To return to school before the approved period following the removal of cause of absence, the student must submit the form "Application for return to university" and obtain approval.

(3) Withdrawal

If a student wants to withdraw from the university, the student must submit the form "Application for withdrawal from university" to the Educational Affairs Division after getting the approval from the supervisor, a member of the academic affairs committee, and the department head. Upon approval by the President, the student can withdraw from the university.

In order to submit the form "Application for withdrawal from university", the tuition fees up to the term must have been paid.

Note that the tuition fee has to be paid in full even if the student withdraws in the middle of a term.

(4) Removal from the University



A student will be removed from the university for the following reason.

- 1) A student exceeds the period mentioned above in paragraph (1) "Maximum years of attendance".
- 2) A student cannot return to school after the period of absence mentioned above in paragraph (2) "Leave of absence".
- 3) A student dies, or disappears.
- 4) A student who has been approved for half exemption or postponement of admission fee payment does not pay the admission fee by the designated date.
- 5) A student fails to pay the tuition and does not pay even after a warning.

4. Other matters

(1) Information about canceled or make-up classes

All students should double-check their class schedules and other information using the following means:

Location		information
TUT website	https://kyomu.office.tut.ac.jp/portal/Public/Board/BoardList.aspx 	Canceled or make-up classes Emergency information (STORM WARNING etc.)
TUT website for mobile phones	https://kyomu.office.tut.ac.jp/mobile/Main.aspx  *Mobile tagging by camera phones	Canceled or make-up classes Emergency information (STORM WARNING etc.)

(2) Classes/exams when a STORM WARNING is announced.

If a Storm Warning (*Bo-fu Keiho*) is announced for Toyohashi city or the South-east area of the Mikawa region, TUT will deal with classes or examinations as follows:

- 1) To prevent any accident, all classes will be canceled during the Storm Warning.
- 2) If the Storm Warning is cleared before 7:00 am, all classes will be on schedule.
- 3) If the Storm Warning is cleared between 7:00 am and 11:00 am, all classes will start from the 3rd period. Classes in the 1st and 2nd period will be canceled. Cancelled classes will be held on *YOBIBI* (optional extra day) and final exams will be held on *YOBIBI* for final exam term.
- 4) If the Storm Warning continues after 11:00 am, all classes will be canceled. All cancelled classes and examinations will be rescheduled. Cancelled classes will be held on *YOBIBI* (optional extra day) and final exams will be held on *YOBIBI* for final exam term.
- 5) Whether or not a storm warning is announced, classes may be canceled because of suspension of public transportation service or some similar occurrence, at the discretion of the Vice President for Educational Affairs.
- 6) If cancelled classes cannot be held on *YOBIBI* (optional extra day), and final exams,

on the alternate exam day, a Saturday may be used as an alternate day for classes or exams.

7) The above shall not apply to remote classes.

(3) University's e-mail account

TUT strongly recommends all students to set up the e-mail forwarding service in order to receive important information of class-scheduling, grading and other communications from the university.

(4) Absence from classes

When you have to be absent from classes due to illness, bereavement or other reasons, you need to inform these reasons to your subject instructor yourself.

Absences will be dealt with at the discretion of subject instructors.

Reasons for Absence	Documents you should submit	Procedure
Illness/Injury	Medical certificate or medical expense receipts	Students inform lecturers directly
Bereavement leave	Letter or notice of funeral	Students inform lecturers directly
Infectious diseases*	Medical certificate or medical expense receipts	Students inform the TUT Health Care Center (0532-44-6632) in addition to informing lecturers directly.

*TUT may require suspension in order to prevent the spread of infection. Suspension orders will be notified by email from TUT or KYOMU JOHO SYSTEM.

• The TUT Health Care Center (TEL: 0532-44-6632 E-mail: kenkou@office.tut.ac.jp)

III Curriculum

1. Classes and credits

(1) Classes

Classes are divided into General Subjects and Specialized Subjects. Numbers of credits are set for each subject.

(For the subjects to be offered, see the following pages.
See the web syllabus for the details of each subject.)

(2) Compulsory subjects and elective subjects

- 1) Compulsory subjects are the subjects that must be completed as a requirement of the major.
- 2) Elective Required subjects are the subjects that must be selected from among designated subject groups and taken at least a set number of subjects or credits.
- 3) Elective subjects can be selected and taken from those subjects being offered for the designated numbers of credits.

