

Sub-Program/ Component	1. Improving Administrative Ability and Institution Building 1-3. Improvement of Road and Transportation / Urban Environment Development
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1	University	Ritsumeikan University (Private)
	Graduate School	Graduate School of Science and Engineering
	URL of University	http://www.ritsumei.ac.jp/eng/index.htm
	URL of Graduate School	http://www.ritsumei.ac.jp/eng/html/academics/graduate/bkc/bkc_03.html/
	Program name	International Program in Advanced Industrial Technology -Environmental and Urban Engineering Course or -Advanced Technology Fusion Programs Course / Disaster Mitigation for Urban Cultural Heritage
	Degrees	Master of Engineering
	Credit and years needed for graduation	30 Credits, 2 Years

2. Features of University

Ritsumeikan's history begins with its establishment as a private academy in 1869 by Prince Kinmochi Saionji, an eminent international statesman of modern Japan and advocate of Freedom and Internationalism. In 1900, Saionji's protégé Kojuro Nakagawa retained Saionji's spirit and established the Kyoto Hosei School, an evening law school that was open to working people. With Saionji's blessing, the name of this school was changed to Ritsumeikan Private University in 1913. At present, the Kinugasa and Suzaku campuses in Kyoto, as well as at the Biwako Kusatsu Campus in Shiga prefecture combined are home to more than 36,000 students learning under the core educational philosophy of *Peace and Democracy*. In order to nurture just and ethical global citizens, Ritsumeikan is working to foster creativity and the development of individual talents on a solid foundation of academic achievement.

3. Features of Graduate School

The Graduate School of Science and Engineering provides students with applied research guidance in addition to the lecture courses in which they enrol. In the school's system of research guidance, students learn theory through a variety of lecture courses linked to the fields of each student before applying the knowledge they acquire to actual experiments and project work. Students who take part in internships and national or international conference presentations will have their participation acknowledged in the form of credits. In addition, we also recommend such opportunities to students.

The graduate school nurtures the management abilities of students by providing unique courses in English that act as common subjects and cover topics such as international technological cooperation, management of technology, business trends. Also included are additional topics that fall outside the field of engineering.

In addition to requiring from students periodical presentations of research progress in their research laboratories, the graduate school increases the abilities of students to hold groups discussions and give presentations by holding discussions on the weak points of their research

progress and any additional issues. Through this process, students ultimately produce a master's thesis which will be critiqued at a public hearing.

4. Features of the Program

The Graduate School of Science and Engineering accepts master's and doctoral students to its International Program in Advanced Industrial Technology with the purpose of fostering engineers and researchers of international technology. The school conducts all classes in English and accepts students from the fields of environmental and construction engineering, information engineering, mechanical engineering, electrical and electronic engineering, applied chemistry, and biotechnology.

Assisting Developing Countries: As directed yearly by the Graduate School of Science and Engineering, supervising instructors offer advice on acquiring research findings that contribute to the home countries of JDS international students while keeping in mind technological learning and development as a whole. Moreover, the graduate school follows up where possible with regards to disparities in the level of research progress found between Japan and these developing countries. Finally, the school carries out hearings with instructors who carried out interviews with JDS international students in their home countries. This information is then used as a reference for future student guidance.

Intercultural Assistance for JDS students: The graduate school carries out follow up discussions primarily with guiding instructors in each research laboratory to ensure that English language materials are created for JDS international students as well.

Relationships with Japanese Students: Because the graduate school also offers incentives such as those mentioned in above to Japanese students, an environment is created where both international and Japanese students are able to increase their English language abilities.

Coordinated research assistance: The graduate school is working to advance class offerings in English utilizing a framework where supervising instructors are grouped based on their respective fields of expertise.

In terms of lectures, many on applied technology are currently being revised to include more political content and introductions to Japanese industrial policy. In addition, we are creating and encouraging student participation in joint classes that are designed for students from all research departments.

Moreover, JDS international students and Japanese students will come together to present their research findings together in their third semester.

