

**English Supplemental Handout**

**Guidelines for International Applicants  
to the 2016 Master's Course Program  
February Examination**

**Division of Civil and Earth Resources Engineering/  
Urban Management**

**Department of Civil and Earth Resources Engineering  
Department of Urban Management**

**Graduate School of Engineering  
Kyoto University**

※ The Japanese language version is to be given precedence.

Division of Civil and Earth Resources Engineering/  
Urban Management  
(Department of Civil and Earth Resources Engineering  
Department of Urban Management)

The two departments hold a joint entrance examination for the two international courses. Applicants can choose their preferred laboratory and supervisor from these two departments.

**I . Study Areas**

Applicants can refer to the list of study areas below, choose an area for special study during their master's research and indicate one choice in the space provided in the application form. Prior to submitting application documents, applicants should have contacted the preferred supervisor to discuss the research plan, and form must be signed by the supervisor.

**(1) Department of Civil and Earth Resources Engineering**

Area No.	Research Topic  (Faculty) (As of October 2015)	Educational Programs		
		Integrated Master's-Doctoral Course Program (Interdisciplinary Engineering Course Program)	Integrated Master's-Doctoral Course Program (Advanced Engineering Course Program)	Master's Course Program
1	Applied Mechanics: Particle-based computational fluid dynamics, fluid-structure interaction, turbulence modeling, mechanical stabilization of undersea tunnels, development and application of the rigid plastic finite element method <b>(Assoc. Prof. Abbas Khayyer, Assoc. Prof. Jun Saito)</b>	Postgraduate Integrated Course Program of Human Security Engineering	Choose a research topic from the list of study areas (excluding No.44)	Choose a research topic from the list of study areas (choose any research topic)
2	Structural Materials Engineering: Properties of structural materials including concrete, characteristics and design techniques of concrete structures, performance and maintenance techniques of concrete structures, scenario design for concrete structures <b>(Assoc. Prof. Takashi Yamamoto)</b>			
3	Structural Mechanics: Structural behavior of steel/composite structures and their rational design, Nondestructive evaluation of residual performance and maintenance of structures, dynamic analysis of offshore structures <b>(Prof. Kunitomo Sugiura, Assoc. Prof. Masahide Matsumura)</b>	Postgraduate Integrated Course Program of Applied Mechanics, Postgraduate Integrated Course Program of Human Security Engineering		
4	Bridge Engineering: Aerodynamics of bridges and structures, countermeasures, mitigation of wind-induced disasters, corrosion degradation of structures <b>(Prof. Hiromichi Shirato, Assoc. Prof. Lin An)</b>			
5	Structural Dynamics: Dynamic response and vibration of structures, wind-induced vibration, seismic and wind resistant design, seismic and aerodynamic performance of structural systems, dynamic response control <b>(Prof. Tomomi Yagi, Assoc. Prof. Yoshikazu Takahashi)</b>			
6	Environmental Hydrodynamics: Air-water interfacial dynamics, coherent structure, mass transfer in vegetated flows, floodplain hydraulics, interaction between fluid and sediment, computation of turbulent flows, water related disasters <b>(Prof. Keiichi Toda, Assoc. Prof. Michio Sanjou)</b>	Postgraduate Integrated Course Program of Human Security Engineering		
7	Hydrology and Water Resources Research: The hydrologic cycle, hydrologic prediction, real-time hydrologic forecasting, hydrologic design, water resources management <b>(Prof. Yasuto Tachikawa, Assoc. Prof. Yutaka Ichikawa)</b>			

