

**Master's degree minimum requirements**

**【Civil Engineering Program】**

Completion of master thesis & 30 credits to fulfill Instruction A & B)

- A. To pass intermediate presentation exam & final presentation (including 2 credits for Advanced Engineering & 2 credits for Engineering Seminar)
- B. To earn 26 or more credits listed below;
  - B-1. 6 or more credits from Module A
  - B-2. 6 or more credits from Module B
  - B-3. 4 or more credits from Module C (Ask your supervisor)
  - B-4. 4 or more credits from Module D (Ask your supervisor)

Master's candidate must fulfill the requirements of "Registration Guideline".

**【Graduate school of Engineering】**

Master's thesis & 30 credits listed below;

- 1. 6 or more credits from "Advanced Subjects"
- 2. 6 or more credits from "Advanced Specialized Subjects"
- 3. 2 or more credits from "Additional Specialized Subjects, "Professional Skill Developments", and "Academic and Industrial Liaison Subjects"

	Spring 2019		Fall 2019		Spring 2020		Fall 2020	
	Spring	Summer	Fall	Winter	Spring	Summer	Fall	Winter
<b>Master theis</b>	(Review) (Plan)					(Intermediate presentation exam)		Final presentation
							* Given by your supervisor	Advanced Engineering (2◇)* Engineering Seminar (2▽)*
<b>Module A (Civil core subject) (Min. 6 credits)</b>	[M1677] Advanced Data Analysis (2☆)◆J(E) [M250] Field Survey Method (2☆)◆J(E) [M141] Research Planning (2☆)◆J(E) [M248] Numerical Analysis (2☆)◆E [M131] Geo-Spatial Information Science (2☆)◆J(E) [IM112] Advanced Earthquake Engineering (2☆) E					[M120] Advanced Earthquake Engineering (2☆) J		
<b>Module B (Civil specialized subject) (Min. 6 credits)</b>								
<b>Structural &amp; material</b>	[M111] Advanced Concrete Engineering (2◎) J		[M217] Advanced Steel Structures (2◎) J		[M118] Advanced Structural Analysis (2◎) E [IM111] Advanced Concrete Engineering (2◎) E		[M122] Technics of seismic isolation and structural control (2◎) J [IM212] Advanced Steel Structures (2◎) E	
<b>Geotechnical</b>	[M126] Risk Management in Natural Disaster Prevention(2◎) J [IM140] Mechanics of Geomaterials (2◎) E [IM121] Geo-environmental System Engineering (2◎) E		[M124] Advanced Geotechnical Modeling and its Application (2◎) J [M127] Geo-disaster Prevention and Mitigation (2◎) J [IM114] Advanced Geomechanics and Foundation (2☆) E		[M140] Mechanics of Geomaterials (2◎) J [M129] Geo-environmental System Engineering (2◎) J [IM115] Risk Management in Natural Disaster Prevention(2◎) E		[M125] Advanced Foundation and Constructions (2◎) J [IM113] Advanced Geotechnical Modeling and its Application (2◎) E	
<b>Hydraulic &amp; water resources</b>		[IM214] River Engineering (2◎) E(J) [IM228] Water Wave Mechanics (2☆) E	[M1615] Advanced Ocean and Coastal Engineering(2◎) J [IM222] Environmental Fluid Mechanics (2◎) E			[M223] Advanced River Engineering (2◎) E(J)	[M1612] Environmental Hydraulics (2◎) J [IM223] Advanced Ocean and Coastal Engineering(2◎) E	
<b>Planning</b>	[M218] Architecture of Infrastructure and Environment(2◎) J(E) [IM211] Urban Transport Planning (2◎) E		[M214] Infrastructure Project Financing Theory(2◎)◆J [M255] Land Development and Disaster Risk Management in Japan (2◎) E		[M215] Urban Transport Planning (2◎) J [IM220] Practical Application of Aesthetic Design in Civil Engineering (2◎) E		[IM214] Urban Development Project (2◎) E	
<b>Environmental</b>	[M231] Environmental Planning (2◎) J [M233] Groundwater Environmental Systems(2◎) J [IM216] Biological Water Quality Control Engineering (2◎) E		[IM221] Material Cycles and Waste Management(2◎) E [IM217] Advanced Ecological Engineering (2◎) E		[IM218] Environmental Planning (2◎) E [IM219] Groundwater Environmental Systems(2◎) E		[M227] Material Cycles and Waste Management(2◎) J [M228] Biological Water Quality Control Engineering (2◎) J [M229] Advanced Ecological Engineering (2◎) J	

**Legend**

Subject No. [M1677] Advanced Data Analysis (2☆)◆J

Credit(s) 2

Category ☆: Advanced  
◎: Advanced specialized  
▽: Additional specialize  
◇: Professional skill developments  
△: Academic & industrial liaison

Language J: Japanese-based  
E: English-based  
J(E): Japanese & English  
E(J): English & Japanese

Thick line: compulsory  
Thin line: elective

◆: open to undergraduate

Subjects in Grobal Course are available (SeeTable 1).

