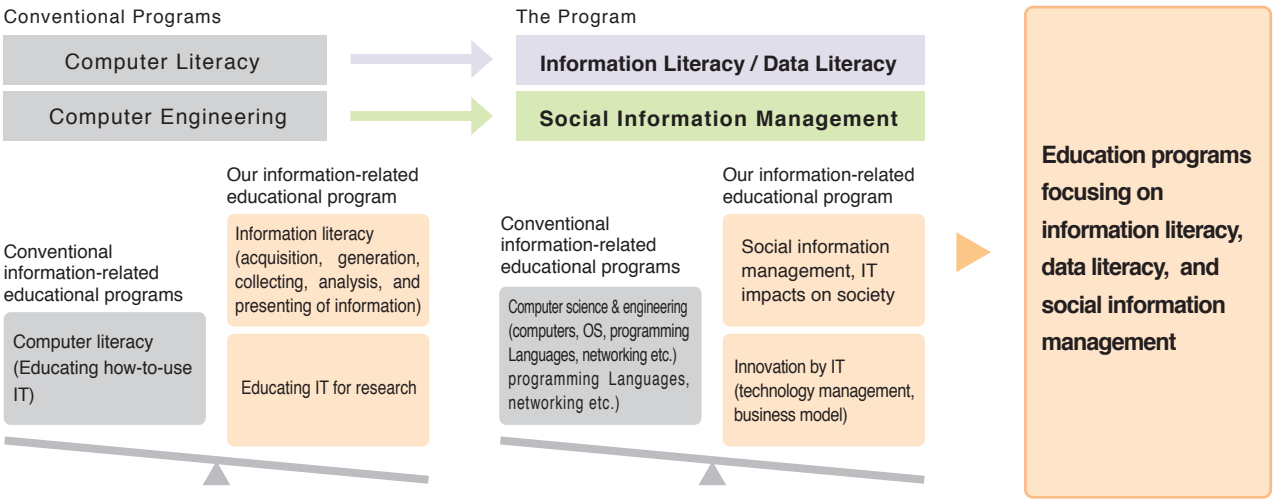
Advanced Information-Related Education & Digital Education Infrastructure Unit (Center for the Promotion of Interdisciplinary Education and Research (C-PiER))

The Advanced Information-Related Education & Digital Education Infrastructure Unit was established in Kyoto University C-PiER to implement the budget request project: Fostering Global Human Resources by Innovating Undergraduate/Graduate-level Information-related Education & Digitized Education of the graduate school of informatics, Kyoto University. It is our hope that students who will shape the future of our society will acquire essential skills to utilize information regardless of their areas of expertise so that they can enhance their information and communication skills as well as their global mindset.

Innovative Educational Programs



Digitized Education Environment

BYOD Classroom Learning

- Usage of tablets & note PCs in usual classrooms
- Active learning classrooms

Conventional classroom learning

Learning using tablets
Active learning

Online Lectures

- Online Lectures

Online Lectures

Faculties

Akihiro Yamamoto
Unit Leader / Professor
Graduate School of Informatcis

Yoshikazu Maegawa
Professor
Graduate School of Management

Satoshi Shimada
Senior Lecturer
Graduate School of Management

Nobuo Yamashita
Professor
Graduate School of Informatics

Hiroyuki Sato
Associate Professor
Graduate School of Informatics

Keishi Tajima
Professor
Institute for Liberal Arts and Sciences

Kazunari Sugiyama
Associate Professor
Graduate School of Informatics

Courses

[Liberal Arts Courses]

- Fundamentals of Informatics
- Fundamentals & Practice of Informatics
- Introduction to Information & Intellectual Property
- Innovation and Information
- Information and Enterprises

[Graduate Courses]