(3) Calculating credits

Teaching types of classes are lectures, exercises, experiments, practical or hands-on training, and they are offered individually or in combinations, and the standard is that it takes 45 hours of study to earn one credit. This is calculated in the following ways.

- (a) For lectures, 15 hours of class time and 30 hours of preparation and review for one credit.
- (b) For exercises, 30 hours of class time and 15 hours of preparation and review for one credit.
- (c) For experiments, practical or hands-on training, 45 hours of class time for one credit.

(4) Class times and class schedule.

The following are the class times.

Period	1	2	3	4	5	6
Time	8:50 am– 10:20 am	10:30 am– 12:00 (noon)	1:00 pm– 2:30 pm	2:40 pm 4:10 pm	4:20 pm– 5:50 pm	6:00 pm– 7:30pm

The class schedule is posted on "KYOMU JOHO SYSTEM" at the beginning of each semester. Notification of changes to the class schedule is also posted.

Courses listed in the "Intensive" section of the class schedule are ones that are taught intensively at irregular times. Once the dates of intensive courses are decided, the information is posted.

(5) School term

A school term is determined according to the academic year calendar, and consists of two terms; Spring term (from April 1 to September 30) and Fall term (from October 1 to March 31)

General subjects

2024.10

Compulsory / Elective	Subject Name	Class format	Excluded from GPA	Credits	Classes/Week				Instructor	note	
					1st grade						2nd grade
					Fall 1	Fall 2	Spring 1	Spring 2			
					2024.10 - 2025.3		2025.4 - 2025.9				2025.10 - 2026.9
Compulsory	Ethics for Researchers	Lecture		1	1			(0.5)			
Elective	Culture and Communication I	Lecture		2	1			(1)	E. Ryan		
	Culture and Communication II	Lecture		2			1	(1)	E. Ryan		
	Principles of Japanese Conversation	Lecture		2			1	(1)	Y. Muramatsu		
	Principles of Japanese Grammar	Lecture		2	1			(1)	J. Ishige		
	Japanese Life Today	Lecture		2			1	(1)		※	
	Japanese Industrial Technologies and Innovations	Lecture		2	1			(1)			

※JICA Trainees have to register for the 2 subjects: "Japanese Life Today" and

"Japanese Industrial Technologies and Innovations" and are required to earn these academic credits.

◆ Those subjects whose numbers marked with "()" will be held every year.

◆ "0.5" signifies that this subject will be held in any one of a quarter term (Spring 1, Spring 2, Fall 1 or Fall 2).

Mechanical Engineering (Master Degree Program)
Educational Program for Digital-Mechanical Engineers Promoting Industry DX

