Graduate Major in Civil Engineering

【Master's Degree Program】

1. Outline

Civil engineering is the practice of developing a civilized built environment in harmony with our natural surroundings, in which we may live safely and comfortably. The Department of Civil and Environmental Engineering at Tokyo Tech trains its students to develop technical engineering skills in a diverse and international environment, with the goal of producing tomorrow's global leaders in the civil engineering industry and in academia.

In the Master's Degree Program, students systematically study more advanced knowledge and technology based on the latest research in the fields of structural mechanics, structural engineering, construction material technology, earthquake engineering, water and environment, geotechnical engineering, infrastructure and transportation planning, building on fundamental knowledge of civil engineering gained in the Bachelor's Degree Program. Furthermore, the curriculum is structured to enable students to deepen their specialization and increase their creativity by performing research independently.

2. Competencies Developed

In the Master's Degree Program, students are trained to develop technical engineering skills in a diverse and international environment, giving them the tools to become tomorrow's global leaders in the civil engineering industry. To achieve this goal, the Department seeks to confer the following skills to students:

- Theoretical understanding of the fundamentals of engineering necessary for professional practice and research.
- Technical skills and knowledge required for practice and research in the field of civil engineering.
- Appreciation of the societal responsibilities of civil engineers, and understanding of the ethics of the practice.
- Management and communication skills necessary to be competitive in the global marketplace.

3. Learning Goals

For the Master's degree, students engage in the following program of study:

(A) Fundamental courses which cover the breadth of science and engineering
Broad and fundamental engineering courses are offered to convey the foundation for building professional skill for the practice of civil engineering.

(B) In-depth courses focused on specific fields within civil engineering
Students may take in-depth courses in specific fields within civil engineering, in order to acquire a deep understanding of the profession.

(C) Practical internships and seminars
Students enroll in internships and seminars to acquire an in-depth understanding of how theory is applied to practice in the field of civil engineering.

(D) Problem-solving and communication training
By engaging in original research focused on a specific problem and completing a Master's thesis, students learn to work independently and proactively, and to communicate their results convincingly.

4. IGP Completion Requirements

The following requirements must be met to complete the Master's Degree Program of this major.

1. A total of 31 credits or more acquired from 400- and 500-level courses.
2. From the courses specified in the Graduate Major in Civil Engineering curriculum,
   - 8 credits acquired from Research Seminars;
   - Minimum of 16 credits acquired from Major Courses; and
   - Minimum of 5 credits acquired from Liberal Arts and Basic Science Courses
     (3 credits from the Humanities and Social Science Courses of which 2 credits must be from 400-level courses and 1 credit from 500-level courses, and 2 credits from Career Development Courses).
3. Pass the Master's thesis review and defense.

Table M1. Graduate Major in Civil Engineering Completion Requirements

Course category		**<Required courses> Required credits**	**<Electives> Minimum credits required**	**Minimum credits required**	**Associated learning goals**	**Comments**
Liberal arts and basic science courses	**Humanities and social science courses**		•2 credits from 400-level •1 credit from 500-level	5 credits	C,D	
	Career development courses		2 credits		C,D	
	Other courses					
Core courses	**Research seminars**	Seminar in Civil Engineering S1 Seminar in Civil Engineering F1 Seminar in Civil Engineering S2 Seminar in Civil Engineering F2 A total of 8 credits, 2 credits each from the above courses.		24 credits	C,D	
	Research-related courses					
	Major courses		16 credits		A,B,C,D	
	Major courses and Research-related courses <u>outside</u> the Graduate Major in Civil Engineering standard curriculum					
Total required credits		**A minimum of 31 credits in addition to meeting the above conditions**				
Note		**・Japanese Language and Culture Courses offered to International Students can be recognized as Humanities and Social Science Courses of the corresponding course level.** **・For Liberal Arts and Basic Science Courses, please refer to the relevant pages.**				

