［**Master Course**］

2.2 Department of Urban Management

(1) Educational Policy

1) Necessity of Research and Education in the Department

To realize urban systems which are sustainable and internationally competitive which can assure a high quality of life with the global/regional environment preservation, comprehensive management of urban system is indispensable. Our department, subject to protect global and regional environment, strives to establish theories and systematic technologies for a comprehensive management of urban systems from interdisciplinary points of view integrating social science and humanity, consolidating engineering technology such as management, advanced information, social infrastructure and energy.

2) Purpose of Education

We aim to educate engineers with high capabilities of problem solutions and with advanced and comprehensive accomplishments based on engineering skills such as management technology, also including social science and humanity.

3) Goal of Education

Our goal is to foster comprehensive management skills and nurture high ability to solve problems toward urban infrastructure, setting the theme toward the following: 1)social infrastructure upgrading through innovation of urban information communication technology, 2) disaster risk management in advanced information society, 3) comprehensive efficient urban system management, 4) social infrastructure maintenance for internationalization, and 5) urban management based on limited energy resource theory.

(2) Credits required for Master degree

Subject category	Number of credits
Core (Basically compulsory)	4 or more credits
Major	4 or more credits
Minor	Not especially designated
Seminar, Internship of collaborative project, ORT subjects	8 or more credits
Others	Take under your supervisor’s approval
Total number of credits	30 or more credits

1）to complete the program, you must acquire the number of the credits designated for each subject category and the total number of credits listed above.

2）excluding the ones above, additional requirements to take Major subjects have been set depending on the educational program that you have selected. For the details, see Note (4) below.

3) Seminar, Internship of collaborative project, ORT subjects are specified “ORT Subject” in “Subject List.”

(3) Registration Model

To be explained based on the material at the Guidance in April.

[NOTE]

(1) For the details (syllabus) of each subject, please refer to the website of the Graduate School of Engineering. URL:http://www.t.kyoto-u.ac.jp/syllabus-gs/.

(2) The subjects without a circle (○) in the Subject category are regarded as "Minor subjects".

(3) "Information Technology for Urban Society" and "Seminars on Urban Management A/B" are compulsory. "Exercise on Project Planning" and "Capstone Project" are both elective compulsory subjects; you must select either of them. However, under supervisor's approval, students of International Course in Urban and Regional Development must take one of the English-lectured classes (subjects with ◎) provided on the Subject List as Core subject instead of "Information Technology for Urban Society". As for "Seminar on Urban Management A/B", "Exercise on Project Planning" and "Capstone Project", students of International Course in Urban and Regional Development will be lectured in English and these subjects will be regarded as "English Subject".

(4) For Major subjects, you must satisfy the requirements for one of the 5 educational divisions below. For the selection of your educational program, obtain your supervisor's approval in advance.

Structural Division Education Program:

Must take all "Continuum Mechanics", "Structural Stability", "Material and Structural System & Management", "Earthquake Engineering/Lifeline Engineering", and "Infrastructural Structure Engineering".

Hydrologic Division Education Program:

- Must take all "Hydrodynamics and Turbulence Mechanics", "Hydrologic Design and Management", "River Management", and "Sediment Hydraulics".
- Must take at least 3 subjects among , "Hydrology" "Open Channel Hydraulics", "Coastal Wave Dynamics", "Hydro-meteorologically based Disaster Prevention", "Water Resources Systems", "River Basin Management of Flood and Sediment", "Coastal and Urban Water Disasters Engineering", "Disaster Mitigation for Sustainable Basin Environment", "Computational Fluid Dynamics", "Hydraulic Engineering for Infrastructure Development and Management", "Applied Hydrology", "Case Studies Harmonizing Disaster Management" and "Integrated Disasters and Resources Management in Watersheds".

Geomechanics Division Education Program:

Consult with your supervisor for which subjects you take among "Geomechanics", "Computational Geotechnics", "Seminar on Geotechnics", "Management of Geotechnical Infrastructures", "Construction of Geotechnical Infrastructures", "Geo-Risk Engineering", "Fundamental Geofront Engineering", "Geofront Environmental Design", "Environmental Geotechnics", "Numerical Methods in Geomechanics", and "Disaster Prevention through Geotechnics".