2024.10

Educational Program for Digital-Mechanical Engineers Promoting Industry DX										2024.10	
Compulsory / Elective	Subject Name	Class format	Excluded from GPA	Credits	Classes/Week				Instructor	note	
					1st grade						2nd grade
					Fall 1	Fall 2	Spring 1	Spring 2			
					2024.10 - 2025.3	2025.4 - 2025.9		2025.10 - 2026.9			
Compulsory	Seminar on Mechanical Engineering I	Exercise	○	4	4				Supervisor		
	Seminar on Mechanical Engineering II	Exercise	○	2				2	Supervisor		
	Thesis Research on Mechanical Engineering	Experiment	○	6	9				Supervisor		
	Japanese Industrial Internship Program	Practical training	○	1				Intensive lecture	Supervisor		
	Data Science Exercise	Exercise	○	1	1				M. Nagai Y. Nakamura		
	Advanced Data Science Exercise	Exercise	○	1	1				M. Nagai Y. Nakamura		
Elective	Applied Mechanics of Materials	Lecture		1			1		T. Adachi		
	Micromachining Engineering	Lecture		1				0.5	T. Shibata		
	Microsystems Engineering	Lecture		1				0.5	M. Nagai		
	Microstructural Control of Metallic Materials	Lecture		1				0.5	H. Miura		
	Microstructure and Properties of Structural Materials	Lecture		1			1		Y. Todaka		
	Advanced Characterization in Materials	Lecture		1		1			M. Kobayashi		
	Modern Control Engineering	Lecture		1				0.5	K. Takagi		
	Precision Mechatronics	Lecture		1			1		K. Sato		
	Robot Kinematics	Lecture		1	1				N. Uchiyama		
	Advanced Agricultural Engineering	Lecture		1				0.5	K. Takayama		
	Advanced Aeroacoustics	Lecture		1	1				A. Iida		
	Combustion Theory	Lecture		1				0.5	Y. Nakamura		
	Microscale Transport Phenomena	Lecture		1		1			K. Doi		
	Advanced Fluid and Energy Engineering	Lecture		1		1			H. Yokoyama		
	※Advanced Mechanical Systems Design I	Lecture		2		1		(1)	T. Shibata M. Nagai S. Kawamura T. Adachi Y. Takeichi		
	※Advanced Mechanical Systems Design II	Lecture		2			1	(1)	T. Shibata M. Nagai S. Kawamura T. Adachi Y. Takeichi		
	※Advanced Materials and Manufacturing Process I	Lecture		2		1		(1)	Y. Todaka H. Miura M. Kobayashi T. Yasui Y. Abe N. Adachi Y. Oba		
	※Advanced Materials and Manufacturing Process II	Lecture		2			1	(1)	Y. Todaka H. Miura M. Kobayashi T. Yasui Y. Abe N. Adachi Y. Oba		
	※Advanced System, Control and Robotics I	Lecture		2		1		(1)	K. Sato S. Sano K. Takayama N. Uchiyama K. Takagi J. Takahashi		
	※Advanced System, Control and Robotics II	Lecture		2			1	(1)	K. Sato S. Sano K. Takayama N. Uchiyama K. Takagi J. Takahashi		
	※Advanced Energy and Environmental Engineering I	Lecture		2		1		(1)	Y. Nakamura T. Matsuoka K. Doi T. Suzuki A. Iida N. Sekishita H. Yokoyama		
	※Advanced Energy and Environmental Engineering II	Lecture		2			1	(1)	Y. Nakamura T. Matsuoka K. Doi T. Suzuki A. Iida N. Sekishita H. Yokoyama		

◆ Up to two subjects marked with ※ can be acquired from courses taught by your supervisor. Consult your supervisor about details.

◆ Those subjects whose numbers marked with "()" will be held every year.

◆ "0.5" signifies that this subject will be held in any one of a quarter term (Spring 1, Spring 2, Fall 1 or Fall 2).

International Doctoral Degree Program

Diploma Policy

Diploma Policy for Doctoral Degree Program in Graduate School of Engineering

With a view to develop talented people in accordance with the basic philosophy and educational objectives, Toyohashi University of Technology (TUT) grants a degree of “Doctor of Philosophy (Engineering)” to students who have received specialized education in the engineering field, including Mechanical Engineering, Electrical and Electronic Information Engineering, Computer Science and Engineering, Applied Chemistry and Life Science and Architecture and Civil Engineering; acquired the knowledge and abilities stated in 1 to 4 below; and fulfilled the requirements for graduation and degree granting set forth in TUT’s regulations, etc. Those who achieved outstanding academic performance may be authorized to shorten the period of enrollment and be granted a Doctoral degree.

1. Keep an international mindset to see things from various angles with a global perspective and have a wide range of knowledge to consider comprehensively the symbiosis between humans and nature as well as linkage with society.
2. Have a high ability to contribute to team’s goal attainment as a leader through effectively expressing and sending out one’s own ideas, points in question and research results; deeply understanding others’ values; and working together with various people.
3. Have social and ethical responsibilities as advanced-level leading engineers or researchers; and have the ability to voluntarily learn new things continuously in response to changes in society, environment, technology, etc.
4. Acquire advanced knowledge on an expertise in the fields of natural science and technological science; and have the practical, creative and leading skills to understand and solve problems leveraging such knowledge in an integrated and progressive manner.

Mechanical Engineering

In accordance with the diploma policy for Doctoral Degree Program in Graduate School of Engineering at Toyohashi University of Technology (TUT), Toyohashi University of Technology grants a degree of "Doctor of Philosophy (Engineering)" to the students who have received specialized education from the Department of Mechanical Engineering; have the knowledge and abilities stated below; and have fulfilled the requirements for graduation and degree granting set forth in TUT's regulations, etc. Those who achieved outstanding academic performance may be authorized to shorten the period of enrollment and be granted a Doctoral degree.

