Fostering Leaders Who Create Next-generation Technological and Social Systems

Graduate School of System Design and Management

SDM
System Design and Management

Message from Dean Yoshiaki Ohkami - to fulfill the mission of breaking the deadlock in modern society -

Systems Science and Engineering, Design Science and Technology, and Management Engineering and Technology combine in our Graduate School of System Design and Management at Keio University (Keio SDM) to make something that is more than usual engineering or management degree programs. Keio SDM is structured as a system fusion of technical students, social science students, new graduates, mid-career working students, Japanese/Asian students, students from the rest of the world, Japanese faculty, international faculty from the world's leading design and engineering schools. Our students, faculty, courses, research projects all benefit from the real work experience, variety of nations and professions, of our students and faculty. In addition, Keio SDM is THE most accessible doorway to Asia's burgeoning arts, design, commercial and management systems.

Engineering is changing—more industries, more nationalities, more engineering fields—on any one project. Management is changing too—the same three ways plus more technology in product and process. Truth is, engineering requires more and more management skill and management requires more and more technology mastery—they are converging on each other. Keio SDM uses System Sciences and Engineering, from complexity theory to agent simulations, from risk modeling to scenario networks, from creativity models to design emergents, to both empower and realize fully this convergence, and to enable students to be highly effective when handling global design and engineering systems.

Keio SDM is more systematic than MBA/MOT programs, more cross-discipline than usual science/engineering programs, more analytic than social sciences, and more pragmatic than some design/arts programs. Keio SDM was deliberately made larger in scope than SDM programs in other nations and universities, while involving students in more advanced research projects than usual professional graduate programs. Here you will work across continents, nations, professions, cultures, management systems, aiming to create solutions fully as dynamic, multi-dimensional, powerful, environmental, global as our problems are.

Yoshiaki Ohkami
Dean, Graduate School of System Design and Management

From cutting-edge science technology to the design of social, organizational and human system	Every field of academic study is covered
Design the future	Keio SDM fosters global leaders who can realize their visions
Systems thinking	Keio SDM trains students to see both the details and the big picture, and teaches the skills to solve problems based on the v-model of systems engineering
Creativity	Keio SDM fosters creative designers and managers of every kind of system based on our unique educational system
Melting pot	Keio SDM provides the setting for co-education, collaboration, and teamwork between students and professors from various backgrounds.
International activities	Keio SDM offers international group projects and advanced research based on our partnership with foreign universities and organizations.
Experience and passion	Excellent professors with business and international experience provide detailed education
Collaboration	Advanced and international base for safety, security, symbiotic and social collaboration from diverse perspectives

Special Features in Keio SDM

1 Design Project ALPS (Active Learning Project Sequence)

Students work as teams on v-model based systems design (requirement analysis, design and verification of the system) through thorough discussion in the six-month international course "Design Project ALPS (Active Learning Project Sequence)," in collaboration with MIT, Stanford University, TU Delft, and various corporations.

2 SDM Special Lecture

Leading experts in economics, politics, and science technology are invited to lecture students in the SDM Special Lecture series. Students reap the wisdom - the good practices in system design and management - of the pioneers who created large-scale systems on the front lines of the modern society.

3 e-learning and Curriculum

Some SDM courses are available through e-learning, which allows students to take and review the classes online. Many courses are held on Saturdays and from 7 pm on weekdays to meet the needs of working students.

4 Cutting-edge Concurrent Design Facility

Keio SDM is proud of its leading inter-disciplinary and international research and education, which includes research on 3D images using high definition projectors and large-scale simulation, and collaboration on domestic and international projects through e-learning and advanced IT.