The Graduate School of Science and Engineering conducts a series of departmental meetings in a way that creates a mix of Japanese students and JDS international students in hopes that the Japanese students will, for instance, increase their English abilities, while the JDS students utilize the information in the presentations given by Japanese students to contribute to the progress of their own research. In addition, we are implementing personal guidance by instructors for students who need corrections or elaboration on their English reports or presentations at international institutions.

We are encouraging students to take part in internships and practical work opportunities within Japan, and promoting the overall scheme of experiencing Japan's science and technology.

5. Necessary Curriculum to Obtain to the Degrees

Curriculum Structure

Common: 6 credits (Mandatory)
 Special Major: 10 credits (Mandatory)
 Seminar: 8 credits (Mandatory)
 Special Research: 6 credits (Mandatory)
 Credits required for completion: 30credits

Course

- Environmental and Urban Engineering Course
- Advanced Technology Fusion Programs Course/Disaster Mitigation for Urban Cultural Heritage

Please refer to '9. List of subjects'

6. Academic Schedule

9/25	Fall Entrance Ceremony
9/26	Fall Semester Begins, Fall Semester Classes Begin
12/26	Winter Break Begins
1/5	Winter Break Ends
1/6	Fall Semester Classes Recommence
1/25	Fall Semester Classes End
3/20	Graduation Ceremony (Master's Students) Suzaku Campus
3/21	Graduation Ceremony (Master's Students) Biwako Kusatsu Campus
3/22	Graduation Ceremony (Master's Students) Kinugasa Campus
3/31	Fall Semester Ends

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4/1	Spring Semester Begins
4/1-4/6	Graduate Student Orientation
4/4	Spring Entrance Ceremony
4/7	Spring Semester Classes Begin
8/3	Spring Semester Classes End
8/4	Summer Break Begins, Summer Intensive Courses Begin
9/23	Graduation Ceremony (Master's Students)
9/25	Summer Intensive Courses End,, Spring Semester Ends

7. Facilities

Student Dormitories: No student dormitories.

*It is possible for the university cooperative's real estate agency to provide students with single room accommodation.

Library Services: BKC is home to two academic information facilities. Academic literature related to science and engineering is found in the media center, whereas information related to economics and business administration is found in the media library. Both of these facilities are available to students regardless of the research departments to which they belong.

8. List of faculty members capable of guiding JDS fellows

Instructor	Specialty	Titles of Latest English Papers
Jun NAKAJIMA	水環境工学 (Water environment engineering)	Shafiquzzaman, Md., Iori Mishima, I. and Jun Nakajima: Arsenic removal from ground water by sand filtration during biological iron oxidation, <i>Jpn J. Water Treatment Biology</i> , Vol.44, No.1, 11-20, 2008
		Nakajima, J., M. Sato, A. Horio, I. Mishima, M. Kaneko: Application of Electrolysis Disinfection to On-site Type Wastewater Reclamation System, <i>Proceedings of 6th IWA Specialist Conference on Wastewater Reclamation and Reuse for Sustainability</i> , SC2, 2007
		Nakajima, J., Y. Murata, M. Sakamoto: Comparison of Several Methods for BAP Measurement, <i>Water Science and Technology</i> , 53(2), 329-336, 2006
		Nakajima, Jun, Rika Tanaka: Effectiveness of flow stabilization in small-scale wastewater treatment facilities, <i>Water Science and Technology</i> , 51(11), 167-174, 2005
		Nakajima J. and Mishima I.: Measurement of foam quality of activated sludge in MBR process. <i>Acta Hydrochim. Hydrobiol.</i> , 33(3), 232-239, 2005.
Hiroshi TSUKAGUCHI	交通計画 (Transportation Planning)、 土木計画学 (Infrastructure Planning)	Yanmanaka, H., Tsukaguchi, H., Odani, M., Fujioka, K., Takahashi, T., and Doi, T. : An experiment of a town centre traffic management package employing traffic capacity reduction and public transport promotion – the case study of Toyonaka station district–, <i>Urban Transport VII, Urban Transport and the Environment in the 21st Century</i> , WIT press, pp.33-42, 2001.
		Tsukaguchi, H : Transport System for Disaster-resilient Urban Areas, 2001 First International Conference on Planning and Design, 2001.11. (Keynote lecture at the International Conference for the 70th anniversary of the foundation of Taiwan National Cheng Kung University)
		Tsukaguchi, H., Jung, H.: Occupancy - a new concept in residential street planning, <i>Traffic Engineering & Control</i> , pp.233-237, 2002.6.
		Tsukaguchi, H., Li, Y., Yamaji, Y., Hayashi, T.: Evaluation of anti-disaster ability of street network based on reliability analysis and ANR indicator, <i>Proceeding of the International Symposium on City Planning, Taipei</i> , 2002.8.