5. IGP Courses

Table M2. Core Courses of the Graduate Major in Civil Engineering

Course category		Course number	Course			Credits	Competencies	Learning goals	Comments
Research seminars	400 level	CVE.Z491.R	◎		Seminar in Civil Engineering F1	0-2-0	1,2,3,4,5	C,D	
		CVE.Z492.R	◎		Seminar in Civil Engineering S2	0-2-0	1,2,3,4,5	C,D	
	500 level	CVE.Z591.R	◎		Seminar in Civil Engineering F2	0-2-0	1,2,3,4,5	C,D	
		CVE.Z592.R	◎		Seminar in Civil Engineering S1	0-2-0	1,2,3,4,5	C,D	
Major courses	400 level	CVE.D441.L			Theory of Regional Planning and Process	2-0-0	2,3,4,5	B	□【Urban Design and Built Environment】(UDE.P402)
		CVE.D443.L			City/Transport Planning and the Environment	1-0-0	3,5	B	□【Urban Design and Built Environment】(UDE.P404)
		CVE.D444.L			Environmental Transport Engineering	1-0-0	1,3,4	B	□【Urban Design and Built Environment】(UDE.P406)
		CVE.A441.L			Basics of Stochastic Process for Earthquake Engineering	1-0-0	3,4,5	B	【Urban Design and Built Environment】(UDE.S431)
		CVE.A401L			Introduction to Solid Mechanics	2-0-0	3,4,5	B	
		CVE.A402.L			Advanced Course on Elasticity Theory	2-0-0	3,4,5	B	
		CVE.A403.L			Analysis of Vibrations and Elastic Waves	2-0-0	3	B	
		CVE.A431.L		E	Fracture Control Design of Steel Structures	2-0-0	2,3,5	B	
		CVE.B401.L			Water Resource Systems	2-0-0	1,3,4	B	□
		CVE.C401.L			Mechanics of Geomaterials	2-0-0	3,5	B	
		CVE.C402.L			Stability Problems in Geotechnical Engineering	2-0-0	3,4,5	B	
		CVE.C403.L			Geo-environmental Engineering	2-0-0	3,4,5	B	□
		CVE.C431.L			Physical Modeling in Geotechnics	2-0-0	2,3,4,5	B,C	
		CVE.D401.L			Mathematical Modeling of Individual Choice Behavior	2-0-0	3	B	□
		CVE.D402.L			Transportation Network Analysis	2-0-0	3	B	□
		CVE.D403.L			Transportation Economics	1-0-0	3	B	□
		CVE.E401.L		O	Mechanics of Structural Concrete	2-0-0	3,5	B	
		CVE.E431.L		O	Integrated Modeling of Reinforced Concrete Structure	2-0-0	3,5	B	
		CVE.F431.L		E	Maintenance of Infrastructure	2-0-0	3,4,5	B	
		CVE.F432.L			Principles of Construction Management	2-0-0	1,3	B	
		CVE.G401.L			Aquatic Environmental Science	2-0-0	3,5	B	□
		CVE.G402.L			Environmental Statistics	2-0-0	4,5	A,B	□
		CVE.G403.L			Water Chemistry	2-0-0	3,5	B	□

		CVE.L401.L			Advanced Technical Communication Skills I	1-1-0	1,2,4	D	
		CVE.L402.L			Advanced Technical Communication Skills II	1-1-0	1,2,4,5	D	
		CVE.M401.L			Civil Engineering Analysis	2-0-0	3,5	A	
		CVE.M431.L		O	Probabilistic Concepts in Engineering Design	2-0-0	3,4,5	A,B	
		CVE.N431.L			Teaching Skills in Civil Engineering A	0-0-1	2,5	C,D	
		CVE.N432.L			Teaching Skills in Civil Engineering B	0-0-1	2,5	C,D	
		CVE.N433.L			Teaching Skills in Civil Engineering C	0-0-1	2,5	C,D	
		CVE.N434.L			Teaching Skills in Civil Engineering D	0-0-1	2,5	C,D	
		CVE.P431.L			International Collaboration I	0-1-0	1,2,3,5	A,B	
		CVE.P432.L			International Collaboration II	0-1-0	1,2,4,5	D	
		CVE.P433.L			International Internship I	0-1-0	1,2,3,5	D	
		CVE.P434.L			International Internship II	0-1-0	1,2,3,5	C,D	
		CVE.G441.L			Global Environmental System and Ecosystem Dynamics	2-0-0	3,4,5	C,D	□【Global Engineering for Development, Environment and Society】(GEG.E401)
		CVE.B441.L			Atmospheric Environment in Megacities	2-0-0	3	B	□【Global Engineering for Development, Environment and Society】(GEG.E411)
		CVE.B442.L			Hydrology and Water Resources Conservation	1-0-0	1,3	B	□【Global Engineering for Development, Environment and Society】(GEG.E412)
	500 level	CVE.A541.L			Microtremor Survey Techniques using Theory of Stochastic Process	1-0-0	3,4,5	B	【Urban Design and Built Environment】(UDE.S531)
		CVE.N531.L			Advanced Topics in Civil Engineering I	2-0-0	3,4,5	B	
		CVE.N532.L			Advanced Topics in Civil Engineering II	2-0-0	3,4,5	B	
		CVE.B541.L			Environmental Hydraulics	1-0-0	3	B	□【Global Engineering for Development, Environment and Society】(GEG.E502)
		CVE.G541.L			Socio-ecological systems in changing global and local environments	2-0-0	3,4,5	B	□【Global Engineering for Development, Environment and Society】(GEG.E511)
		CVE.B542.L			Coastal Disaster Mitigation for Engineers and Planners	1-0-0	1,3,5	B	□【Global Engineering for Development, Environment and Society】(GEG.I501)