Area No.	Research Topic  (Faculty) (As of October 2015)	Educational Programs		
		Integrated Master's-Doctoral Course Program (Interdisciplinary Engineering Course Program)	Integrated Master's-Doctoral Course Program (Advanced Engineering Course Program)	Master's Course Program
8	Geomechanics: Investigation of soil-structure interaction (static and dynamic) and its design method, simulation of deformation and failure of ground, liquefaction analysis, methane hydrate containing ground (Prof. Makoto Kimura , Assoc. Prof. Sayuri Kimoto)	Postgraduate Integrated Course Program of Human Security Engineering	Choose a research topic from the list of study areas (excluding No.44)	Choose a research topic from the list of study areas (choose any research topic)
9	Infrastructure Innovation Engineering: Mechanical behavior of foundations, seismic design of underground structures, mechanical behavior of retaining wall, development of infrastructure innovative technology, improvement of rural infrastructure in developing countries (Prof. Chul-Woo Kim)			
10	Geoinformatics: Remote sensing, geographic information systems, digital photogrammetry, three-dimensional urban modeling (Prof. Masayuki Tamura, Assoc. Prof. Junichi Susaki)			
11	Urban and Landscape Design: Landscape design, urban design, architecture of infrastructure and environment, cultural climate and environment, regional planning, urban history, etc. (Prof. Masashi Kawasaki, Assoc. Prof. Yoshiaki Kubota)			
12	Urban Coast Design: Design and planning of urban coastal structures, particle method, computational wave dynamics, computational fluid dynamics, computational mechanics of sediment transport, computational mechanics for multiphase flow, crowd and multi-agent simulation in urban areas (Prof. Hitoshi Gotoh, Assoc. Prof. Eiji Harada)			
13	Geophysics: Geophysical exploration of shallow to deep crustal structures, geophysical modeling of geological phenomena that influence human activities, visualization of subsurface geophysical properties (Prof. Hitoshi Mikada)			
14	Earth Crust Engineering: Researches with laboratory and field observation for exploitation of oil, gas and minerals in deep underground and for underground sequestration of carbon dioxide (Prof. Tsuyoshi Ishida)			

Area No.	Research Topic  (Faculty) (As of October 2015)	Educational Programs		
		Integrated Master's-Doctoral Course Program (Interdisciplinary Engineering Course Program)	Integrated Master's-Doctoral Course Program (Advanced Engineering Course Program)	Master's Course Program
15	Measurement and Evaluation Technology: Design, construction and maintenance of underground structures, Nondestructive testing using magnetics, lasers and ultrasonics, Measurement and instrumentation for structures and underground structures <b>(Prof. Toshihiro Asakura, Assoc. Prof. Kazuhiko Tsukada)</b>	Postgraduate Integrated Course Program of Human Security Engineering	Choose a research topic from the list of study areas (excluding No.44)	Choose a research topic from the list of study areas (choose any research topic)
16	Sediment Control Engineering: Controlling sediment in mountain-river-coast systems, prediction and monitoring of sediment dynamic states in mountainous areas, developing methods to decrease damage from sedimentation disasters, evaluating the impact of sediment transport on the ecosystem <b>(Prof. Masaharu Fujita, Assoc. Prof. Hiroshi Takebayashi, Assoc. Prof. Daizo Tsutsumi)</b>			
17	Hydroscience and Hydraulic Engineering: Three dimensional structure of flood flow and bed form, hydraulics of inundating flow and design flooding, observations and experiments on sediment transport phenomena, mechanism of river dyke breach, simulation of urban inundation and stormwater drainage, interdisciplinary hydraulics - ecology and hydrodynamics <b>(Prof. Hajime Nakagawa, Assoc. Prof. Kenji Kawaike)</b>			
18	Geotechnics for Hazard Mitigation: Damage estimation of geotechnical structures after large earthquakes, dynamic behavior of group pile foundations under strong ground motions, behavior of geotechnical structures made of composite materials <b>(Prof. Susumu Iai, Assoc. Prof. Tetsuo Tobita)</b>			
19	Hydrometeorological Disasters Engineering: Global climate change impact assessment on precipitation field, precipitation forecasting, radar hydrology, remote sensing by spaceborne precipitation radar, water budget, energy and material balance in urban areas, conservation of water environment, stormwater and pollutant runoff analysis, formation process of river basin <b>(Prof. Eiichi Nakakita)</b>			
20	Coastal Disaster Engineering: Impact assessment and adaptation of coastal environmental change due to global warming, Countermeasures of tsunami disaster, Modeling of storm surge, ocean wave and tsunami <b>(Prof. Hajime Mase, Assoc. Prof. Nobuhito Mori)</b>			