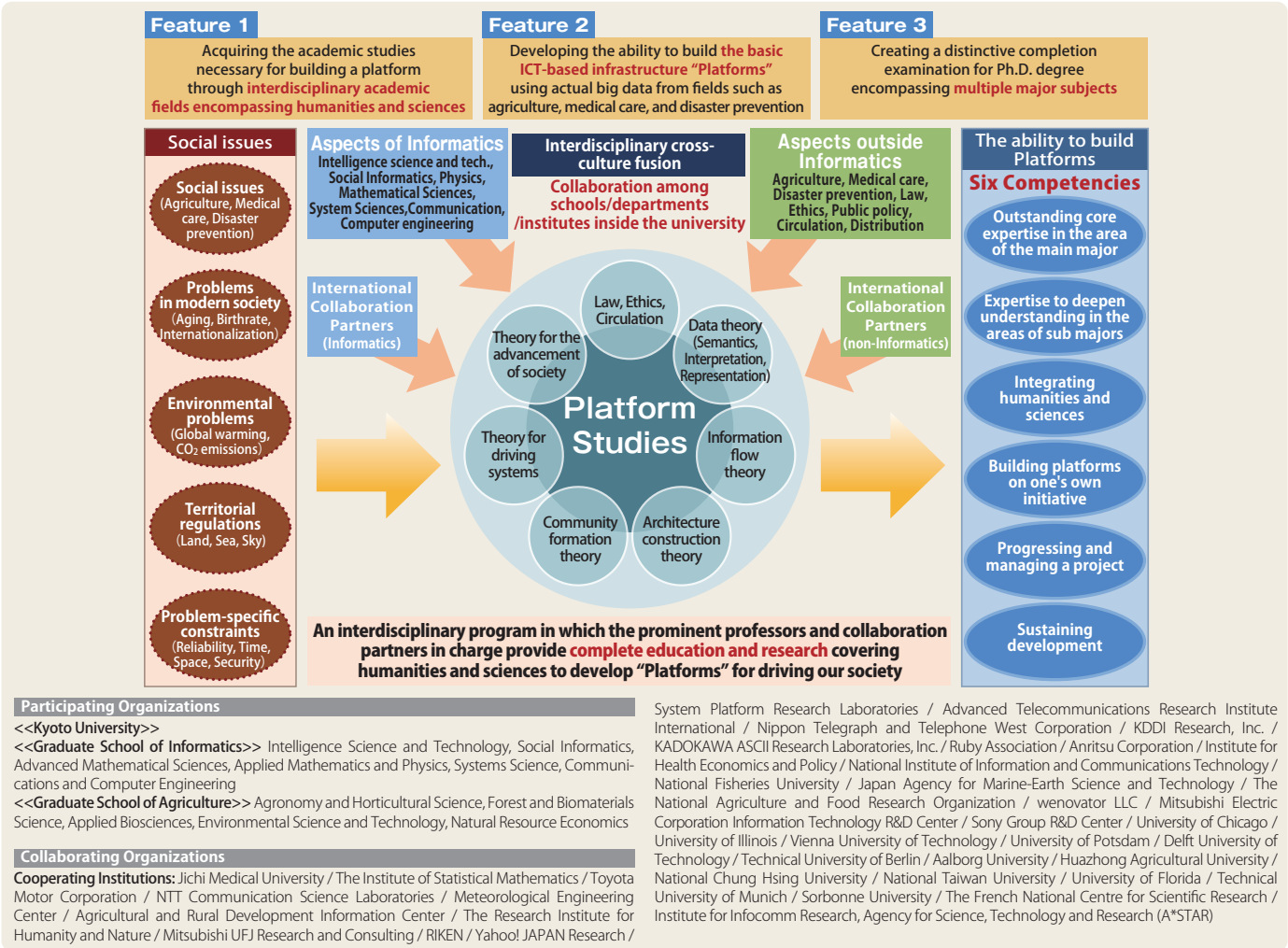
- Information Analysis and Management
- Practice of Information Analysis & Management
- Service Modeling
- Computation Science for Big Data
- Introduction to Computational Science
- Information and Intellectual Property
- Practice of Computational Science A
- Innovation and Information
- Information Security

Contact

Yoshida Honmachi, Sakyo, Kyoto 606-8501 Research Building #12, Rooms 110, 112 E-mail : iedu@i.kyoto-u.ac.jp

Kyoto University School of Platforms (KUSP)

The Kyoto University School of Platforms (KUSP) is a five-year doctoral program designed to cultivate students capable of creating a "platform that activates society." By making full use of interdisciplinary expertise that encompasses information and telecommunications network technology, big data analysis/utilization technology, and the humanities, the program aims to reduce social risks involved in various fields such as agriculture, medical science, and disaster management. KUSP was selected as a FY2020 WISE Program (Doctoral Program for World-leading Innovative & Smart Education) by the Ministry of Education, Culture, Sports, Science and Technology (MEXT).