Faculty

Prof. Shinichiro Haruyama

Research and education interests:
Total design of information and communication systems for ubiquitous society and entrepreneurship

Prof. Taketoshi Hibiya

Research and education interests:
Large scale system engineering (basic science)

Prof. Takashi Maeno

Research and education interests:
Human-machine system design, social system design, systems thinking, systems philosophy

Prof. Masaru Nakano

Research and education interests:
Business engineering, Sustainable manufacturing, Smart city and urban mobility system, Global and green supply chain

Prof. Hidekazu Nishimura

Research and education interests:
Safety control systems design for mobility and products, model-driven systems development, system dynamics

Prof. Yoshiaki Ohkami

Research and education interests:
Design and management of large scale space system, strategic systems engineering

Foster Leaders Who Create Next-generation Technological and Social Systems

Keio SDM aims to foster leaders of the world with new and grand visions, such as systems designers, that are capable of accurately designing large-scale technological systems with a great number of components and new and versatile cutting-edge technology systems, project leaders capable of managing vast projects with a large number of people involved, and social designers capable of proposing novel social systems to solve complex and changing environmental and social issues. Keio SDM courses are carefully structured based on systems engineering and cutting-edge system design research in every area.

S^4 Safety Security Symbiosis Sustainability
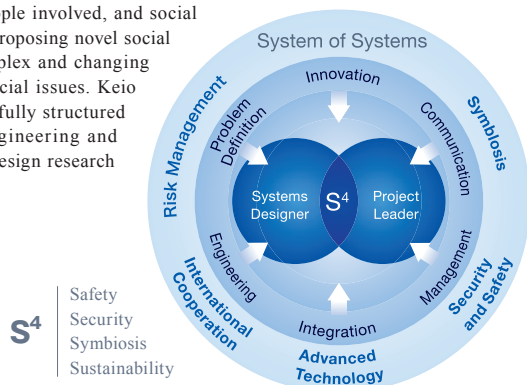
Ideal figure SDM fosters

Curriculum

Master's students work to master strategic systems engineering methods and comprehensive management skills, including communication skills, in core subjects. Students practice their new skills in designing new systems for "Design Project (ALPS)." Keio SDM offers a variety of subjects for students to choose from to meet their major's requirements and help them form their global views. For a special research subject "Research on System Design and Management" (Master's Thesis), students work for an average of two years on their research, which is later published domestically or internationally. Group project research is recommended at Keio SDM, and students collaborate on research together with faculty members and other students from different laboratories (research units).

Doctoral students mainly conduct research, but they are encouraged to take major subjects in the master's course, such as core and project subjects to share the basics of systems engineering and system design and management.

1st year	2nd year
Core Subjects	
Major Subjects (Technology / Social skills)	
Project Subject (ALPS)	
Special Research Subject "Research on System Design and Management" (Master's Thesis Advisory)	
e-learning	

Standard curriculum schedule for master's students

2010 Subjects in Master's Course

Lectures offered in Japanese

Required Subjects

Core Subjects	Project Subjects
Introduction to Systems Engineering	Design Project (ALPS)*1
System Architecture and Design	Special Research Subjects
System Integration	Research on System Design and Management
Project Management	

*1 offered in English

Major Subjects

Recommended Subjects in Technology	Recommended Subjects in Social Skills
System Environment	Communications
Human Factors	Human Relations
Risk Management of Technical Systems	System Management
Dependable Systems	Science and Philosophy of Systems 1
Science and Philosophy of Systems 2	Systems of International Politics and Diplomacy
Digital Manufacturing Systems	Socio-Critical Systems
Foundation of Model-Driven Systems Development	Systems of Intelligence
System Dynamics and Control Systems Design	Systems of Finance and Currency
	Competitive Intelligence

Elective Subjects in Technology	Elective Subjects in Social Skills
Systems Modeling and Statistics	Management and Financial Strategy
Prediction and Estimation for Systems and Optimization	System Simulation Techniques
	Global Standardization Strategy
Network and Database Systems	Methodology of Creative Decision Making
Software Safety Engineering and Reliability	Design Philosophy for Policy and Regulation
Embedded System Design	Special Lectures 1, 2
	Internship 1, 2

Lectures offered in English

Required Subjects

Core Subjects	Project Subjects
Introduction to Systems Engineering	Design Project (ALPS)
Project Management	Special Research Subjects
System Architecture and Design	Research on System Design and Management
System Integration	

