Course Number	

2018 International Priority Graduate Programs (IPGP)
～Advanced Graduate Courses for International Students～

1. Profile of the University

① University Department	Graduate School of Information Science, Nara Institute of Science and Technology			
② President	Naokazu Yokoya			
③ Address (Headquarters)	〒630-0192 Takayama 8916-5, Ikoma, Nara, Japan			
④ Contact	Division	Chief of … Section, Students Affairs Division		
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	TEL/FAX Number	0743-72-6249・0743-72-5014		
⑤ Web-Address	http://www.naist.jp/en/international_students/			
⑥ Enrollment (only graduate school)	（includes MEXT's Scholarship Students： ）			

2. Outline of the Course

① Course	Elastic Education and Research on Information Science Employing Mixture of International Students and Japanese Students
② Degree	Master's Course + Doctoral Course (2+3 years)
③ Form	This program is provided in a single university.
④ Graduate Course, Department	Department of Information Science, Graduate School of Information Science
	(Address) Takayama 8916-5, Ikoma, Nara, 630-0192 Japan
⑤ Collaboration (Universities,Graduate courses,Departments)	None
⑥ Quota	16 students (8 master course (MC) students, 8 doctoral course (DC) students) This includes MEXT scholarship students (4 MC students, 4 DC students) and privately financed students. (4 MC students, 4 DC students) Does not include Japanese students
⑦ Faculty	79 [Fulltime: 73, Fulltime (with other department): 5, Part-time: 1]
⑧ Course Representative	Position Title: Dean & Professor, Graduate School of Information Science
	Name: Kenichi Matsumoto

3. Course Description

1 Objectives This program promotes admission of promising students from countries worldwide and offers (1) lectures and research supervision in English and (2) project-based learning. Through this curriculum, the program aims at developing researchers and engineers who are creative and internationally competitive. After finishing the program, students are expected to actively participate in academia or industry in information science and information/communication technology (ICT), to contribute to realizing peace and welfare in the world, to understand Japan and its people, history and culture, and to construct accurate and effective public opinions in the global community.

ICT can greatly accelerate economic development and the improvement of human quality of life, especially in South-East Asian countries. The Graduate School of Information Science (GSIS) at Nara Institute of Science and Technology (NAIST) accepts talented students from such countries and educates them for positions in academia and industry. Through this program, GSIS will advance information science and ICT, serving as a center of excellence, which will lead the development of science and technology in Asia.

2 Target Countries and Research Fields The main purpose of this program, in the long term, is to support the development of information science and ICT in Asian countries and establish sustainable and productive collaborations in education and research between Asian countries and Japan, in which students completing this program can serve as the 'bridges' for collaborations. For this purpose, the program mainly accepts students from universities that have academic exchange agreements with NAIST or GSIS, but also accepts promising

students from other universities.

3 Admission Policy Information science and ICT form an integrated analysis and design methodology for solving large-scale problems related to societal demands, such as improving human quality of life and constructing dependable systems, and for determining good trade-off points between the costs required to meet these demands and performance. This integrated methodology cannot be obtained through short-term education that provides only fragments of knowledge and tips, but can only be obtained by both systematic education of fundamental knowledge and practical training to achieve the ability to apply that knowledge to real problems. Based on these, the program aims at educating students to achieve:

(1) Fundamental knowledge in information science including algorithms and data structures, design of computer hardware and software, pattern recognition and optimization; and

(2) Ability to design, implement and evaluate methods for solving real-world problems by analyzing them considering environmental conditions, human factors and cost-performance, as well as by organizing a project team and cooperating with other team members.

4 Curriculum

4.1 Four Sub-Programs This program provides course work in English (Over 80 credits), which covers a wide area of information science from fundamental subjects to advanced topics. To complete the Master's Course, students must earn at least 30 credits in the subjects designated by the graduate school.

(a) Sub-Program in Information Science and Engineering: Currently, science and technology is in a very revolutionary era and, in the near future, a big transformation of the social structure will be observed. The driving force is the rapid development of information science that enables the whole world to be connected in real time with the Internet and to utilize various and enormous data simultaneously. In this program, we provide a wide range of perspectives and advanced expertise, such as technology relating to computer hardware, software and information network, computer and human interaction and technology related to media, robots and other various systems making full use of computers. We train students that are able to support the advanced information society by improving information science technology and its various uses in the field.

(b) Sub-Program in Intelligent Cyber-Physical Systems: In this program, students can pursue challenges in the fusion areas of information science and material science. In the near future, a wide variety of knowledge of information science, devices, materials and interfaces will be required for developing social systems such as smart houses considering the quality of life in an aging, energy-saving and super smart society based on IoT. In this program, we focus on designing functional materials, designing devices for sensing and analyzing the real world, constructing a system that makes use of analysis, and control system of machines and robots. We train students to be able to support the social systems in the IoT era with deep expertise in the specific fields.

(c) Sub-Program in Computational Biology: In this program, students can pursue challenges in the fusion areas of bioscience and information science. Since deciphering genome information, bioscience began to adopt aspects of information science. Data showing the whole picture of the biological phenomenon is not limited to genomic information, but it includes the protein (proteome), the metabolite (metabolome), the epigenome including DNA modification, and the metagenome that is a genome of multiple organisms. In this program, the opportunities to acquire large-scale data related to life phenomena such as enormous biological information on genes, proteins, metabolism, medical image data, and to analyze and interpret biological phenomena are provided.

(d) Sub-Program in Data Science: In this program, new scientific methodologies, data driven science and AI driven science are introduced. A vast amount of data exists everywhere in the world, and the training of data scientists capable of dealing with these is regarded as an urgent task. In this program, information science, bioscience and the data-driven science involved in materials science are fused. We train students that will be able to contribute to the development and progress of social sciences and technology for next generation.

4.2 Thesis Research: A supervisor is assigned soon after enrollment and thesis research is conducted in an English environment. In particular, GSIS has eight foreign full-time assistant/associate professors (as of October 2018). Students with excellent research results can apply for early graduation.

4.3 Admission

(a) NAIST Internship: GSIS offers internships for program applicants from universities that have academic exchange agreements with NAIST or GSIS. An internship student stays at a laboratory of GSIS, conducting

project-based practice or short-term research. Currently, GSIS invites more than thirty interns per year.

(b) Screening Process: MEXT scholarship students usually enroll in October while privately financed students can enroll either in April or in October. GSIS has provided program curriculum for students who enroll in April or October since 1993.

Below is a sample schedule for enrollment in master's course in October:

1. Recommendation of students from sending universities (due January 5)

2. Preliminary screening (January 5-24)

3. Entrance examination: An interview is held on campus to determine the applicant's basic knowledge in mathematics and information science, and to evaluate the applicant's research capability. (Feb.-March) (GSIS is preparing an entrance examination that does not require applicants to come to our campus.)

4.4 Supports: NAIST's Division for Global Education promotes international collaboration in education and research. For administrative issues, the International Affairs Division supports international students not only concerning entrance examinations, enrollment and scholarship but also regarding the students and their families' lives in Japan. All students in this program are eligible to live in the dormitory. You can find much information about student support on the university webpage.