Participating Organizations

<<Kyoto University>>

<<Graduate School of Informatics>> Intelligence Science and Technology, Social Informatics, Advanced Mathematical Sciences, Applied Mathematics and Physics, Systems Science, Communications and Computer Engineering

<<Graduate School of Agriculture>> Agronomy and Horticultural Science, Forest and Biomaterials Science, Applied Biosciences, Environmental Science and Technology, Natural Resource Economics

Collaborating Organizations

Cooperating Institutions: Jichi Medical University / The Institute of Statistical Mathematics / Toyota Motor Corporation / NTT Communication Science Laboratories / Meteorological Engineering Center / Agricultural and Rural Development Information Center / The Research Institute for Humanity and Nature / Mitsubishi UFJ Research and Consulting / RIKEN / Yahoo! JAPAN Research / System Platform Research Laboratories / Advanced Telecommunications Research Institute International / Nippon Telegraph and Telephone West Corporation / KDDI Research, Inc. / KADOKAWA ASCII Research Laboratories, Inc. / Ruby Association / Anritsu Corporation / Institute for Health Economics and Policy / National Institute of Information and Communications Technology / National Fisheries University / Japan Agency for Marine-Earth Science and Technology / The National Agriculture and Food Research Organization / wenovator LLC / Mitsubishi Electric Corporation Information Technology R&D Center / Sony Group R&D Center / University of Chicago / University of Illinois / Vienna University of Technology / University of Potsdam / Delft University of Technology / Technical University of Berlin / Aalborg University / Huazhong Agricultural University / National Chung Hsing University / National Taiwan University / University of Florida / Technical University of Munich / Sorbonne University / The French National Centre for Scientific Research / Institute for Infocomm Research, Agency for Science, Technology and Research (A*STAR)

Platform Studies for Activating Society

Currently, efforts are fast underway to develop and utilize "platforms" that use telecommunications technology to collect information that is non-uniformly spread throughout our society. This information is digitally stored in the form of big data, which is then categorized, analyzed, and shared so that any outcome of the process may be fed back to society. The present platforms need a considerable amount of electric power and computational capability to collect and process big data. However, we can reduce the power consumption and costs if we consider the processes involved in decentralization, safety, and speed in the data generation and collection process. This requires exceptional informatics knowledge, which has as its focal point information and communication technologies. Meanwhile, deep learning and machine learning have become standard techniques and are often used in black boxes. Yet, it is possible to improve the output while reducing costs by correctly understanding and interpreting the data's meaning in each specific field and optimizing it. To achieve this, informatics must be combined with knowledge of different disciplines such as agriculture, medical science, disaster management, and other scientific studies.

The markets for cloud computing and communication networks are swiftly forming, but the reality is that Japan is failing to make its presence felt sufficiently in the process. One of the reasons for this is that only engineers are involved in platform development, which results in a lack of international perspectives in the standardization process and business undertakings. For Japan to increase its presence in this all-important field, in addition to knowledge on informatics and non-informatics science studies, we need to amalgamate the knowledge of laws, ethics, public policies, data distribution, and other humanities studies that are required to implement new collective decision-making mechanisms, such as Japan's unique outlook on social ethics and fairness. With this combination of studies thus achieved, it must be applied to platforms and deployed globally. In this doctoral program, we call this interdisciplinary academic

field "platform studies," which is essential in building platforms, and we propose to develop the required skills for this new academic discipline.

The Six Competencies Required of Platform Builders

To successfully complete this doctoral program on platform studies, one must acquire the following six competencies:
① Outstanding core expertise (advanced expert knowledge in the area of the primary major);
② Expertise to deepen understanding in core fields (expertise to explore core fields and the ability to foster sub-fields that complement them);
③ The ability to build platforms on one's own initiative (the ability to design/build platforms that offer solutions to social issues);
④ The ability to get things done (the ability to drive/manage large projects and expand their results globally);
⑤ The ability to sustain momentum (the ability to standardize results and develop social implementation in a sustainable manner); and
⑥ The ability to integrate humanities and sciences (knowledge on humanities required to build platforms, entrepreneurship, and the ability to create communities).