		CVE.F541.L			Project Management and Evaluation for Sustainable Infrastructure	2-0-0	3,4,5	B	□【Global Engineering for Development, Environment and Society】(GEG.P502)

Note:
・◎: Required course, ○: Restricted elective, O: Odd academic years, E: Even academic years
・□: Course is recognized as an Academy for Co-creative Education of Environment and Energy Science, Leading Graduate School (ACEEES) course.
• Competencies: 1 = Intercultural skills; 2 = Communication skills; 3 = Specialist skills; 4 = Critical thinking skills; 5 = Practical and/or problem-solving skills
•【 】Course offered under another graduate major.
• The character preceding the three digits in the course number denotes the course's subdiscipline (i.e., "D" represents the subdiscipline code in the course number CVE.D400.R): A: Structural Engineering, B: Water Resources, C: Geotechnical Engineering, D: Infrastructure and Transportation Planning, E: Construction Material Technology, F: Management, G: Environment, L: Language, M: Fundamentals, N: Others, P: Project-based learning, Z: Research Seminar.

6. IGP Courses That Can be Recognized as Humanities and Social Science Courses

None

7. IGP Courses That Can be Recognized as Career Development Courses

As a general rule, students who would like their Career Development Courses to contribute to completion requirements of their master's degree program need to satisfy all of the specified Graduate Attributes ("GA"), including the attainment of at least two course credits, listed in Table MA-1 of the "Guide to Graduate Education and International Graduate Program (Liberal Arts and Basic Science Courses) - Career Development Courses". The status of the GA will be evaluated at the time of degree completion.

In addition to Career Development Courses, there are Major Courses that can also be recognized as such — shown below in Table M3 — which may go toward fulfilling the GA requirements.

However, note that when the corresponding Major Courses are recognized and accredited as Career Development Courses, their credits cannot be counted a second time (as Major Courses) towards degree completion requirements.

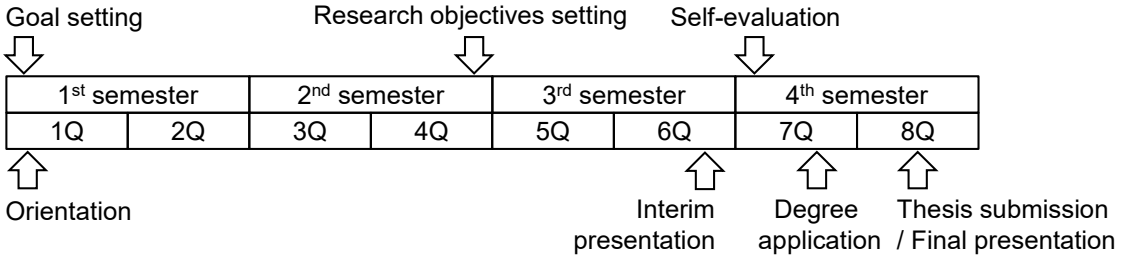
Table M3. Courses of the Graduate Major in Civil Engineering that can be recognized as Career Development Courses