(A) Personality and outlook with a broad perspective

Have an international mindset to see human society from various angles with a global perspective; and the ability to consider the symbiosis between humans and nature as well as public welfare.

(B) Sound ethics and social awareness as highly advanced-level engineers and researchers

Be conscious of specialized and ethical responsibilities as highly advanced-level engineers and researchers; and have the ability to discover, set, solve and evaluate technical issues in society.

(C) Practical and creative skills to utilize advanced knowledge in an integrated and constructive manner

Have advanced knowledge about mechanical engineering and related fields, and have ability to create and practice original techniques for problem solving by acquiring the research and development methodology that combines such knowledge in an extensive and organic manner.

(D) Communication skills for global success

Have the communication skills to effectively express one's own ideas and results while working on issues faced by a globally changing society in cooperation with other team members, and the high ability to contribute to the goals of the team as a leader.

(E) Inquisitive outlook and skills for continuous learning in response to

state-of-the-art technology and changes in the social environment

Have the skills to investigate the nature of change in society, environment and technology, and voluntarily make plans and learn throughout one's life.

I Requirements for completion

1. Requirements for completion

To complete the doctoral course, a student must participate in the course for three or more years, and must obtain the minimum credits required as follows. A student must carry out a research program under proper guidance by faculty members. In addition, a student must submit a doctoral thesis, and must pass a review and final examination.

Note that students showing excellent achievement may finish in a shorter study period.

Classification	Required credits for completion	Remarks
Mechanical Engineering	12	4 credits in total can be substituted with a combination of the following options, with permission from the student's supervisor and the subject instructor. 1. Specialized subjects from International Master's Degree Program (except for Advanced subjects) 2. Subjects of the other departments from International Doctoral Degree Program 3. Subjects from doctoral program of student's own department held in Japanese (The same subject cannot be taken in both Japanese and English)

2. Application for degree

Only a student who has earned the credits required for completion, or who is expected to earn the required credits can apply for the doctoral degree. Degree application and procedures for submission of a thesis for a doctoral degree shall be posted at "KYOMU JOHO SYSTEM" and on a bulletin board before the submission period.

II Class registration, examination, and attendance period

1. Class registration method

Classes shall be registered according to the program schedule of the student's respective major.

(1) Making study plans

To make study plans, students should read this Guide Book thoroughly, and follow the instructions and advice given during the orientation and by the supervisor.

The Course Schedule is provided at the beginning of each academic year.
Schedules for intensive classes will be posted at "KYOMU JOHO SYSTEM" and on a bulletin board when the details are fixed.

(2) Class registration

Students must register for classes using "KYOMU JOHO SYSTEM" at the TUT website <https://kyomu.office.tut.ac.jp/portal/>

or by the form "Application for Subjects" during the designated period.

*Classes cannot be registered for after the designated registration period. Classes with no registration will not be accredited in any case.

NOTES

1) To take Specialized subjects from International Master's Degree Program (except for Advanced topics subjects), subjects from your own department held in Japanese, or other department's subjects from International Doctoral Degree Program, Students must obtain approval from their supervisor and the subject instructor with the form "Application for Registration of Subjects in Other Department".

2) If a student does not attend the classes nor take the examinations, credits will not be given even if the registration is made.

3) A student cannot re-register for a subject for which credits are given.

4) Only one subject can be registered for in a given time schedule. Note that this does not apply to intensive subjects.

(3) Confirming and amending the registration

To confirm or amend class registration, students should access "KYOMU JOHO SYSTEM", and follow the manual's instructions.

(4) Class Cancellation

After the end of the course registration period for each semester, students can cancel classes if students find it difficult to earn credits as it is. If students wish to cancel classes, apply for cancellation using "KYOMU JOHO SYSTEM" during the class cancellation application period of each semester.

Only electives and required electives classes can be canceled. However, intensive classes are excluded. Only class cancellation is possible during the class cancellation application

period. Registration of additional courses is not accepted.

If students continue to miss the class or do not take an examination without cancelling the registration, the class will be considered grade "H"(Abandoned course). Please be aware that grade "H" course will have a large impact on your GPA.