Planning Division Education Program:

Must take at least 2 subjects among "Governance for Regional and Transportation Planning", "Public Finance", "Urban Environmental Policy", "City Logistics", "Quantitative Methods for Behavioral Analysis", "Intelligent Transportation Systems", "Advanced Geoinformatics", "Civic and Landscape Design", "Risk Management", "Disaster Information", "Disaster Risk Management", and "Theory & Practice of Environmental Design Research".

Earth Resources and Energy Division Education Program:

Must take at least 3 subjects among "Resources Development Systems", "Applied Mathematics in Civil & Earth Resources Engineering", "Computational Mechanics and Simulation", "Environmental Geosphere Engineering", "Modeling of Geology", "Applied Elasticity for Rock Mechanics", "Fundamental Theories in Geophysical Exploration",

"Design of Underground Structures", "Lecture on Exploration Geophysics", "Measurement in the Earth's Crust Environment", "Time Series Analysis", and "Energy System Management".

"International Course in Urban and Regional Development" Program:

Must complete more than 4 credits from English-lectured classes (subjects with ◎) provided on the Subject List except for one subject as Core subject above-mentioned (2). Consult with your supervisor and decide which classes to take.

(5) You must acquire 20 credits or more in total from the subjects listed in Subject List, among the 30 credits of completion requirement. Students of International Course in Urban and Regional Development must take the 20 credits (including "Seminar on Urban Management A/B", "Exercise on Project Planning" and "Capstone Project") in English. The other 10 credits must be English classes from the Subject List or English classes equivalent to the ones on (6) below.

(6) For the subjects not listed on the Subject List, you can select from Common Subjects of Graduate School of Engineering (excluding Japanese course subjects) and/or the subjects of other Departments/Graduate School which your supervisor approves. For the students who passed the Joint Degree System of the Graduate School of Management, apply (7) below. However, the credits will be regarded as "Minor subjects" in any of these cases.

(7) If the students who passed the Joint Degree System of the Graduate School of Management have completed the subjects offered by the Graduate School of Management, credits are to be admitted as the credits of the subjects of the Department of Urban Management under the approval of the supervisor. However, the number of obtainable credits must not exceed 10 credits.

(8)As for taking "Urban Transport Policy", "Policy for Low-Carbon Society", "Urban Transport Management", "Policy for Low-Carbon Society, Advanced"; "Urban Transport Management, Advanced"; "Capstone Project Practice"; contact **the Low-Carbon Society Unit** prior to registering for the classes.

(9) As for taking "Dialog/Liveable Cities", "Dialog/ Design of Liveable Cities" "Basic Civil Engineering & Health Science I" "Basic Civil Engineering & Health Science II" "Policy for Liveable Cities" "Methodology for Liveable Cities" "Seminar on Liveable Cities A" "Seminar on Liveable Cities B" "Disaster and Health Risk Management" "KANSEI urban spaces" and "Exercise on Project planning"; contact **Liveable Cities Unit** prior to registering for the classes.

(10) The courses below have also been set in the Department of Urban Management:

- Public Policy Planning/Management Course
- International Project Management Course (Infrastructure/Energy Development)
- Urban Water/Geo Environment Management Course
- Seismic Design/Management Course
- Urban Transportation Policy Course (Urban Planning, Urban Transport Policy)
- Earth Resources and Energy Engineer/Researcher Training Course
- International Course on Disaster Resilient Countries

If you have completed the subjects designated for each course and applied for the completion of the subject, you will obtain a certificate to prove that you have completed that course.

[Advanced Engineering Course Program]

3.2 Department of Urban Management

(1) Educational Policy

1) Necessity of Research and Education in the Department

To realize urban systems which are sustainable and internationally competitive which can assure a high quality of life with the global/regional environment preservation, comprehensive management of urban system is indispensable. Our department, subject to reserve global and regional environment, strives to establish theories and systematic technologies for a comprehensive management of urban systems from interdisciplinary points of view integrating social science and humanity, consolidating engineering technology such as management, advanced information, social infrastructure and energy.

2) Purpose of Education

We aim to educate researchers and engineers with high capabilities of problem solutions and with advanced and comprehensive accomplishments based on engineering skills such as management technology, including social science and humanity.

3) Goal of Education

Our goal is to foster comprehensive management skills of urban system through practical and interdisciplinary research and acquire comprehensive ability to be an international leader, setting the theme toward the following: 1)social infrastructure upgrading through innovation of urban information communication technology, 2) disaster risk management in advanced information society, 3) comprehensive efficient urban system management, 4) social infrastructure maintenance for internationalization, and 5) urban management based on limited energy resource theory.