Course category	Course number	Course			Credits	GA*	Learning Goals	Comments
can be recognized as Career Development Courses	CVE.N431.L			Teaching Skills in Civil Engineering A	0-0-1	C1M	C,D	
	CVE.N432.L			Teaching Skills in Civil Engineering B	0-0-1	C1M	C,D	
	CVE.N433.L			Teaching Skills in Civil Engineering C	0-0-1	C1M	C,D	
	CVE.N434.L			Teaching Skills in Civil Engineering D	0-0-1	C1M	C,D	

To satisfy the Career Development requirement, credits may be acquired from courses listed above as well as from those listed under Career Development Courses (see the Liberal Arts and Basic Science Courses Guide).
＊GA: Graduate Attribute

8. Research Related to the Completion of Master Thesis

In Master's degree study, by engaging in original research focused on a specific problem, students learn to work independently and proactively, and to communicate their results convincingly. The chart below shows the chronological sequence of the study program.



Interim presentation (6Q)

Through presentation of research progress, students review their research. This presentation helps students plan half a year ahead and work towards the final thesis submission.

Requirements for Master's thesis

The thesis should be original and should contain either (1) new findings in the civil engineering or (2) useful findings that contribute to the civil engineering practice. The extended abstract of the thesis should be written in English.

Assessment of Master's thesis

Three or more examiners review the thesis prior to the final presentation. The candidate revises the thesis according to the examiners' comments and defends the work in the final presentation (8Q). The thesis final presentation is in English. For those who hope to apply for the doctoral program, the number of examiners is five or more.

【Doctoral Degree Program】

1. Outline

Civil engineering is the practice of developing a civilized built environment in harmony with our natural surroundings, in which we may live safely and comfortably. The Department of Civil and Environmental Engineering at Tokyo Tech trains its students to develop technical engineering skills in a diverse and international environment, with the goal of producing tomorrow's global leaders in the Civil Engineering industry and in academia.

In the Doctoral Degree Program, students study cutting-edging knowledge and technology based on the latest research, building on the basic and specialized civil engineering knowledge learned in the Bachelor's and Master's Degrees Programs. Furthermore, the curriculum is structured to enable students to further deepen their specialization and increase their creativity by performing cutting-edge research independently during Research Seminars and doctoral thesis research.

2. Competencies Developed

In the Doctoral Degree Program, students are trained to develop cutting-edge technical engineering skills in a diverse and international environment, giving them the tools to become tomorrow's global leaders in the civil engineering industry and in academia. To achieve this goal, the Department seeks to confer the following skills to students:

- Theoretical understanding of the fundamentals of engineering necessary for professional practice and research.
- Technical skills and knowledge required for cutting-edge research in the field of civil engineering, and the ability to apply this research to practical use.
- Creativity required for producing, communicating, and applying new research ideas and knowledge.
- Understanding and appreciation of cultural diversity, necessary for the international practice of civil engineering.
- Communication and leadership skills needed for the international practice of civil engineering.

3. Learning Goals

For the Doctoral degree, students engage in the following program of study:

(A) Practical education for cutting-edge research and practice

By engaging in research toward a Doctoral dissertation, students work together with a faculty advisor to develop cutting-edge experimental and analytical methods that push the frontier of civil engineering research and practice.

(B) Communication training for participation in international projects

Doctoral coursework (including seminars and research presentations), writing of the Doctoral dissertation, and presentation of the Doctoral dissertation are all conducted in English. This gives students the communication ability necessary to engage successfully in overseas projects.

(C) Problem-solving and leadership training

By engaging in doctoral research, students learn how to be leaders in their field and to solve problems in an ethical manner. Students will participate in field-specific and interdisciplinary seminars, and will interact with international students, researchers, and civil engineering practitioners via conferences and collaborative research. This will impart students with skills to further their ambitions to engage in international business or collaboration.

4. IGP Completion Requirements

The following requirements must be met to complete the Doctoral Degree Program of this major.