(5) Repeating classes

In principle, a student who has failed a subject with regular examinations or has not gained credits for some other reason can take the same subject again in the next academic year. To repeat a subject, the student must register again.

2. Examination

Examination includes regular examinations and make-up examinations.

(1) Regular examination

In principle regular examinations shall be held during the set period at the end of each term.

All students are to check the examination schedule in the academic calendar at "KYOMU JOHO SYSTEM" or on the bulletin boards. Note that examinations may be held at any time found necessary by the subject instructor.

(2) Make-up examination

1) Make-up examinations shall be held only when a student cannot take the regular examination for one of the following reasons. The student must gain the approval of the subject instructor using the form "Request for a make-up examination".

- a) Illness (doctor's medical certificate must be submitted)
- b) Accidents, disaster (certificate must be submitted), or other special reason (a letter explaining the reason must be submitted)

2) When a student cannot take the regular examination, the student has to contact the Educational Affairs Division and the course instructor by the day of the examination.

3) "Request for a make-up examination" must be submitted to the Academic Affairs Division within one week from the final date of the regular examination. In case of Spring semester, if one week from the final examination date is Saturday, Sunday, or holiday, a student must submit the document by the following day.

4) If a student fails to take the make-up examination, further examinations will not be allowed.

(3) Recognition of Credits and Grading System

Course instructors recognize credits for courses based on the results of examinations, etc.

- ① Student performance is graded based on the following standards. S, A, B and C are passing grades while D is a failing grade. Credits are awarded to grade C and above.

S···90 to 100 points

A···80 to 89 points

- B...70 to 79 points
- C...60 to 69 points
- D...59 points or less

- ② With the aim of making course grades internationally compatible, TUT has launched a Grade Point Average (GPA) system, providing a barometer to judge the overall performance of students, starting with students who entered TUT in academic year 2018. The objectives of the GPA system are to fairly grade performance and to enhance students' desire for study by calculating the point average as a barometer to indicate the state and results of students' academic performance.

Grade	Points	Description of Grade	Judgement	Grade Point
S	90 to 100 points	Excellent—Outstanding performance	Pass	4.0
A	80 to 89 points	Good—Excellent performance		3.0
B	70 to 79 points	Satisfactory—Generally sound performance		2.0
C	60 to 69 points	Sufficient—Performance meeting the minimum passing criteria		1.0
D	59 points or less	Failure	Failure	0.0
N	-	Course for credit recognition (not included in GPA)	Pass (Recognition)	N/A
H	-	Abandoned course (Course the student abandoned by continuing to miss the class or no taking an examination without cancelling the registration)	Abandonment	0.0
K	-	Invalidated grade due to misconduct	Invalid	0.0

GPA is an average calculated by converting above letter grades to grade points (GP) ranging from 0.0 to 4.0, multiplying these grade points by the number of credits for each course, and then dividing the total grade points by the total amount of registered credits.

Note, however, that grades from the following courses cannot be used to calculate GPA. Such courses are marked with a hyphen in the GP column of the grade report.

- (1) Courses for which credits were earned on the basis of the credit exchange system conducted with other universities, graduate schools, etc.; courses that were registered at other universities or junior colleges while enrolled in TUT; and courses that were registered at universities, junior colleges or graduate schools in foreign countries
- (2) Courses for which credits were earned before entering TUT and were recognized after entering TUT; courses that were registered at TUT, other universities or junior colleges before entering TUT; and courses registered at universities, junior colleges or graduate schools in foreign countries (including courses registered for as a credited auditor student)
- (3) Courses for which credits were earned through mid-course entry, interschool transfer, readmission, or studying abroad, and were subsequently recognized

(4) Courses for which credits cannot be counted toward graduation requirements; and courses for which credits were earned through the system for advance registration to graduate school programs

(5) Courses that are designated separately by each department (On-the-job Training (internships), Supervised Research, Seminars, experimental courses, and practical training courses)

- ③ Each student can check grades and GPA for recognized credits in the "KYOMU JOHO SYSTEM".

(4) System for appealing grades

Students who have concerns about their grades for a particular semester can inquire to the class instructor during the confirmation period. If students have complaints regarding the instructor's response, they can submit an appeal. Students, however, cannot appeal the reason or basis for the grade.