Spring 2019		Fall 2019		Spring 2020		Fall 2020	
Spring	Summer	Autumn	Winter	Spring	Summer	Autumn	Winter
Module C (Communicating & presentation skills) (Min. 4 credits)							
[M247] Consensus Building Seminar (2☆) J		[M251] Presentation Exercise (2☆) E(J)	[M142] Presentation Design (2☆) J		[M252] Urban Engineering & Economics (2☆) E		
Credits in other departments and programs are recommended. KIKAN Education for Graduate School, Graduate Training Program in Decision Science, QREC (Entrepreneurship Education), . . .							
Module D (Project-based learning) (Min. 4 credits)							
[M244] Maintenance Engineering Practice (2△) (NEXCO partnership) J		[M1678] Problem-Solution Seminar I (2▽) J(E)	[M1679] Problem-Solution Seminar II (2▽) J(E)		[M245] Field Work on Environmental Protection (2△) J		
	[M1692] Academic and Industrial Liaison Research (2△) (Internship)				[IM227] Practice in Environmental Studies (2◇) E		

Table 1 Subjects in Grobal Course are available.  
However, students must choose one subject from General Course and Grobal Course.

Subject group	General Course	Grobal Course
Core	[M248] Numerical Analysis (2☆)♦ E	[IM119] Advanced Numerical Analysis (2☆) E
	[M120] Advanced Earthquake Engineering (2☆) J	[IM112] Advanced Earthquake Engineering (2☆) E
Structural & material	[M111] Advanced Concrete Engineering (2◎) J	[IM111] Design of Concrete Structures (2◎) E
	[M217] Advanced Steel Structures (2◎) J	[IM212] Advanced Steel Structures (2◎) E
Geotechnical	[M124] Advanced Geotechnical Modeling and its Application (2◎) J	[IM113] Advanced Geotechnical Modeling and its Application (2◎) E
	[M125] Advanced Foundation Design and Constructions (2◎) J	[IM114] Advanced Geomechanics and Foundation (2◎) E
	[M126] Risk Management in Natural Disaster Prevention(2◎) J	[IM115] Risk Management in Natural Disaster Prevention(2◎) E
	[M140] Mechanics of Geomaterials(2◎) J	[IM140] Mechanics of Geomaterials (2◎) E
Hydraulic & water resources	[M223] Advanced River Engineering (2◎) E(J)	[IM214] River Engineering (2☆) E
	[M1612] Environmental Hydraulics (2◎) J	[IM222] Environmental Fluid Mechanics (2◎) E
	[M1615] Advanced Ocean and Coastal Engineering(2◎) J	[IM223] Advanced Ocean and Coastal Engineering(2◎) E
Planning	[M214] Infrastructure Project Financing Theory(2◎)♦ J	[IM211] Urban Transport Planning (2◎) E
	[M215] Urban Transport Planning (2◎) J	[IM214] Urban Development Project (2☆) E
	[M218] Architecture of Infrastructure and Environment(2◎) J(E)	[IM220] Practical Application of Aesthetic Design in Civil Engineering (2◎) E
Environmental	[M227] Material Cycles and Waste Management(2◎) J	[IM221] Material Cycles and Waste Management(2◎) E
	[M228] Biological Water Quality Control Engineering (2◎) J	[IM216] Biological Water Quality Control Engineering (2☆) E
	[M229] Advanced Ecological Engineering (2◎) J	[IM217] Advanced Ecological Engineering (2☆) E
	[M231] Environmental Planning (2◎) J	[IM218] Environmental Planning (2☆) E
	[M233] Groundwater Environmental Systems(2◎) J	[IM219] Groundwater Environmental Systems(2☆) E
Practice	[M245] Field Work on Environmental Protection (2△) J	[IM227] Practice in Environmental Studies (2◇) E