1. A total of 24 credits or more acquired from 600-level courses.
2. From the courses specified in the Graduate Major in Civil Engineering curriculum,
   - 12 credits acquired from Research Seminars;
   - Minimum of 6 credits acquired from Major Courses; and
   - Minimum of 6 credits acquired from Liberal Arts and Basic Science Courses
     (2 credits from the 600-level Humanities and Social Science Courses, and 4 credits from Career Development Courses).
3. Pass the doctoral thesis review and defense.

Table D1. Graduate Major in Civil Engineering Completion Requirements

Course category		**<Required courses> Required credits**	**<Electives> Minimum credits required**	**Minimum credits required**	**Associated learning goals**	**Comments**
Liberal arts and basic science courses	**Humanities and social science courses**		2 credits	6 credits	B,C	
	Career development courses		4 credits		B,C	
	Other courses					
Core courses	**Research seminars**	Seminar in Civil Engineering S3 Seminar in Civil Engineering F3 Seminar in Civil Engineering S4 Seminar in Civil Engineering F4 Seminar in Civil Engineering S5 Seminar in Civil Engineering F5 A total of 12 credits, 2 credits each from the above courses.		18 credits	A,B,C	
	Research-related courses					
	Major courses	6 credits			A,B,C	
	Major courses and Research-related courses outside the Graduate Major in Civil Engineering standard curriculum					
Total required credits		**A minimum of 24 credits in addition to meeting the above conditions**				
Note		**・Japanese Language and Culture Courses offered to International Students can be recognized as Humanities and Social Science Courses of the corresponding course level.** **・For Liberal Arts and Basic Science Courses, please refer to the relevant pages.**				

5. IGP Courses

Table D2. Core Courses of the Graduate Major in Civil Engineering

Course category		Course number	Course			Credits	Competencies	Learning goals	Comments
Research seminars	600 level	CVE.Z691.R	◎		Seminar in Civil Engineering S3	0-2-0	1,2,3,4,5	A,B,C	
		CVE.Z692.R	◎		Seminar in Civil Engineering F3	0-2-0	1,2,3,4,5	A,B,C	
		CVE.Z693.R	◎		Seminar in Civil Engineering S4	0-2-0	1,2,3,4,5	A,B,C	
		CVE.Z694.R	◎		Seminar in Civil Engineering F4	0-2-0	1,2,3,4,5	A,B,C	
		CVE.Z695.R	◎		Seminar in Civil Engineering S5	0-2-0	1,2,3,4,5	A,B,C	
		CVE.Z696.R	◎		Seminar in Civil Engineering F5	0-2-0	1,2,3,4,5	A,B,C	
Major courses	600 level	CVE.N601.R	◎		Frontiers in Civil Engineering	2-0-0	2,3,4	A	
		CVE.N611.L			Special Lecture on Civil Engineering A	2-0-0	3,4,5	A	
		CVE.N612.L			Special Lecture on Civil Engineering B	1-0-0	3,4,5	A	
		CVE.N613.L			Special Lecture on Civil Engineering C	2-0-0	3,4,5	A	
		CVE.N614.L			Special Lecture on Civil Engineering D	1-0-0	3,4,5	A	
		CVE.N631.L			Teaching and Training Skills in Civil Engineering A	0-0-1	2,5	A,B,C	
		CVE.N632.L			Teaching and Training Skills in Civil Engineering B	0-0-1	2,5	A,B,C	
		CVE.N633.L			Teaching and Training Skills in Civil Engineering C	0-0-1	2,5	A,B,C	
		CVE.N634.L			Teaching and Training Skills in Civil Engineering D	0-0-1	2,5	A,B,C	
		CVE.N635.L			Disaster Investigation and Restoration Practice A	0-0-1	2,3,4,5	A,B,C	
		CVE.N636.L			Disaster Investigation and Restoration Practice B	0-0-1	2,3,4,5	A,B,C	
		CVE.N637.L			Disaster Investigation and Restoration Practice C	0-0-1	2,3,4,5	A,B,C	
		CVE.N638.L			Disaster Investigation and Restoration Practice D	0-0-1	2,3,4,5	A,B,C	
		CVE.P601.R	◎		Collaborative Project in Civil Engineering S3	0-0-1	1,2,3,4,5	A,B,C	
		CVE.P602.R	◎		Collaborative Project in Civil Engineering F3	0-0-1	1,2,3,4,5	A,B,C	
		CVE.P603.R	◎		Collaborative Project in Civil Engineering S4	0-0-1	1,2,3,4,5	A,B,C	
		CVE.P604.R	◎		Collaborative Project in Civil Engineering F4	0-0-1	1,2,3,4,5	A,B,C	
		CVE.P611.L			Off Campus Project in Civil Engineering A	0-0-1	2,3,4,5	A,B,C	
		CVE.P612.L			Off Campus Project in Civil Engineering B	0-0-1	2,3,4,5	A,B,C	
		CVE.P613.L			Off Campus Project in Civil Engineering C	0-0-1	2,3,4,5	A,B,C	
		CVE.P614.L			Off Campus Project in Civil Engineering D	0-0-1	2,3,4,5	A,B,C	
		CVE.P621.L			Off Campus Project in Civil Engineering I	0-0-4	2,3,4,5	A,B,C	
		CVE.P622.L			Off Campus Project in Civil Engineering II	0-0-4	2,3,4,5	A,B,C	