Students should contact the Educational Affairs Division for details.

3. Maximum years of attendance and related matters

(1) Maximum years of attendance

A student may not be in the doctoral course at the university for more than six years.

(2) Leave of absence

If a student cannot attend classes for two or more months consecutively due to illness or other special reasons, the student may submit the form "Request for leave of absence" to the Educational Affairs Division after getting approval from the supervisor, a member of the academic affairs committee, and their department head. Upon approval by the President, the student can take a leave of absence (maximum two years in total).

In order to submit the form "Request for leave of absence", the tuition fees up to the term must have been paid.

The period of this absence will not be counted in the "Maximum years of attendance" mentioned in paragraph (1) above.

To return to school after the approved period ends, the student must submit the form "Notice of return to university".

To return to school before the approved period following the removal of the cause of absence, the student must submit the form "Application for return to university" and obtain approval.

(3) Withdrawal

If a student wants to withdraw from the university, the student must submit the form "Application for withdrawal from university" to the Educational Affairs Division after getting approval from the supervisor, a member of the academic affairs committee, and the department head. Upon approval by the President, the student can withdraw from the university.

In order to submit the form "Application for withdrawal from university", the tuition fees up to the term must have been paid.

Note that the tuition fee has to be paid in full even if the student withdraws in the middle of a term.

(4) Removal from the University



A student will be removed from the university for the following reason.

- 1) A student exceeds the period mentioned above in paragraph (1) "Maximum years of attendance".
- 2) A student cannot return to school after the period of absence mentioned above in paragraph (2) "Leave of absence".
- 3) A student dies, or disappears.
- 4) A student who has been approved for half exemption or postponement of admission fee payment does not pay the admission fee by the designated date.
- 5) A student fails to pay the tuition and does not pay even after a warning.

4. Other matters

(1) Information about canceled or make-up classes

All students should double-check their class schedules and other information using the following means:

	Location	information
TUT website	https://kyomu.office.tut.ac.jp/portal/Public/Board/BoardList.aspx 	Canceled or make-up classes Emergency information (STORM WARNING etc.)
TUT website for mobile phones	https://kyomu.office.tut.ac.jp/mobile/Main.aspx  <p>*Mobile tagging by camera phones</p>	Canceled or make-up classes Emergency information (STORM WARNING etc.)

(2) Classes/exams when a STORM WARNING is announced.

If a Storm Warning (*Bo-fu Keiho*) is announced for Toyohashi city or the South-east area of the Mikawa region, TUT will deal with classes or examinations as follows:

- 1) To prevent any accident, all classes will be canceled during the Storm Warning.
- 2) If the Storm Warning is cleared before 7:00 am, all classes will be on schedule.
- 3) If the Storm Warning is cleared between 7:00 am and 11:00 am, all classes will start from the 3rd period. Classes in the 1st and 2nd period will be canceled. Cancelled classes will be held on *YOBIBI* (optional extra day) and final exams will be held on *YOBIBI* for final exam term.
- 4) If the Storm Warning continues after 11:00 am, all classes will be canceled.

*All cancelled classes and examinations will be rescheduled. Cancelled classes will be held on *YOBIBI* (optional extra day) and final exams will be held on *YOBIBI* for final

exam term.

5) Whether or not a storm warning is announced, classes may be canceled because of suspension of public transportation service or some similar occurrence, at the discretion of the Vice President for Educational Affairs.

6) If cancelled classes cannot be held on *YOBIBI* (optional extra day), and final exams, on the alternate exam day, a Saturday may be used as an alternate day for classes or exams.

7) The above shall not apply to remote classes.

(3) University's e-mail account

TUT strongly recommends all students to set up the e-mail forwarding service in order to receive important information of class-scheduling, grading and other communications from the university.

(4) Absence from classes

When you have to be absent from classes due to illness, bereavement or other reasons, you need to inform these reasons to your subject instructor yourself.

Absences will be dealt with at the discretion of subject instructors.

Reasons for Absence	Documents you should submit	Procedure
Illness/Injury	Medical certificate or medical expense receipts	Students inform lecturers directly
Bereavement leave	Letter or notice of funeral	Students inform lecturers directly
Infectious diseases*	Medical certificate or medical expense receipts	Students inform the TUT Health Care Center (0532-44-6632) in addition to informing lecturers directly.