(2) Credits required for Master degree

Subject Category	Number of Credit		
	5-year course		3 year course
	Master	Doctoral	Doctoral
Core Subject	4 or more credits	8 or more credits	4 credits
Major Subject	4 or more credits	6 credits or more	2 credits or more
Minor Subject	Not especially designated	Not especially designated	Not especially designated
Seminar・ORT・Internship of collaraborative research	8 or more credits	12 credits or more	4 credits or more
Other subject	Take under the approval of your supervisor		
Total	30 or more credits	40 or more credits	10 credits or more

[NOTE]

1) The 30 credits to complete the Master's Program are included in the 40 which are necessary to complete the Doctoral Program (5-year course). To continue on with the Doctoral Program (5-year course), you must complete the Master's Program.
2) To complete the program, you must acquire the number of the credits designated for each subject category and the total number of credits listed above as well.
3) To take Major subjects, additional requirements have been set besides the ones above, depending on the educational program that you have selected. For details, see Note (5) below.
4) International course students can take the English subjects with double circles on the Subject List as Core subjects if your supervisor approves.

5) Seminar, Internship of collaborative project, ORT subjects are specified “ORT Subject” in “Subject List.”

(3) Registration Model

To be explained based on the material at the Guidance in April.

[Note for 5-year Course]

(1) For the details (syllabus) of each subject, please refer to the website of the Graduate School of Engineering. URL:http://www.t.kyoto-u.ac.jp/syllabus-gs/.
(2) The subjects with white circles(○) on the Subject List are obtainable.
(3) The subjects without circles in the Subject category are regarded as “Minor subjects”.
(4) “Information Technology for Urban Society” and “Seminars on Urban Management A/B” are compulsory. “Exercise on Project Planning” and “Capstone Project” are both elective compulsory subjects; you must select either of them.
(5) As for taking Major subjects during “Master’s Program”, you must satisfy the requirements for one of the 5 educational divisions below. For the selection of your educational program, obtain your supervisor’s approval in advance.

Structural Division Education Program:
Must take all “Continuum Mechanics”, “Structural Stability”, “Material and Structural System & Management”, “Earthquake Engineering/Lifeline Engineering”, and “Infrastructural Structure Engineering”.

Hydrologic Division Education Program:
- Must take all “Hydrodynamics and Turbulence Mechanics”, “Hydrologic Design and Management”, “River Management”, and “Sediment Hydraulics”.
- Must take at least 3 subjects among , “Hydrology” “Open Channel Hydraulics”, “Coastal Wave Dynamics”, “Hydro-meteorologically based Disaster Prevention”, “Water Resources Systems”, “River basin management of flood and sediment”, “Coastal and Urban Water Disasters Engineering”, “Disaster Mitigation for Sustainable Basin Environment”, “Computational Fluid Dynamics”, “Hydraulic Engineering for Infrastructure Development and Management”, “Applied Hydrology”, ”Case Studies Harmonizing Disaster Management” and “Integrated Disasters and Resources Management in Watersheds”.

Geomechanics Division Education Program:
Consult with your supervisor for which subjects you take among “Geomechanics”, “Computational Geotechnics”, “Seminar on Geotechnics”, “Management of Geotechnical Infrastructures”, “Construction of Geotechnical Infrastructures”, “Geo-Risk Engineering”, “Fundamental Geofront Engineering”, “Geofront Environmental Design”, “Environmental Geotechnics”, “Numerical Methods in Geomechanics”, and “Disaster Prevention through Geotechnics”.

Planning Division Education Program:
Must take at least 2 subjects among “Governance for regional and transportation planning”, “Public Finance”, “Urban Environmental Policy”, “City Logistics”, “Quantitative Methods for Behavioral Analysis”, “Intelligent Transportation Systems”, “Advanced Geoinformatics”, “Civic and Landscape Design”, “Risk Management”, “Disaster Information”, “Disaster Risk Management”, and “Theory & Practice of Environmental Design Research”.

Earth Resources and Energy Division Education Program:
Must take at least 3 subjects among “Resources Development Systems”, “Applied Mathematics in Civil & Earth Resources Engineering”, “Computational Mechanics and Simulation”, “Environmental Geosphere Engineering”, “Modeling of Geology”, “Applied Elasticity for Rock Mechanics”, “Fundamental Theories in Geophysical Exploration”, “Design of Underground Structures”, “Lecture on Exploration Geophysics”, “Measurement in the Earth’s crust environment”, “Time Series Analysis”, and “Energy System Management”.

