

**Master's degree minimum requirements**

**【Civil Engineering Program】**

Students shall be required to complete master thesis and to acquire at least 30 credits.

Students shall be required to pass intermediate presentation exam and final presentation.

Advanced Engineering (2 credits) and Engineering Seminar (2 credits) for master thesis can be included the requirements of 30 credits.

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

**【Graduate school of Engineering】**

Master thesis & 30 credits listed below;

1. 6 or more credits from "Advanced Subjects"
  2. 6 or more credits from "Advanced Specialized Subjects"
  3. 6 or more credits from "Professional Skill Development"
  4. 4 or more credits from "Different Fields Subjects"
- (Except "Civil Engineering A・B")

	Spring 2022		Fall 2022		Spring 2023		Fall 2023	
	Spring	Summer	Fall	Winter	Spring	Summer	Fall	Winter
<b>Master thesis</b>	(Review) (Plan)					(Intermediate presentation exam)		Final presentation Advanced Engineering (2◇)* Engineering Seminar (2▽)*
<b>Advanced Subject (Min. 6 credits)</b>	[5131] Advanced Data Analysis (2☆)◆J(E) [5741] Field Survey Method (2☆)◆J(E) [5191] Research Planning (2☆)◆J(E) [5231] Numerical Analysis (2☆)◆E [5571] Geo-Spatial Information Science (2☆)◆J(E) [5261] Advanced Earthquake Engineering (2☆) J [5521] Urban Engineering & Economics (2☆) E					Advanced Earthquake Engineering (2☆) E		
<b>Advanced Specialized Subjects (Min. 6 credits)</b>								
<b>Structural &amp; material</b>	[6231] Advanced Structural Analysis (2◎) E Advanced Concrete Engineering (2◎) E		[6271] Technics of Seismic Isolation and Structural Control (2◎) J Advanced Steel Structures (2◎) E		[6211] Advanced Concrete Engineering (2◎) J		[6241] Advanced Steel Structure (2◎) J	
<b>Geotechnical</b>	[6312] Mechanics of Geomaterials (2◎) J [6341] Geo-environmental System Engineering (2◎) J(E) Risk Management in Natural Disaster Prevention (2◎) E		[6321] Advanced Foundation Design and Constructions (2◎) J Advanced Geotechnical Modeling and its Application (2◎) E		[6541] Risk Management in Natural Disaster Prevention (2◎) J Mechanics of Geomaterials (2◎) E Geo-environmental System Engineering (2◎) E		[6311] Advanced Geotechnical Modeling and its Application (2◎) J [6311] Geo-disaster Prevention and Mitigation (2◎) E Advanced Foundation Design and Constructions (2◎) E	
<b>Hydraulic &amp; water resources</b>		[6451] Advanced River Engineering (2◎) E(J)	[6431] Environmental Hydraulics (2◎) J Advanced Ocean and Coastal Engineering (2◎) E			Advanced River Engineering (2◎) E(J)	[6471] Advanced Ocean and Coastal Engineering (2◎) J Environmental Fluid Mechanics (2◎) E	
<b>Planning</b>	[6551] Urban Transport Planning (2◎) J Practical Application of Aesthetic Design in Civil Engineering (2◎) E		[6542] Land Development and Disaster Risk Management in Japan (2◎) E Urban Development Project (2◎) E		[6581] Practical Application of Aesthetic Design in Civil Engineering (2◎) J(E) Urban Transport Planning (2◎) E		[6531] Urban Development Project (2◎)◆J	
<b>Environmental</b>	Environmental Planning (2◎) E Groundwater Environmental Systems (2◎) E		[6641] Material Cycles and Waste Management (2◎) J [6651] Biological Water Quality Control Engineering (2◎) J [6661] Advanced Ecological Engineering (2◎) J		[6611] Environmental Planning (2◎) J [6461] Groundwater Environmental Systems (2◎) J Biological Water Quality Control Engineering (2◎) E		Material Cycles and Waste Management (2◎) E Advanced Ecological Engineering (2◎) E	

**Legend**

Subject name: [5131] Advanced Data Analysis (2☆)◆J

Thick line : compulsory  
Thin line : elective

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

Category: ☆ : Advanced Subject, ◎ : Advanced Specialized Subject, ◇ : Professional Skill Developments, # : Different Field Subjects

◆ : open to undergraduate

Subjects in Global Course are available (See Table 1).