		Tsukaguchi, H., Vandebona, U., and Matsuda, K. : Modelling of pedestrian route choice behaviour for development of information systems architecture, Selected Proceedings of the 9th World Conference on Transport Research (CDROM), 2004.
Atsushi ICHIKI	面源負荷流出 (Diffuse Pollution Runoff)、 流域管理 (Watershed Management)	Atsushi Ichiki, Fumio Ido and Tetsuharu Minami (2008) "Runoff: characteristics of highway pollutants based on a long-term survey through a year", Water Science and Technology, IWA, Vol.57, No.11, pp.1769-1776.
		Atsushi Ichiki, Norihisa Sakata, Akito Sasaki, Kanako Nakakura and Yoshikazu Tai (2007): "Water quality estimation in consideration of pollutant runoff and internal production in Lake Biwa, Japan", Water Science and Technology, IWA, Vol.55, No.3, pp.167-175.
		Atsushi Ichiki, Akito Sasaki, Norihisa Sakata, Kanako Nakakura and Hiroyuki Yamate (2006): "Study on water quality distribution in Lake Biwa in consideration of runoff pollutant loads from its catchment basin", Water Science and Technology, IWA, Vol.53, No.2, pp.23-32.
		Atsushi Ichiki, Hiroyuki Yamate, Norihisa Sakata, Yohei Takeuchi, Kiyoshi Yamada and Victor Muhandiki (2006): "Runoff simulation of urban nonpoint pollutants by SWMM and their impact on water quality in Southern Lake Biwa, Japan", 10th International Specialized Conference on Diffuse and Sustainable Basin Management, IWA, Istanbul, CD-ROM.
		Atsushi Ichiki, Yasunori Nagata, Takamasa Naruse and Fumio Ido (2004) : "Characteristics of highway pollutants around their source and in runoff process - a case study around Meisin Expressway, Japan", 8th International Conference on Diffuse/Nonpoint Pollution, IWA, Kyoto, pp.119-124.
Keiichi OGAWA	交通工学 (Transport Engineering, Traffic Engineering)、 交通計画 (Transport Planning)	Keiichi Ogawa: An Analysis of Traffic Conflict Phenomenon of Bicycles Using Space Occupancy Index, Journal of the Eastern Asia Society for Transportation Studies, Vol.7, pp.1820-1827, 2007.12.
		Keiichi Ogawa, Hajime Hida, Takuya Kawai: Traffic Safety Evaluation in Signalized Intersection Based on Vehicle Behaviors at Signal Change Intervals, Proceedings of the 14th World Congress on Intelligent Transport Systems, CD-ROM, No.4105, 2007.10.