To ensure that students acquire "outstanding core expertise" in the areas of their primary major, the program provides students with lectures and seminars on such fields as informatics, agriculture, medical science, and disaster management, which are expected to help them deepen understanding of sub-fields while paying due regard to the curriculum of individual students' majors. Also provided are lectures and seminars on laws, ethics, data distribution, and other humanities studies needed to build platforms, which are designed to cultivate the ability to integrate humanities and sciences. Based on these inputs and research outcomes, students are expected to develop the skills to build platforms on their own initiatives, to promote/manage projects and implement and expand their results globally, and to standardize and socially implement the results so that they can develop the results in a sustainable manner. To assist them in doing so, the program offers guidance from instructors in multiple fields, research grants, research internships, research outcome matching events, international symposia, and other opportunities. Students will also be given access to state-of-the-art communication environments and various types of big data. These opportunities will be provided through industry-university-government cooperation among 41 institutions both within and outside of Kyoto University, including the Graduate School of Informatics, Graduate School of Agriculture, Graduate School of Medicine, School of Governance, and Disaster Prevention Research Institute.

- Website：https://www.platforms.ceppings.kyoto-u.ac.jp/
- E-mail：platforms_contact@mail2.adm.kyoto-u.ac.jp

Kyoto University Collaborative Graduate Program in Design

To respond to the complex needs of our modern society, Kyoto University Collaborative Graduate Program in Design is Japan's first program featuring an integrated, five-year curriculum for "Design" which seeks solutions by calling on knowledge from a variety of academic disciplines. This program aims at cultivating students who deepen their expertise in their own disciplines while working together with specialists in other disciplines as well as with stakeholders to deal with society's variegated issues and create a new structure for the society of tomorrow.
Students enrolled in this program conduct their studies around the six core disciplines of informatics,mechanical engineering, architecture, management, and psychology, while also engaging in a variety of training and field work aimed at acquiring the ability to design society. In order to participate in the program, a student must first be admitted into one of the five departments in the Graduate School of Informatics: Department of Intelligence Science and Technology, Department of Social Informatics, Department of Applied Mathematics and Physics, Department of Systems Science, and Department of Communications and Computer Engineering, and then can be considered for selection as a Preparatory Course student and Regular student in this program. Upon completing the program, students of the Doctorate Program of Graduate School of Informatics will earn either a Doctorate degree (Ph.D.) or a Doctoral Degree in informatics. As for the latter degree,certificate of the completion of the Program for Leading Graduate Schools 'Collaborative Graduate Program in Design' is specified in the diploma.

Participant Organizations

Graduate School of Education (Division of Educational Studies), Graduate School of Engineering (Department of Architecture and Architectural Engineering, Department of Mechanical Engineering and Science, Department of Micro Engineering, and Department of Aeronautics and Astronautics), Graduate School of Informatics (Department of Intelligence Science and Technology, Department of Social Informatics, Department of Applied Mathematics and Physics, Department of Systems Science, and Department of Communications and Computer Engineering), and Graduate School of Management (Department of Business Administration, Department of Management Science)

Partner Organizations

NEC Corporation, Nippon Telegraph and Telephone Corporation (NTT), Nomura Research Institute, Panasonic Corporation, Mitsubishi Electric Corporation, Mori Building, and about 70 members in Design Innovation Consortium (OMRON Corporation, Sony Corporation, Takenaka Corporation, DMG Mori Corporation, DENTSU Inc., Toray Industries Inc., Nikken Sekkei, The Japan Research Institute, Nippon Telegraph and Telephone West Corporation (NTT WEST), HAKUHODO Inc., Yamaha Motor, Yokogawa Electric Corporation, etc.)

- Website：http://www.design.kyoto-u.ac.jp
- E-mail：contact@design.kyoto-u.ac.jp

University Fellowship in Informatics

If you wish to be a proficient researcher who leads research and development in informatics, you should enroll in a doctoral program. To lower the financial obstacles in obtaining a doctoral degree, the Kyoto University Science and Technology Innovation Fellowship has been established with support from the Ministry of Education, Culture, Sports, Science and Technology (MEXT) under its University Fellowship Program for the Creation of Innovation in Science and Technology starting in 2021. Responsible for the fields of information science and AI, the Graduate School of Informatics facilitates financial support for students in doctoral programs, who would lead research in their respective areas of specialty.

- Number of fellowship recipients: 25/grade
- Stipends: JPY1.8 million per year (in monthly installments of JPY150,000)
- Research fund: JPY300,000 per year (under management by supervisors)
- Selection: Applicants submit a statement of past research and research plan, as well as a letter of recommendation by their supervisors, based on which their past academic and research achievements and research perspectives after enrollment will be screened.

Recipients of the fellowship are requested to participate in programs, etc., organized by Kyoto University and the Graduate School of Informatics, so that they can enhance their research prowess and build a career path in diverse academic and industrial fields after completing the program. Some of the programs include presentation of research at the Kyoto University ICT Innovation, participation in a research internship, or being a teaching assistant in data science.