Spring 2022		Fall 2022		Spring 2023		Fall 2023	
Spring	Summer	Autumn	Winter	Spring	Summer	Autumn	Winter
Professional Skill Development (Min. 6 credits)							
[6281] Maintenance Engineering Practice (2◇) (NEXCO partnership) J		[6771] Presentation Exercise (2◇) E	[6772] Presentation Design (2◇) J				
[6121] Practical Application of Consensus Building (2◇) J		[6711] Problem-Solution Seminar I (2◇) J	[6772] Problem-Solution Seminar II (2◇) E	[6631] Practice in Environmental Studies (2◇) J			
	[6781] Civil Engineering Internship (2◇)			Practice in Environmental Studies (2◇) E			
Different Field Subjects (Min. 4 credits)							
# Subjects in other departments in Graduate School of Engineering: (Material Science and Engineering, Applied Chemistry, Chemical Engineering, Mechanical Engineering, Hydrogen Energy Systems, Aerospace Engineering, Introduction to Nuclear Power Reactor Systems, Quantum Properties and Modern Engineering, Naval Architecture and Ocean Engineering, Earth Resource Engineering) # Subjects in other Graduate School (including KIKAN Education)							

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
Advanced Subject	[5231] Numerical Analysis (2☆)◆ E	Advanced Numerical Analysis (2☆) E
	[5261] Advanced Earthquake Engineering (2☆) J	Advanced Earthquake Engineering (2☆) E
Structural & material	[6211] Advanced Concrete Engineering (2◎) J	Design of Concrete Structures (2◎) E
	[6241] Advanced Steel Structure (2◎) J	Advanced Steel Structures (2◎) E
Geotechnical	[6311] Advanced Geotechnical Modeling and its Application (2◎) J	Advanced Geotechnical Modeling and its Application (2◎) E
	[6321] Advanced Foundation Design and Constructions (2◎) J	Advanced Geomechanics and Foundation (2◎) E
	[6541] Risk Management in Natural Disaster Prevention(2◎) J	Risk Management in Natural Disaster Prevention(2◎) E
	[6312] Mechanics of Geomaterials(2◎) J	Mechanics of Geomaterials (2◎) E
Hydraulic & water resources	[6451] Advanced River Engineering (2◎) E(J)	Advanced River Engineering (2◎) E
	[6431] Environmental Hydraulics (2◎) J	Environmental Fluid Mechanics (2◎) E
	[6471] Advanced Ocean and Coastal Engineering(2◎) J	Advanced Ocean and Coastal Engineering(2◎) E
Planning	[6551] Urban Transport Planning (2◎) J	Urban Transport Planning (2◎) E
	[6581] Practical Application of Aesthetic Design in Civil Engineering (2◎) J(E)	Practical Application of Aesthetic Design in Civil Engineering (2◎) E
Environmental	[6641] Material Cycles and Waste Management(2◎) J	Material Cycles and Waste Management(2◎) E
	[6651] Biological Water Quality Control Engineering (2◎) J	Biological Water Quality Control Engineering (2◎) E
	[6661] Advanced Ecological Engineering (2◎) J	Advanced Ecological Engineering (2◎) E
	[6611] Environmental Planning (2◎) J	Environmental Planning (2◎) E
	[6461] Groundwater Environmental Systems(2◎) J	Groundwater Environmental Systems(2◎) E
Professional Skill Development	[6631] Practice in Environmental Studies (2◇) J	Practice in Environmental Studies (2◇) E