Note:
• ◎: Required course, ○: Restricted elective, O: Odd academic years, E: Even academic years
• Competencies: 1 = Intercultural skills; 2 = Communication skills; 3 = Specialist skills; 4 = Critical thinking skills;

5 = Practical and/or problem-solving skills
• The character preceding the three digits in the course number denotes the course's subdiscipline (i.e., "D" represents the subdiscipline code in the course number CVE.D400.R): N: Others, P: Project-based learning, Z: Research Seminar.

6. IGP Courses That Can be Recognized as Humanities and Social Science Courses

None

7. IGP Courses That Can be Recognized as Career Development Courses

As a general rule, students who would like their Career Development Courses to contribute to completion requirements of their doctoral degree program need to satisfy all of the specified Graduate Attributes ("GA"), including the attainment of at least four course credits, listed in Table A-1 or A-2 of the "Guide to Graduate Education and International Graduate Program (Liberal Arts and Basic Science Courses) - Career Development Courses". The status of the GA will be evaluated at the time of degree completion.

In addition to Career Development Courses, there are Major Courses that can also be recognized as such — shown below in Table D3 — which may go toward fulfilling the GA requirements.

However, note that when the corresponding Major Courses are recognized and accredited as Career Development Courses, their credits cannot be counted a second time (as Major Courses) towards degree completion requirements.

Table D3-1. Courses of the Graduate Major in Civil Engineering that can be recognized as Career Development Courses in the Academic Leader Program (ALP)

Course category	Course number	Course			Credits	GA*	Learning goals	Comments
can be recognized as Career Development Courses	CVE.N631.L			Teaching and Training Skills in Civil Engineering A	0-0-1	A1D, A2D, A3D	A,B,C	
	CVE.N632.L			Teaching and Training Skills in Civil Engineering B	0-0-1	A1D, A2D, A3D	A,B,C	
	CVE.N633.L			Teaching and Training Skills in Civil Engineering C	0-0-1	A1D, A2D, A3D	A,B,C	
	CVE.N634.L			Teaching and Training Skills in Civil Engineering D	0-0-1	A1D, A2D, A3D	A,B,C	
	CVE.P611.L			Off Campus Project in Civil Engineering A	0-0-1	A2D, A3D	A,B,C	
	CVE.P612.L			Off Campus Project in Civil Engineering B	0-0-1	A2D, A3D	A,B,C	
	CVE.P613.L			Off Campus Project in Civil Engineering C	0-0-1	A2D, A3D	A,B,C	
	CVE.P614.L			Off Campus Project in Civil Engineering D	0-0-1	A2D, A3D	A,B,C	
	CVE.P621.L			Off Campus Project in Civil Engineering I	0-0-4	A2D, A3D	A,B,C	
	CVE.P622.L			Off Campus Project in Civil Engineering II	0-0-4	A2D, A3D	A,B,C	

To satisfy the Career Development requirement, credits may be acquired from courses listed above as well as from those listed under Career Development Courses (see the Liberal Arts and Basic Science Courses Guide).