Area No.	Research Topic  (Faculty) (As of October 2015)	Educational Programs		
		Integrated Master's-Doctoral Course Program (Interdisciplinary Engineering Course Program)	Integrated Master's-Doctoral Course Program (Advanced Engineering Course Program)	Master's Course Program
21	Innovative Disaster Prevention Technology and Policy Research: Climate change impact on catchment at both the global and regional scale, including lakes and reservoirs, flood mitigation modeling, development of strategic approaches to prevent water-related disasters, continental-oceanic mutual interaction <b>(Prof. Kaoru Takara, Assoc. Prof. Takahiro Sayama)</b>	Postgraduate Integrated Course Program of Human Security Engineering	Choose a research topic from the list of study areas (excluding No.44)	Choose a research topic from the list of study areas (choose any research topic)
22	Waterfront and Marine Geohazards: Coastal-erosion processes and integrated sediment management, estuarine and coastal geo-hydrodynamics, remote sensing of estuarine and coastal environments <b>(Prof. Tetsuya Hiraishi, Assoc. Prof. Yasuyuki Baba)</b>			
23	Computational Engineering: Computational mechanics for fluids and solids, high-performance computation for hydraulics and structural engineering, computational methods (FDM, FVM, FEM), parallel computation, numerical visualization <b>(Prof. Satoru Ushijima)</b>			
24	Disaster Risk Management Engineering (JR West): Risk management of infrastructures such as railway structures against natural disaster, Crisis management including evacuation management in disaster and infrastructure management for disaster prevention <b>(Prof. Toshihiro Asakura, Prof. Hiromichi Shirato)</b>			
25	International Management of Civil Infrastructure: Environmental vibrations caused by bridge vibrations, Bridge health monitoring, developing a smart sensing system for BHM, seismic performance of viaduct under traffic, Hydrologic analysis for infrastructure, Long-term design of hydrologic structures considering climate change <b>(Assoc. Prof. Sunmin Kim, Jr. Assoc. Prof. Kai-Chun Chang)</b>			

**(2) Department of Urban Management**

Area No.	Research Topic  (Faculty) (As of October 2015)	Educational Programs		
		Integrated Master's-Doctoral Course Program (Interdisciplinary Engineering Course Program)	Integrated Master's-Doctoral Course Program (Advanced Engineering Course Program)	Master's Course Program
26	Structures Management Engineering: Durable structures, monitoring of structures, maintenance of structures, life-span management of structures, environmentally friendly materials and structures <b>(Prof. Hirotaka Kawano, Assoc. Prof. Atsushi Hattori)</b>	Postgraduate Integrated Course Program of Human Security Engineering	Choose a research topic from the list of study areas (excluding No.44)	Choose a research topic from the list of study areas (choose any research topic)
27	Earthquake and Lifeline Engineering: Earthquake engineering, Disaster prevention engineering, seismic risk management <b>(Prof. Junji Kiyono, Assoc. Prof. Aiko Furukawa)</b>			
28	River System Engineering and Management: River basin management engineering, urban geo-water engineering, groundwater hydraulics, economic evaluation of environmental improvement projects <b>(Prof. Takashi Hosoda, Assoc. Prof. Kiyoshi Kishida)</b>			
29	Construction Engineering Systems: Geoconstruction engineering, international construction projects, project risk management, environmental preservation of urban groundwater, asset management <b>(Prof. Hiroyasu Ohtsu, Assoc. Prof. Thirapong Pipatpongsa)</b>			
30	Geofront-System Engineering: Numerical assessment of time development behavior of clay foundations, conservation procedures for historical geo-relics, geo-informatic database, mechanics of partially saturated soils from micro to macro, development of advanced numerical analysis method both for fully saturated and partially saturated soils <b>(Prof. Mamoru Mimura, Assoc. Prof. Yosuke Higo)</b>			
31	Environment and Resource System Engineering: Geological sequestration of carbon dioxide, fluid flow analysis and enhanced oil recovery, geological structural analysis using InSAR and model experiments/numerical simulations, subsurface visualization by exploration geophysics <b>(Assoc. Prof. Sumihiko Murata)</b>			