(6) You must acquire 20 credits or more in total from the subjects listed in Subject List, among the 30 credits of completion requirement of Master's Program.

(7) During "Master's Program", for the subjects not listed on the Subject List, you can select from Common Subjects of Graduate School of Engineering (excluding Japanese course subjects) and/or the subjects of other Departments/Graduate School which your supervisor approves. For the students who passed the Joint Degree System of the Graduate School of Management, apply (8) below. However, the credits will be regarded as "Minor subjects" in any of these cases.

(8) If the students who passed the Joint Degree System of the Graduate School of Management have completed the subjects offered by the Graduate School of Management, credits are to be admitted as the credits of the subjects of the Department of Urban Management under the approval of the supervisor. However, the number of obtainable credits must not exceed 10 credits.

(9) If you have not completed the subjects with white circle provided for both Master's and Doctoral Programs in the "Registration Designation" during your Master's Program, you can add to the credits for your Doctoral Program.

(10) Both "Integrated Seminar on Urban Management A and B" are compulsory in Doctoral Program.

(11) Your course registration plan at the time of admission and change of the plan during your study will be approved at the Guidance Committee consisting of one supervisor and 2 sub-supervisors.

(12) As for taking "Urban Transport Policy", "Policy for Low-Carbon Society", "Urban Transport Management", "Policy for Low-Carbon Society, Advanced"; "Urban Transport Management, Advanced"; "Capstone Project Practice"; contact **the Low-Carbon Society Unit** prior to registering for the classes.

(13) As for taking "Dialog/Liveable Cities", "Dialog/ Design of Liveable Cities" "Basic Civil Engineering & Health Science I" "Basic Civil Engineering & Health Science II" "Policy for Liveable Cities" "Methodology for Liveable Cities" "Seminar on Liveable Cities A" "Seminar on Liveable Cities B" "Disaster and Health Risk Management" "KANSEI urban spaces" and "Exercise on Project planning"; contact **Liveable Cities Unit** prior to registering for the classes.

(14) The courses below have also been set in the Department of Urban Management:

- Public Policy Planning/Management Course
- International Project Management Course (Infrastructure/Energy Development)
- Urban Water/Geo Environment Management Course
- Seismic Design/Management Course
- Urban Transportation Policy Course (Urban Planning, Urban Transport Policy)
- Earth Resources and Energy Engineer/Researcher Training Course
- International Course on Disaster Resilient Countries

If you have completed the subjects designated for each course and applied for the completion of the subject during your Master's Program, you will obtain a certificate to prove that you have completed that course.

[Note for 3-year Course]

(1) For the details (syllabus) of each subject, please refer to the website of the Graduate School of Engineering. URL:http://www.t.kyoto-u.ac.jp/syllabus-gs/.

(2) The subjects with white circles(○) on the Subject List are obtainable.

(3) The subjects without circles in the Subject category are regarded as "Minor subjects".

(4) If you take "Information Technology for Urban Society", the credit will be added as "Minor" subject

(5) Both "Integrated Seminar on Urban Management A and B" are compulsory.

(6) For the subjects not listed on the Subject List, you can select from Common Subjects of Graduate School of Engineering (excluding Japanese course subjects) and/or the subjects of other Departments/Graduate School which your supervisor approves.

(7) Your course registration planning at the time of admission and change of the plan during your study will be approved at the Guidance Committee consisting of one supervisor and 2 sub-supervisors.

(8) As for taking “Urban Transport Policy”, “Policy for Low-Carbon Society”, “Urban Transport Management”, “Policy for Low-Carbon Society, Advanced”; “Urban Transport Management, Advanced”; “Capstone Project Practice”; contact **the Low-Carbon Society Unit** prior to registering for the classes.

(9) As for taking “Dialog/Liveable Cities”, “Dialog/ Design of Liveable Cities” “Basic Civil Engineering & Health Science I” “Basic Civil Engineering & Health Science II” “Policy for Liveable Cities” “Methodology for Liveable Cities” “Seminar on Liveable Cities A” “Seminar on Liveable Cities B” “Disaster and Health Risk Management” “KANSEI urban spaces” and “Exercise on Project planning”; contact **Liveable Cities Unit** prior to registering for the classes.