＊GA: Graduate Attribute

Table D3-2. Courses of the Graduate Major in Civil Engineering that can be recognized as Career Development Courses in the Productive Leader Program (PLP)

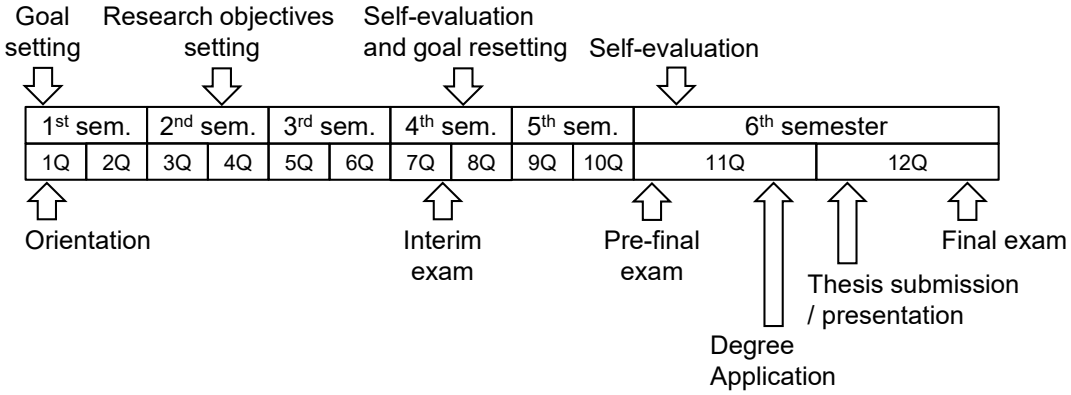
Course category	Course number	Course			Credits	GA*	Learning goals	Comments
can be recognized as Career Development Courses	CVE.N631.L			Teaching and Training Skills in Civil Engineering A	0-0-1	P1D, P2D, P3D	A,B,C	
	CVE.N632.L			Teaching and Training Skills in Civil Engineering B	0-0-1	P1D, P2D, P3D	A,B,C	
	CVE.N633.L			Teaching and Training Skills in Civil Engineering C	0-0-1	P1D, P2D, P3D	A,B,C	
	CVE.N634.L			Teaching and Training Skills in Civil Engineering D	0-0-1	P1D, P2D, P3D	A,B,C	
	CVE.P611.L			Off Campus Project in Civil Engineering A	0-0-1	P2D, P3D	A,B,C	
	CVE.P612.L			Off Campus Project in Civil Engineering B	0-0-1	P2D, P3D	A,B,C	
	CVE.P613.L			Off Campus Project in Civil Engineering C	0-0-1	P2D, P3D	A,B,C	
	CVE.P614.L			Off Campus Project in Civil Engineering D	0-0-1	P2D, P3D	A,B,C	
	CVE.P621.L			Off Campus Project in Civil Engineering I	0-0-4	P2D, P3D	A,B,C	
	CVE.P622.L			Off Campus Project in Civil Engineering II	0-0-4	P2D, P3D	A,B,C	

To satisfy the Career Development requirement, credits may be acquired from courses listed above as well as from those listed under Career Development Courses (see the Liberal Arts and Basic Science Courses Guide).

＊GA: Graduate Attribute

8. Research Related to the Completion of Doctoral Thesis

In doctoral degree study, by engaging in cutting-edge research focused on a specific problem, students learn to work independently and proactively, and to communicate their results convincingly. The chart below shows the chronological sequence of the study program.



Interim examination and pre-final examination

A doctoral candidate has to pass the interim examination (7Q) and pre-final examination (11Q) prior to the degree application and thesis submission.

Requirements for doctoral thesis

The thesis should be original and should form a distinct contribution to the knowledge of the civil engineering and show evidence of originality by the discovery of new facts and/or the exercise of independent critical power. The major part of the thesis should have been published in internationally recognized academic journals or at least reach the level of work publishable in such journals. The thesis should be written in English.

Assessment of doctoral thesis

Five or more examiners (invitation of an external examiner is preferable) review the thesis. The thesis presentation is in English. The candidate revises the thesis according to the examiners' comments and defends the work in the thesis presentation and final examination (12Q). In the final examination, the review of assigned academic papers is included.