		Keiichi Ogawa: An Analysis of Traffic Management Using Route Navigation Systems on Urban Road Network for Emergency Situation, Proceedings of the 11th World Congress on Intelligent Transport Systems, CD-ROM, No.3494, 2004.10.
		Keiichi Ogawa: An Analysis of the Uncertainty of Perceived Travel Times of Drivers Considering the Route Navigation and Traffic Information, Proceedings Joint 2nd International Conference on Soft Computing and Intelligent Systems and 5th International Symposium on Advanced Intelligent Systems, CD-ROM, No.TUP-1-1, 2004.9.
		Keiichi Ogawa, Takamasa Akiyama: Traffic Flow Analysis on Inter-City Expressway for Emergency Situation, The Network Reliability of Transport, Proceedings of the 1st International Symposium on Transportation Network Reliability, pp.369-384, 2003.4.
Katsuyoshi NOZAKA	構造工学 (Structural Engineering)	Ito, M., Nozaka, K., Shirosaki, T. & Yamasaki, K.: "Experimental Study on Moment-Plastic Rotation Capacity of Hybrid Beams", Journal of Bridge Engineering, American Society of Civil Engineers, Vol. 10, No. 4 (2005) pp.490~496.
		Nozaka, K., Shield, C. K. & Hajjar, J. F.: "Design of a Test Specimen to Assess the Effective Bond Length of Carbon Fiber Reinforced Polymer Strips Bonded to Fatigued Steel Bridge Girders", Journal of Composites for Construction, American Society of Civil Engineers, Vol.9, No. 4 (2005) pp.304~312.
		Nozaka, K., Shield, C. K. & Hajjar, J. F.: "Effective Bond Length of Carbon Fiber Reinforced Polymer Strips Bonded to Fatigued Steel Bridge I-Girders", Journal of Bridge Engineering, American Society of Civil Engineers, Vol.10, No. 2 (2005) pp.195~205.
Kazuyuki IZUNO	耐震工学 (Earthquake Engineering)	Kazuyuki Izuno, Hiroshi Kawarabayashi, Toshihiko Naganuma and Tsutomu Nishioka: Seismic performance of sliding isolation bearings during vertical movement of bridge girders, Structural Eng./ Earthquake Eng., JSCE, Vol. 22, No. 2, pp. 107s-121s, October 2005.
		Shinobu Takeno, Hiromi Ohno and Kazuyuki Izuno: Velocity-based design of seismic unseating prevention cable and shock absorber for bridges, Structural Eng./Earthquake Eng., JSCE, Vol. 21, No. 2, pp. 175s-188s, October 2004.
		Kazuyuki Izuno, Shinobu Takeno, Hisashi Nakao and Hiroshi Kobayashi: Demand capacity for unseating prevention cables of bridges, Proc. of 13th World Conference on Earthquake Engineering, CD-ROM Paper

		No. 3149, 10 pages, Vancouver, Canada, August 2004.
		Kenzo Toki, Takeyuki Okubo and Kazuyuki Izuno: Protection of cultural heritages from post-earthquake fire, Proc. of 13th World Conference on Earthquake Engineering, CD-ROM Paper No. 2781, 13 pages, Vancouver, Canada, August 2004.
		Ryoichi Fujita, Atsushi Mori, Hidesada Kanaji and Kazuyuki Izuno: A study on the seismic performance of a sliding typed seismic isolation system applied for bridges, Proc. of 13th World Conference on Earthquake Engineering, CD-ROM Paper No. 800, 14 pages, Vancouver, Canada, August 2004.
Takeyuki OKUBO	都市防災計画 (Urban planning for disaster mitigation)、文化遺産防災学 (Disaster mitigation for cultural heritage)	Takeyuki Okubo: "Protecting Area of Traditional Wooden Construction from Fires due to Earthquakes Using Local Water - Plan and Implementation of the Project on Environmental Water Supply System for Disaster Prevention -", Journal of Disaster Research, Vol.2 No.4 (2007) pp.284-291.
		Takeyuki Okubo: "Environmental Water Supply Systems and the Protection of Wooden Cultural Heritages and Historic Urban Areas from Post Earthquake Fire", SANSAI The Journal of the Grove of Universal Learning, Kyoto University, First Issue (2006) pp.77-92
		大窪健之(分担執筆): "HERITAGE AT RISK", ICOMOS World Report 2004/2005 on Monuments and Sites in Danger (K.G. Saur, 2005 年) pp.146-150.
		Kenzo Toki, Takeyuki Okubo and Kazuyuki Izuno: "Protection of cultural heritages from post-earthquake fire", Proc. of 13th World Conf. on Earthquake Engineering, Paper No. 2781 (2004).
Ryoichi FUKAGAWA	地盤工学 (Geotechnical Engineering)	Ishimori, H., Katsumi, T., Yoshikawa, M. and Fukagawa, R.: Performance evaluations of pump-and-treat system using advection-dispersion analysis: effects of clay layer on remediation duration, Soils and Foundations, Vol.46, No.1, pp.45-59, Feb., 2006.
		Ha Hong Bui, Kobayashi, T. and Fukagawa, R. : Simulation of excavation on the lunar surface, Proc. of 10th European Regional Conference of ISTVS, 2006, 10.
		Ha Hong Bui, Fukagawa, R. and Sakoh, K.: Smoothed particle hydrodynamics for soil mechanics, Proc. of 6th European Conf. On Numerical Methods in Geotechnical Engineering, 6 pages, 2006, 9.