Area No.	Research Topic  (Faculty) (As of October 2015)	Educational Programs		
		Integrated Master's-Doctoral Course Program (Interdisciplinary Engineering Course Program)	Integrated Master's-Doctoral Course Program (Advanced Engineering Course Program)	Master's Course Program
32	Infrastructure Planning and Management Theory: Public investment policy, transportation and communication behavior, asset and risk management for infrastructures (Prof. Kiyoshi Kobayashi, Assoc. Prof. Kakuya Matsushima)	Postgraduate Integrated Course Program of Human Security Engineering	Choose a research topic from the list of study areas (excluding No.44)	Choose a research topic from the list of study areas (choose any research topic)
33	Urban and Regional Planning: Urban planning, urban policy, public transportation policy (Prof. Dai Nakagawa, Assoc. Prof. Ryoji Matsunaka)			
34	Logistics Management Systems: City logistics, urban infrastructure planning using ICT and ITS, supply chain management (Prof. Eiichi Taniguchi, Assoc. Prof. Tadashi Yamada)			
35	Intelligent Transport Systems: Traffic management by ITS, reliability analysis of transportation network, traffic flow analysis, experimental approach to traffic engineering (Assoc. Prof. Jan-Dirk Schmöcker, Assoc. Prof. Nobuhiro Uno)			
36	Travel Behavior Analysis: Public psychology, social dilemmas, behavioral decision making, practical social science research on community development, behavioral analysis of transportation demand (Prof. Satoshi Fujii, Assoc. Prof. Yusuke Kanda)			
37	Environmental Geosphere Engineering: Distribution analyses of mineral, water, and energy resources using remote sensing and mathematical geology; reservoir evaluation for storage properties of crustal gases and fluids; and assessment and spatio-temporal modeling of crustal environments from shallow to deep depths (Prof. Katsuaki Koike, Assoc. Prof. Tada-nori Goto)			
38	Dynamics of Foundation Structures: Earthquake engineering, engineering seismology, seismic design, soil-structure interaction, seismic performance of structures, innovative structure to resist seismic vibrations (Prof. Sumio Sawada, Assoc. Prof. Hiroyuki Goto)			



Area No.	Research Topic  (Faculty) (As of October 2015)	Educational Programs		
		Integrated Master's-Doctoral Course Program (Interdisciplinary Engineering Course Program)	Integrated Master's-Doctoral Course Program (Advanced Engineering Course Program)	Master's Course Program
39	Regional Water Environment System: Comprehensive environmental dynamics model, integrated water resources management, assessing the impact of climate change on flood and drought ( <b>Prof. Shigenobu Tanaka, Assoc. Prof. Kenji Tanaka</b> )	Postgraduate Integrated Course Program of Human Security Engineering	Choose a research topic from the list of study areas (excluding No.44)	Choose a research topic from the list of study areas (choose any research topic)
40	Water Resources Engineering: Water resources systems management, global water dynamics, modeling of human response to water hazards, prevention and mitigation of water-related disasters ( <b>Prof. Tomoharu Hori</b> )			
41	Disaster Risk Management: Methodology of disaster risk analysis and assessment, sociological and economic evaluation of disasters, proactive and retroactive disaster management countermeasures, social consensus-building process ( <b>Prof. Ana Maria Cruz, Assoc. Prof. Muneta Yokomatsu</b> )			
42	Environmental Disaster Mitigation Management: Risk management of water resources, integrated management of sediment routing systems, biodiversity conservation, ecosystem management in river basins ( <b>Prof. Tetsuya Sumi, Assoc. Prof. Sameh Ahmed Kantoush, Assoc. Prof. Yasuhiro Takemon</b> )			
43	Urban Flood Control: Compound urban disasters, dynamics of fluid-structure coupled systems, structural design for extreme events, dynamic response control, assessment and maintenance of deteriorating urban facilities, urban flood disaster, hydraulics of water-related disasters, water disaster prevention for underground space, tsunami disaster prevention ( <b>Prof. Akira Igarashi, Assoc. Prof. Nozomu Yoneyama</b> )			
44	Sustainable Geoenvironmental Engineering: Environmental infrastructure engineering, Soil and groundwater contamination, Geotechnics for waste management, Environmental risk assessment, Environmental geotechnics ( <b>Prof. Takeshi Katsumi, Assoc. Prof. Toru Inui</b> )	*	*	
45	International Urban Development: City logistics, urban and regional freight transportation, humanitarian logistics, remediation of geoenvironmental problems ( <b>Assoc. Prof. Ali Gul Qureshi, Assoc. Prof. Giancarlo Flores</b> )	Postgraduate Integrated Course Program of Human Security Engineering	Choose a research topic from the list of study areas (excluding No.44)	

- A Study Area with the \* mark (No. 44) does not have an Integrated Master's-Doctoral Course Program (Interdisciplinary Engineering Course Program and Advanced Engineering Course Program).

