

## Study Area Groups of the Department of Urban Management

April 6, 2021

### [Study Area 1] Study Area of Public Policy Planning/Management

(1) Content :

This program aims to educate the personnel who would be responsible for planning and implementing the public policy and urban management measure, both of which are essential for the construction of the safe and comfortable urban system which secures the quality of life. In addition to an engineering view point for urban infrastructure improvement and operation, this course train students to be able to demonstrate their leadership in various occasions in practical society with their multiple and flexible thoughts and planning abilities to comprehensively evaluate and discuss future urban profile from the viewpoint of information infrastructure, urban construction and planning, risk management, and finance as well.

(2) Required subject groups

Compulsory subjects: Public Finance, Urban Environmental Policy, Risk Management

: 6 credits in total

Elective compulsory subjects (2 or more among below subjects are required.)

Quantitative Methods for Behavioral Analysis, Intelligent Transportation Systems, Remote Sensing and Geographic Information System, Civic and Landscape Design, Disaster Risk Management

: 4 or more credits in total

### [Study Area 2] Study Area of International Project Management (Infrastructure/Energy Development)

(1) Content :

Recently, both infrastructure and energy resource development projects have been shifting to an international scale procurement ones. This course aims for you to acquire not only the technologies necessary in engineering management, but also an interdisciplinary knowledge from a socioeconomic point of view for both infrastructure and energy developments.

(2) Required subject groups

Compulsory subjects: Exercise on Project Planning or Capstone Project, Resources Development Systems, Public Finance

: 6 credits in total

Elective compulsory subjects (3 or more among below subjects are required.)

Construction of Geotechnical Infrastructures, Fundamental Geofront Engineering, Urban Infrastructure Management, Risk Management, Energy System Management, Environmental Geosphere Engineering

: 6 or more credits in total

Note: The class “Geo-Risk Management,” which had been held for students who enrolled in AY2019 or earlier, will not be held in AY2021.

### [Study Area 3] Study Area of Urban Water/Geo Environment Management

(1) Content :

Cities are located on the basin, basically consisting of water and ground where people live. From such point of view, this program is set to train urban water or ground environment planner who aims to create cities where we can demonstrate a coexistence with nature and people’s potential capacity along the basin. Also, the students can learn mutual interaction behaviors between the water and the ground, both of which are closely related with each other. With the analysis of such mutual interaction, substance transfer therein, chemical reaction, and deformation

behavior as the main elemental technique, this course covers a wide range including the analysis of the phase transition of city and basin and object setting based on environmental information, actual basin plan from the points of water circulation and supply, river improvement utilization and environment, urban water and ground environment and actual disaster prevention plan, and underground space planning and construction techniques.

(2) Required subject groups

Compulsory subjects: River Management, Construction of Geotechnical Infrastructures, Hydrologic Design and Management, Hydro-meteorologically based Disaster Prevention, Environmental Geotechnics  
: 10 credits in total

Elective compulsory subjects (2 or more among below subjects are required.)

Water Resources Systems, Coastal Wave Dynamics, River Basin Management of Flood and Sediment, Coastal and Urban Water Disasters Engineering, Disaster Mitigation for Sustainable Basin Environment, Disaster Prevention through Geotechnics, Urban Environmental Policy  
: 4 or more credits in total

[Study Area 4] Study Area of Seismic Design/Management

(1) Content :

It is not sufficient to conduct disaster risk management in advanced information societies with just the knowledge of risk control including long-term quake-resistant technology. Rather it is necessary to approach from a comprehensive point of view taking economic, environmental and social problems into consideration as well. In this course, you will acquire comprehensive management techniques and incorporating risk finance technology as well as the dynamic behavior of ground, structure, and lifeline, and the most recent quake-resistant engineering and design including ecomaterial.

(2) Required subject groups

Compulsory subjects: Structural Dynamics, Earthquake Engineering/Lifeline Engineering, Seismic Engineering Exercise, Ecomaterial Design, Exercise on Project Planning or Capstone Project  
: 10 credits in total

Elective compulsory subjects (2 or more among below subjects are required.)

Structural Design, Risk Management, Continuum Mechanics, Material and Structural System & Management, Construction of Geotechnical Infrastructures, Disaster Risk Management, Disaster Information, Emergency Management Systems  
: 4 or more credits in total

Note: The class “Geo-Risk Management,” which had been held for students who enrolled in AY2019 or earlier, will not be held in AY2021.

[Study Area 5] Study Area of Urban Transportation Policy (Urban Planning, Urban Transport Policy)

(1) Content :

This course aims to educate the personnel who would plan and implement urban and transportation policies which are essential to construct safe, comfortable, and vital urban system. These cities must be constructed not only from the view point of efficacy, liability, and economic potential, but from an environmental and human perspective as well. Thus, the course leads students to discuss and plan in both scientific and logical ways by giving them the concept and method of urban and transportation policies from new prospects.

(2) Required subject groups

Compulsory subjects: Urban Environmental Policy, Quantitative Methods for Behavioral Analysis  
: 4 credits in total

Elective compulsory subjects (6 credits are required to obtain through the following subjects)

Public Finance, Civic and Landscape Design, Intelligent Transportation Systems

: 6 credits in total

: 10 total credits for compulsory and elective compulsory subjects

[Study Area 6] Study Area of Earth Resources and Energy Engineer/Researcher Training

(1) Content :

This course aims to create and develop technologies to explore, develop, and utilize resource energies through the integration and development within the framework of geoscience, geotechnology, computational and experimental mechanics, and theory and applied dynamics inheriting the basic earth resource and energy engineering which has supported the social infrastructure. This course educates engineers who will possess state-of-the-art intelligence which recognizes both the inside and outside of Japan with a high practical ability of focusing the education to the researchers and engineers who would take on the sustainable development of social infrastructure in the future. Therefore, students are required to enroll in subject groups to establish an engineering foundation, but also to develop application capability skills with Exercise on Project Planning.

(2) Required subject groups

Elective compulsory subjects (6 or more among below subjects are required.)

: 12 or more credits in total

Resources Development Systems, Applied Mathematics in Civil & Earth Resources Engineering, Environmental Geosphere Engineering, Applied Elasticity for Rock Mechanics, Fundamental Theories in Geophysical Exploration, Rock Stress and Physical Properties, Lecture on Exploration Geophysics, Measurement in The Earth's Crust Environment, Energy System Management

[Study Area 7] Study Area of Approaches for Disaster Resilience

(1) Content :

The objective of this course is to construct new concepts for building disaster-resilient countries and train students who lead them. This course aims to educate the personnel who acquire not only the technologies necessary in engineering management, but also an interdisciplinary knowledge from a socioeconomic point of view for infrastructure developments, especially for disaster mitigation, recovery, and reconstruction.

(2) Required subject groups

Compulsory subjects: Engineering Seminar for Disaster Resilience in ASEAN countries, Disaster and Health Risk Management for Livable City

: 4 credits in total

Elective compulsory subjects (3 or more subjects from English-lectured classes with double circle (©) provided on the Subject List (Master's Program of Department of Urban Management as well as Department of Civil and Earth Resources Engineering)

: 6 or more credits in total

: 10 minimum total credits for compulsory and elective compulsory subjects.

※An explanatory meeting will be held for those who will take this study area.