Tateyama, K., Ashida, S., Fukagawa, R. and Takahashi, H.: Geomechatronics – Interaction between ground and construction machinery and its application to construction robotics, Journal of Terramechanics, Vol.43, pp.341-353, 2006.

Kobayashi, T., Ochiai, H., Fukagawa, R., Aoki, S. and Tamoi, K. : A proposal for estimating parameters of lunar surface from soil cutting resistances, Proc. Of Earth & Space 2006,

9. List of subjects

(I) Master's Program — *Special Research, Seminar and Common for all courses*

	Subject	Credit	Opening Term
Special Research	International Industrial Engineering Research	6	4th semester
Seminar	International Industrial Engineering Seminar 1	2	1st semester
	International Industrial Engineering Seminar 2	2	2nd semester
	International Industrial Engineering Seminar 3	2	3rd semester
	International Industrial Engineering Seminar 4	2	4th semester
Common	Science and Technology Japanese Presentation 1	2	
	Science and Technology Japanese Presentation 2	2	
	Science and Technology Japanese Presentation 3	2	
	Science and Technology Japanese Presentation 4	2	
	International Technology and Management 1	2	
	International Technology and Management 2	2	
	Field Work 1	2	
	Field Work 2	2	
	Field Work 3	2	
	Field Work 4	2	
	Study Abroad 1	2	
	Study Abroad 2	2	
	Study Abroad 3	2	
	Study Abroad 4	2	
Technical English Writing	2		
Technical English Presentation	2		

■ Advanced Science and Engineering Major

<Environmental and Urban Engineering Course>

Subjects	Credit	Subjects	Credit
Elasticity and Plasticity	2	Advanced Course of Landscape Planning	2
Structural Engineering	2	Global Environmental Systems	2
Advanced Course in Concrete Structure Engineering	2	Environmental Management and Policy	2
Advanced Course in River Engineering	2	Environmental Engineering and Technology	2
Advanced Hydraulics	2	Advanced Course in Environmental Design	2
Selected Problems in Materials of Construction	2	Conservation Planning of Cityscape and Landscape	2
Geotechnical Engineering-Special Lecture	2	Advanced Course in Architectural Environment	2
Soil Mechanics	2	Mathematical Basis for Planning Model Analysis	2
Project Management System for Urban Development	2	Applied Vector Analysis	2
Advanced Course in Transportation Systems	2	International Technology and Management 3	2
International Technology and Management 4	2		

■ Advanced Science and Engineering Major

<Advanced Technology Fusion Programs Course>

-Disaster Mitigation for Urban Cultural Heritage-

Subjects	Credit	Subjects	Credit
Protection of Cultural Heritage from Disasters	2	Advanced Course in Transportation Systems	2
Conservation Method for Cultural Heritage	2	Advanced Course of Landscape Planning	2
Elasticity and Plasticity	2	Global Environmental Systems	2
Structural Engineering	2	Environmental Management and Policy	2
Advanced Course in Concrete Structure Engineering	2	Environmental Engineering and Technology	2
Advanced Course in River Engineering	2	Advanced Course in Environmental Design	2
Advanced Hydraulics	2	Conservation Planning of Cityscape and Landscape	2
Selected Problems in Materials of Construction	2	Advanced Course in Architectural Environment	2
Geotechnical Engineering-Special Lecture	2	Mathematical Basis for Planning Model Analysis	2
Soil Mechanics	2	Applied Vector Analysis	2
Project Management System for Urban Development	2	International Technology and Management 3	2
International Technology and Management 4	2		