## II. Number of students to be accepted

Limited

## III. Eligibility and its screening

Refer to “Eligibility and its screening” on page 4 to 7 of Guidelines for International Applicants to the 2016 Master’s Course Program written in Japanese as well as English (平成 28 年度修士課程外国人留学生学生募集要項) .

### IMPORTANT NOTE:

- It is highly recommended to be staying in Japan as a research student as of February 2016.
- A person who has graduated (or, is expected to graduate) from Undergraduate School of Global Engineering, Faculty of Engineering, Kyoto University, is highly recommended to take the exam (General Academic Selection) in August.

## IV. Date of Examination

Details of entrance examination including examination schedule and venue will be posted on a notice board close to Room 191, C Cluster C-1.

Examination Site: Room 171 and other rooms, C Cluster C-1, Katsura Campus

Date	Time and Examination Subjects
February 16 <sup>th</sup> (Tue)	9:00 ~ Oral Exam I • Oral Exam II

※Details of entrance examination such as examination schedule and venue for Postgraduate Integrated Course Program of Human Security Engineering will be separately provided.

### ○Important Notice for Academic Examination

- Be sure to come to the waiting room (Room 192, C Cluster C-1) at least 15 minutes before the examination starts.
- Be sure to bring your examination voucher with you and follow the instructions of the supervisor and other staff.
- Be sure to switch off your mobile phone and the alarm on your watch. Keep your mobile phone in your bag. Do not keep your phone on the desk or in your pocket.
- A projector is provided in the interview room while you bring a portable PC with a presentation file installed. Also please prepare five copies of your presentation material in case of equipment trouble. You cannot use any electric devices in the room other than what you need for presentation.
- If there is any change in oral exam schedule, you will be notified in advance.

## V. Details for Entrance Examination

### (1) Examination Subjects

- (a) English (200 points/1000 points): evaluated based on candidate’s TOEFL, TOEIC or IELTS scores. Native speakers of English can submit “Letter of English Proficiency Statement” (Form-M3) instead of English official scores. Applicants who have submitted Form-M3 will be evaluated for their English proficiency through Oral Exam II.

○Assessment of English Ability

- English ability will be evaluated by the score on the TOEFL “Test Taker Score Report” or “Examinee Score Record”, TOEIC Official Score Certificate or IELTS Test Report Form. (These scores are valid only if attained after February 1<sup>st</sup>, 2014.)
- For TOEFL, only the TOEFL-iBT and TOEFL-PBT are acceptable. For TOEIC, only the official TOEIC tests held in Japan or Korea are acceptable. For IELTS, only IELTS (Academic Module) is acceptable. Score certificates of group tests such as TOEFL-ITP or TOEIC-IP are invalid.
- Original score certificates must be submitted; copies are not acceptable. Successful applicants will be disqualified if submitted documents are later found to be fraudulent.

(b) Oral Exam I (400 points/1000 points)

The Oral Exam I in Japanese or English will last approximately 15 minutes and will mainly focus on the applicant’s basic knowledge of specialized field of one of the following seven and mathematical knowledge. The fields correspond to the research that applicants intend to pursue after admission.

Subject	Range of Questions
(1) Structural Mechanics	Force equilibrium, Sectional forces, Influence lines, Stress and strain, Mechanical properties of materials, Sectional properties, Stability of structures and static determinate/indeterminate, Statically determinate structures, Deformation of structures, Elastic buckling of columns, Statically indeterminate structures, Equations of elasticity, Work and energy, Virtual work, Energy principle
(2) Hydraulics	Fundamentals of fluid motion, Hydrostatics, Dynamics of perfect fluids, Water waves, Viscous flows and turbulence, Dimensional analysis and similarity law, Steady pipe flows, Steady open-channel flows
(3) Soil Mechanics	Physical properties and classification of soils, Permeability and seepage, Consolidation, Shear strength, Compaction, Earth pressure, Bearing capacity, Stress distribution, Slope stability, Ground improvement, Liquefaction, Seismic behavior
(4) Systems Analysis for Planning and Management	Linear Programming, Nonlinear programming, Dynamic Programming, Game theory, Network analysis, Cost-benefit analysis, Regression analysis