*TUT may require suspension in order to prevent the spread of infection. Suspension orders will be notified by email from TUT or KYOMU JOHO SYSTEM.

• The TUT Health Care Center (TEL: 0532-44-6632 E-mail: kenkou@office.tut.ac.jp)

III Curriculum

1. Classes and credits

(1) Classes

Classes in Doctoral program are only Specialized Subjects. Numbers of credits are set for each subject.

For the subjects to be offered, see the following pages.
See the web syllabus for the details of each subject.

(2) Compulsory subjects and elective subjects

- 1) Compulsory subjects are the subjects that must be completed as a requirement of the major.
- 2) Elective subjects can be selected and taken from those subjects being offered for the designated numbers of credits.

(3) Calculating credits

Teaching types of classes are lectures, exercises, experiments, practical or hands-on training, and they are offered individually or in combinations, and the standard is that it takes 45 hours of study to earn one credit. This is calculated in the following ways.

- (a) For lectures, 15 hours of class time and 30 hours of preparation and review for one credit.
- (b) For exercises, 30 hours of class time and 15 hours of preparation and review for one credit.
- (c) For experiments, practical or hands-on training, 45 hours of class time for one credit.

(4) Class times and class schedule.

The following are the class times.

Period	1	2	3	4	5	6
Time	8:50 am– 10:20 am	10:30 am– 12:00 (noon)	1:00 pm– 2:30 pm	2:40 pm 4:10 pm	4:20 pm– 5:50 pm	6:00 pm– 7:30 pm

The class schedule is posted on "KYOMU JOHO SYSTEM" at the beginning of each semester. Notification of changes to the class schedule is also posted.

Courses listed in the "Intensive" section of the class schedule are ones that are taught intensively at irregular times. Once the dates of intensive courses are decided, the information is posted.

(5) School term

A School term is determined according to the academic year calendar, and consists of two terms; Spring term (from April 1 to September 30) and Fall term (from October 1 to March 31)

Mechanical Engineering (Doctoral Degree Program)

Educational Program for Digital-Mechanical Engineers Promoting Industry DX

2024.10

Compulsory / Elective	Subject Name	Class format	Excluded from GPA	Credits	Instructor	1st grade		2nd grade	3rd grade	note
						Fall	Spring			
						2024.10 - 2025.3	2025.4 - 2025.9	2025.10 - 2026.9	2026.10 - 2027.9	
Compulsory	Advanced Seminar on Mechanical Engineering 1	Exercise	○	4	Supervisor	4				
	Advanced Seminar on Mechanical Engineering 2	Exercise	○	1	Supervisor			1		
	Seminar on Interdisciplinary Research	Exercise		1				1		
	Japanese Industrial Internship Program	Practical training	○	1	Supervisor			Intensive lecture		
	Data Science Exercise	Exercise	○	1	M. Nagai Y. Nakamura	1				
	Advanced Data Science Exercise	Exercise	○	1	M. Nagai Y. Nakamura	1				
Elective Required	Ethics for Researchers	Lecture		1		1				
Elective	Advanced Mechanical Systems	Lecture		2	S. Kawamura T. Adachi Y. Takeichi		1			
	Advanced Production Processes	Lecture		2	T. Shibata M. Nagai Y. Abe	1				
	Advanced Manufacturing Processes	Lecture		2	M. Kobayashi T. Yasui		1			
	Advanced Materials Science	Lecture		2	H. Miura Y. Todaka N. Adachi Y. Oba	1				
	Advanced Mechatronics	Lecture		2	K. Sato K. Takagi S. Sano		1			
	Advanced Systems and Instrumentation Engineering	Lecture		2	N. Uchiyama K. Takayama J. Takahashi	1				
	Advanced Energy Engineering	Lecture		2	Y. Nakamura K. Doi T. Suzuki T. Matsuoka		1			
	Advanced Environmental Engineering	Lecture		2	A. Iida N. Sekishita H. Yokoyama	1				

◆ "0.5" signifies that this subject will be held in any one of a quarter term (Spring 1, Spring 2, Fall 1 or Fall 2).