● Website：http://www.i.kyoto-u.ac.jp/fellowship/

International Course at the Graduate School of Informatics

Three departments of the Graduate School of Informatics, namely, the Department of Intelligence Science and Technology, Department of Social Informatics, and Department of Communications and Computer Engineering, have an International Course in their curriculum.

Students of the International Course are taught in English, receive guidance in English from their supervisors, and acquire Master's and Doctoral degrees exclusively in English.

These programs are open both to international and domestic students.

The curriculum was established at the Graduate School of Informatics after Kyoto University was designated as one of the hub university for the Project for Establishing Core Universities for Internationalization (Global 30/G30), which was launched in 2009 by MEXT.

The purpose of the G30 program was to cultivate top-notch individuals who would play an active role in the global arena by providing development opportunities through friendly competition with international students. Participating universities were called upon to provide quality education according to their respective functions and to create an environment that makes it easier for international students to study in Japan. To this end, the G30 program assisted Japan's leading universities in their efforts to create a hub of internationalization, including the development of a system in which degree courses can be offered entirely in English, improvement of the environment to accept international students, and promotion of strategic international cooperation.

● International Courses website：
http://www.i.kyoto-u.ac.jp/en/introduction/g30.html
● Contact：jyoho-kyomu@mail2.adm.kyoto-u.ac.jp
(Student Affairs Division)

Academic Programs

The Graduate School of Informatics provides graduate study programs that lead to Master's and Doctoral degrees. Taking into account the many different aspects of Informatics, students are required to take several compulsory credits outside their own department as a way to encourage interdepartmental education.

Requirements for the Master's Program

To receive a Master's Degree, every student is required to earn at least 30 credits from the courses specified by the departments; to receive the appropriate instructions through the classes; and to pass the course examinations and the assessment of Master's thesis. To encourage a well-rounded curriculum of study, students are asked to take subjects offered not only by one's own department but by other departments as well.

Requirements for the Doctoral Program

A Doctoral degree requires original, high-quality research in an individual field. To receive a Doctoral Degree, students are required to earn at least 6 credits from the courses specified by the departments; to receive the appropriate instructions through the classes; and to pass the course examinations and the assessment of Doctoral thesis.

Entrance Examination

The academic year begins in April. In general, a Master's degree requires two academic years of study, and a Doctoral degree three years. Admission to graduate programs is granted to those individuals who have passed the entrance examination of the Graduate School of Informatics conducted by the relevant departments. The examination is held in July and August. Supplementary examinations may be held in December and February.

Applications for the International Course, in which the degree will be earned in a solely English language medium, are also accepted in the departments of Intelligence Science and Technology; Social Informatics; Communications and Computer Engineering.

The Number of Students to be Admitted by Department

	Master's Program	Doctoral Program
Department of Intelligence Science and Technology	37	15
Department of Social Informatics	36	14
Department of Advanced Mathematical Sciences	20	6
Department of Applied Mathematics and Physics	22	6
Department of Systems Science	32	8
Department of Communications and Computer Engineering	42	11
Total	**189**	**60**

Both non-Japanese and working professionals are eligible for admission into the graduate program. Students may enroll in this graduate school concurrently with their professional responsibilities.

For further information, please contact:

Graduate School of Informatics
Kyoto University
Yoshida-Honmachi, Sakyo-ku,
Kyoto 606-8501 JAPAN
Tel. +81 75-753-4894,5500
http://www.i.kyoto-u.ac.jp

Definition of Informatics

Informatics in Kyoto University is the study of information in natural and artificial systems.

Informatics studies the creation, recognition, representation, collection, organization, optimization, transformation, communication, evaluation and control of information in complex and dynamic systems.

Informatics has human, social, cognitive, biological, linguistic, computational, mathematical and engineering aspects. It includes systems science and communications engineering.

Informatics has close relations with a number of disciplines in the natural and human sciences.
It is developed employing contributions from many different areas :in turn, it can contribute to their further development.

Interfaces to human and social areas, mathematical modeling and information systems are the three pillars of Informatics in Kyoto University.

Kyoto University Graduate School of Informatics
Yoshida-honmachi, Sakyo-ku, Kyoto 606-8501 JAPAN
http://www.i.kyoto-u.ac.jp/
E-mail : 140soumu@mail2.adm.kyoto-u.ac.jp
URL: http://www.i.kyoto-u.ac.jp