Major Subjects

Recommended Subjects in Technology, in Social Skills	Recommended Subjects in Technology
Math for SDM	Human Factors
Advanced Business System Dynamics	Foundation of Model-Driven Systems Development
Introduction to Frontier Project Management	Recommended Subjects in Social Skills
Entrepreneurship 1, 2	Communications
Social Science Research Design	
Marketing Management	
Introduction to Business System Management	
Creativity Management 1, 2	

Elective Subjects in Technology, in Social Skills	Elective Subjects in Social Skills
Systems Engineering and Architecture Framework	Methodology of Creative Decision Making
	Supply Chain Management

Prof. Tetsuro Ogi

Research and education interests:
Human interface, virtual reality, visual data mining tele-immersive communication, visual simulation

Prof. Shoichi Sasaki

Research education interests:
Design of environment and symbiotic-systems such as vehicles & transportation systems, energy systems, and agriculture as a social system

Prof. Kenichi Takano

Research and education interests:
Risk management and human factors in large scale technology systems

Prof. Ryuichi Teshima

Research and education interests:
Intelligence and crisis management of vast and complex systems, foreign and security strategy

Associate Prof. Tetsuya Toma

Research and education interests:
Advanced communication system development and market innovation for broadband society

Associate Prof. Masataka Urago

Research and education interests:
Modeling and simulation for large scale and complex systems

Close Collaboration and Cooperation with Domestic and International Organizations

The Graduate School of System Design and Management of Keio University (Keio SDM) actively collaborates with domestic and international companies, research institutions and universities for the purpose of education and research of cutting-edge system design to realize environmental symbiosis, safety and security. SDM Research Institute has been established to promote the collaborations with various organizations.

Keio SDM collaborates with domestic and international universities and research institutions in various aspects of education and research, such as the design project course ALPS (Active Learning Project Sequence), student exchange programs, international joint research, educational and research collaboration through Global COE Program, international conference activities, so on.

Collaboration with International Universities

Massachusetts Institute of Technology, USA
Stanford University, USA
INSA (Institut National des Sciences Appliquees France: National Institute of Applied Sciences Toulouse), France
Stevens Institute of Technology, USA
Delft University of Technology (TU Delft), the Netherlands
University of British Columbia, Canada
Politecnico di Milano, Italy
Swiss Federal Institute of Technology Zurich (ETH Zurich), Switzerland, etc.

International Conference Activities

Keio SDM plays a role as a leader in the Asian region in INCOSE (The International Council on Systems Engineering), an international system engineering conference. Keio SDM is the only member of CESUN (Council of Engineering Systems Universities) in Japan. We are involved in various other conference activities as well.

Keio SDM Domestic Collaborators

The University of Tokyo, Tokyo Institute of Technology, Tohoku University, Tsukuba University, Nara Women's University, Tokyo Metropolitan University, Gakushuin University, Japan Society for Safety Engineering, JAXA, Japan International Research Center for Agricultural Sciences, Japan Ministry of Defense Maritime Staff Office, Japan Ministry of Defense Technical Research & Development Institute, Japan Ministry of Defense Air Staff Office, IHI Transport Machinery Co., Aska Company, Adidas Japan K.K., Atonarp Inc., Infrastructure Innovation Institute, Inc., NHK Computer Service Co., Ltd., NTT Comware Corporation, NTT Data Corporation, Onosokki, Canon Machinery Inc., Komatsu Ltd., SUMCO, SunBooks, Railway Technical Research Institute, JFE Engineering Corporation, Jyukankyo Research Institute Inc., Suzuki Motor Corporation, Stanley Electric Co., Ltd., Sega Sammy, GNSS Technologies Inc., Sony Corporation, Chiyoda Advanced Solutions Corporation, THK, Central Research Institute of Electric Power, Tokio Marine & Nichido Fire Insurance Co., Ltd., Tokio Marine & Nichido Risk Consulting Co., Ltd., Tokyo Gas Company, Tokyo Stock Exchange Group, Inc., The Tokyo Electric Power Company, Toshiba Corporation, Toshiba Elevator and Building Systems Corporation, Toshiba System Technology Corporation, Tohoku Electric Power, Toyota Motor Corporations, Toyota Central R&D Labs., Inc., JGC Corporation, Nissan Motor Co., Ltd., IBM Japan, The Nikkei, Japan Manned Space System Corporation, The Norinchukin Bank, Fuji Xerox Co., Ltd., Yoshida Accounting Office, Sumitomo Mitsui Construction Co., Ltd., Mitsubishi Research Institute, Inc., Mitsubishi Electric Corporation, Mitsubishi UFJ Information Technology, Ltd., Murata Machinery, Ltd., etc.