Subject	Range of Questions
(5) Engineering Geology and Rock Mechanics	Physical and mechanical properties of rocks; Laboratory and in-situ testing of rock; Methods of geological survey; Hydraulic properties of rock mass; Rock mass improvement; Evaluation of slope stability
(6) Exploration Geophysics and Measurement Technology	Theory of exploration geophysics; Theory of seismic surveys(with reflection and refraction methods) and electric/electromagnetic surveys; Data analysis of seismic exploration; Basics of instrumental measurements(force and displacement, movement and vibration, fluid, and temperature); Response function of sensors; Electrical circuits for instruments; Statistical analysis of measured data
(7) Theory of Elasticity and Wave Physics	Stress, strain and displacement; Basic equations of linear elasticity; Stress function; Solution of two-dimensional elastic problem; Vibration and wave phenomena; Basic theory of elastic and electromagnetic waves; Reflection, refraction and diffraction

(c) Oral Exam II (400 points/1000 points)

Applicants should prepare a presentation (approximately 10 minutes in length) on their graduation research or their current main research. The presentation may be given in English or Japanese. In a presentation, applicants can use liquid-crystal projector and PC. The interview will be conducted after presentation (Total time: approximately 15 minutes, including the presentation).

**(2) Examination Criteria**

Applicants who have secured 500 or more out of the total score (1000 points) are eligible for selection. Final successful applicants are selected among eligible applicants with 500 points or more.

**(3) Announcement of Successful Applicants**

Refer to “VI. Announcement of Entrance Examination Results” in the Guidelines.

**VI. Application Procedures**

**(1) Additional Required Documents**

Aside from documents submitted to Katsura Campus, Cluster B Administration Complex, all applicants must submit documents below by registered mail (kakitomebin) or in person to Cluster C, Graduate Student Section. Some documents may take some time to obtain. Therefore, it is highly recommended that applicants prepare for these documents early.

(a) Submission Deadline

January 14, 2016 (Additional required documents must reach the C Cluster Office by no later than 5:00 PM on January 14, 2016)

(b) Place of Submission

Cluster C, Graduate Student Section, Graduate School of Engineering, Kyoto Daigaku-Katsura, Nishikyo-ku, Kyoto, 615-8540 (Admissions for the Department of Civil and Earth Resources Engineering and the Department of Urban Management)  
TEL: 075-383-2969

(c) Additional Required Documents

- Checklist of necessary documents (Form-M1)
- Statement of Research Activity and Study Plan in English (Five copies) (Describe your past/current research activities and your study/research plan in the graduate program approved by the prospective supervisor. Complete your statement within three A4 pages. Fill in Form-M2 and gain your supervisor's stamp or signature. Attach the Form-M2 to your statement as a cover sheet. )
- TOEFL Examinee Score Record or Test Taker Score Report, or TOEIC Official Score Certificate or IELTS Test Report Form. For the native speakers of English, "Letter of English Proficiency Statement (Form-M3)" is acceptable. (If applicants can't submit Examinee Score Record for TOEFL, or Official Score Certificate of TOEIC or IELTS Test Report Form by the above-mentioned deadline, they should submit these documents in envelope to Cluster C, Graduate Student Section, Graduate School of Engineering, Kyoto University (Admissions for the Department of Civil and Earth Resources Engineering and the Department of Urban Management) by 4:00 pm, February 1, 2016. Envelopes should be marked with "Document for Admission (Master/English)" in red ink. When mailing, use registered mail (kakitome-bin).)
- Documents detailing the candidate's source of tuition and living expenses while in Japan. International students who will be supported by scholarships from the government of Japan or other countries (e.g. the candidate's home country), do not need to submit this document.
- Statement of Course Selection (Form-M4)

## VII. Outline of International Courses and Degree Requirements

i) Outline of international courses

(1) International Course in Management of Civil Infrastructure

This master's course program in the Department of Civil and Earth Resources Engineering started in April 2011. All classes and research guidance are provided in English.

The Department of Civil and Earth Resources Engineering endeavors to achieve the following:

- 1) Contribute to the sustainable development of the human race from a standpoint of engineering science and technology. This includes issues such as achieving a stable supply of natural resources and harmonizing with the global environment.
- 2) The development of fundamental key technologies that support public infrastructure and energy development.
- 3) The creation and development of new versatile technologies and design methods concerning the construction, improvement, operation, and maintenance of public infrastructure and disaster mitigation measures, as well as technologies related to the exploration, development, and utilization of the natural environment, natural resources and energy.
- 4) The experimental and theoretical integration and deployment of those technologies in the framework of computational mechanics and applied mechanics.