2010 Admission Guide

The Graduate School of System Design and Management of Keio University (Keio SDM) accepts students of all ages from a wide variety of backgrounds, from new university graduates to professionals in the private and public sectors.
We provide our students opportunities to learn how to design innovative technological systems, to find solutions to problems in social, organizational and human system and to become project leaders.

Master's and Doctoral Programs
System Design and Management

Enrollment
Master's students: 77
Doctoral students: 11

Degrees conferred
Master of System Engineering
Master of System Design and Management
Ph.D. in System Engineering
Ph.D. in System Design and Management

Tuition fees in Academic Year 2010
Master's program: ¥1,223,850, Doctoral program: ¥848,850 for students enrolled in September 2010
Master's program: ¥2,137,600, Doctoral program: ¥1,387,600 for students enrolled in April 2011
Master's program: ¥1,223,850, Doctoral program: ¥848,850 for students enrolled in September 2011
Tuition fees should be paid for the full academic year. Those who enrolled in September pay for only the Fall semester. The tuition fees for 2011 shown above are subject to change.

Financial Aid (Scholarship)
Financial Aid for International Students
There are a number of scholarship programs available. Most scholarships can be applied for after enrollment, but there are some that can be applied for before enrollment, such as the Keio Design the Future Award for International Students and Monbukagakusho Scholarship. Further information is provided on the web pages of the Keio University International Center and JASSO (Japan Student Services Organization).

Keio University International Center Scholarship Information
▸ http://www.ic.keio.ac.jp/en/life/scholarship/outline.html
▸ http://www.ic.keio.ac.jp/intl_student/scholarship/application_info.html

JASSO (Japan Student Services Organization)
▸ http://www.jasso.go.jp/study_j/index_e.html

Financial Aid for Graduate School Students
Keio Graduate School Scholarship: ¥600,000 per year (term: one year)
Shinzo Koizumi Memorial Graduate School Scholarship: ¥30,000 per month (term: one year)
Japan Students Services Organization: ¥50,000 or ¥88,000 loan for master's students and ¥80,000 or ¥122,000 loan for doctoral students per month (term: average course term)
Other Keio designated scholarships, public and private scholarships are also available.

Access
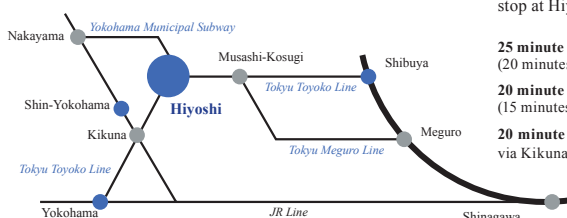
A one-minute walk from Hiyoshi Station
(Tokyu Toyoko Line, Tokyu Meguro Line, or Yokohama Municipal Subway Green Line)
Limited Express trains on the Tokyu Toyoko Line do not stop at Hiyoshi Station.

25 minute by train from Shibuya station to Hiyoshi Station
(20 minutes by express train)

20 minute by train from Yokohama station to Hiyoshi station
(15 minutes by express train)

20 minute by train from Shin-yokohama station to Hiyoshi staion via Kikuna station

For Inquiry

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