The fundamental policy of the Department of Civil and Earth Resources Engineering is to provide a through basic education and cultivate real-world skills. We also aim to provide an education which nurtures the ability to discover new technologies and develop flexible thinking skills. Ultimately, we aim to cultivate experts who can utilize intellectual, information and communication technologies in new ways. Our approach to education prioritizes information

analysis, with a focus on computational dynamics. We ensure that our students master the basic and rational technologies that will enable them to become leading engineers who can contribute to the public infrastructure.

In light of the major shift in the locus of public infrastructure development and resource development from Japan to other countries, we are well aware of the need to nurture highly-qualified engineers from other countries to produce engineers who can make broad contributions at the cutting-edge of conventional civil engineering, resource engineering, and environmental engineering. It is our policy to actively invite highly-accomplished researchers and corporate researchers from Japan and other countries to participate in seminar course that are held by the Department of Civil and Earth Resources Engineering to discuss the latest developments and societal needs.

#### (2) International Course in Urban and Regional Development

A new master's course program in the Department of Urban Management started in April 2011. All classes and research guidance are provided in English. As this is an international course, we require that students have English language competence.

The Department of Urban Management is striving to integrate advanced information communication technology with social infrastructure technology in order to realize sustainable, safe, and internationally competitive urban systems that can ensure a high quality of life. To achieve this goal, the department aims to make advances in social analysis technology utilizing urban engineering, traffic engineering, and environmental system engineering to analyze human activities in cities. We also seek to make advances in planning technology methods such as urban planning and traffic planning to realize safe and sustainable urban systems, as well as advances in urban infrastructure relating to constructing foundations and rivers. Building upon the foundation of these engineering technologies, the department is working to establish methodologies and engineering techniques for the comprehensive management of urban systems, incorporating assessments of the sustainability of cities based on a cutting-edge research and an interdisciplinary perspective that embraces the social sciences and humanities. To realize these goals, the department is ambitiously striving to construct state-of-the-art urban systems for advanced information societies, and to cultivate the human resources needed to support them.

In addition to lecture-based subjects, the department also offers seminar-based subjects. In the seminar-based subjects, students independently plan and implement project surveys and company seminars. They then summarize the results and make presentations on their findings. These exercises greatly enhance students' skills of preparing reports, giving presentations and conducting discussions. The exercises also improve the students' ability to work independently and boost their self-confidence,

### **VIII. Educational Program**

#### **【The International Courses of K.U. PROFILE】**

K.U. PROFILE, Kyoto University Programs for Future International Leaders, is Kyoto University's educational initiative under the Japanese government's Global 30 (G30) Program. It aims to contribute to the development of a stable global society by gathering together talented students from around the globe and providing them with the education, research experience and global perspective needed to help them become international leaders in their fields.

K.U. PROFILE presents a selection of twelve new courses for international students which take full advantage of Kyoto University's distinctive strengths and state-of-the-art facilities. International Courses in Management of Civil Infrastructure in Department of Civil and Earth Resources Engineering, and International Course in Urban and Regional Development in Department of Urban Management started in April 2011. All classes are provided in English. With a new international course in the Undergraduate School of Global Engineering, the above-mentioned two-year courses aim to cultivate human resources capable of designing and managing civil infrastructures while considering global environmental issues around urban and regional areas, particularly in order to solve the problems in Asian and African countries.

## **IX. Others**

### **○ Inquiries**

Inquiries should be addressed to the following office.

Administrative Office of the International Courses  
Department of Civil and Earth Resources Engineering and Department of Urban Management  
Graduate School of Engineering, Kyoto University  
E-mail: [icp\\_master@t.kyoto-u.ac.jp](mailto:icp_master@t.kyoto-u.ac.jp)

### **Reference URL:**

- International Course in Management of Civil Infrastructure in the Department of Civil and Earth Resources Engineering: <http://www.ce.t.kyoto-u.ac.jp/mci/en>
- International Course in Urban and Regional Development in the Department of Urban Management: <http://www.um.t.kyoto-u.ac.jp/urd/en>
- K.U.Profile:<http://www.opir.kyoto-u.ac.jp/kuprofile>