



A double degree program between the Master's degree program at the Graduate School of Engineering, Kyoto University and Shenzhen International Graduate School, Tsinghua University

This double degree program enables students to earn two Master's degrees after studying for a total of three years at both Kyoto University in Japan and Tsinghua University in China.





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### 1. Introduction

The Master's degree program at the Department of Environmental Engineering, part of Kyoto University's Graduate School of Engineering, provides education and research based on engineering technology and has been founded with the aims of providing solutions for evident or hitherto undetected regional environmental issues; securing environments that support health; creating sustainable global and regional environments; and establishing new fields in environmental science.

To solve global environmental issues, it is essential to cooperate internationally with other universities and institutions and to develop globally-competitive human resources. We promote international academic cooperation in research with other countries, including China and the ASEAN countries. The Human Security Engineering element of the Interdisciplinary Engineering Course warmly welcomes international students, and has educational programs that include major subject classes given in English, with the aim of developing persons who will be active on the world stage. We anticipate further progress in these areas.

We have decided to launch a collaborative curriculum between the Graduate School of Engineering and Tsinghua Shenzhen International Graduate School, with whom we have a strong cooperative relationship, through which students can take a double degree program. The two major objectives of this curriculum are to:

- (1) Develop interdisciplinary human resources who can take leadership in solving global and regional environmental issues in a multi-cultural and multi-linguistic environment.
- (2) Develop human resources with the ability to solve problems while placing themselves in locations where dynamic and urgent environmental and social problems are evident, to experience the problems and investigate their nature.

China has achieved remarkable economic growth in recent years. Shenzhen was the first special economic zone to be designated in China. It has experienced explosive population growth and development which, however, has resulted in dynamic and urgent global and social issues. We need to address global warming issues, which are common to both Japan and China, cooperatively. The establishment of a double degree program will enable students to gain opportunities to study not only at Kyoto University but also in Shenzhen where they can learn about regional environmental problems. This program can therefore nurture interdisciplinary human resources who can demonstrate leadership in engineering solutions for global environmental problems. Tsinghua Shenzhen International Graduate School has a system for accepting students from Kyoto University: the curriculum in English is in place and the Kyoto University-Tsinghua University, Cooperative Research and Education Center for Environmental Technology (Japan-China Center), approved as the Kyoto University On-site Laboratory, has been established. This collaborative curriculum is expected to play a crucial role in promoting research and education at both institutions.

### 2. The schedule

#### 1 Kyoto University students

After studying subjects in the first semester at Kyoto University from April to August, students study subjects for one year (the first and second semesters) at Tsinghua University while doing their Master's research there.

Students return to Japan between August and September in the second year and study the second-semester subjects from October at Kyoto University. At this time, students start their Master's research at Kyoto University on a full scale.

In the third year, students proceed with their Master's research at both Kyoto University and Tsinghua University, and write their theses while studying at Kyoto University. The theses are examined between November and December at Tsinghua University and between February and March at Kyoto University.

#### Schedule of the double degree program for Kyoto University students

First year			S	econ	nd year					Thi	rd y	ear		
4 5 6 7 8 9 10 11 12	1 2 3	3 4 5 6		8 9	10 11 12 1	2 3	4 5	6	7	8 9	10	11 12	1	2 3
Kyoto University (First semester)	U jean	singhua niversity ond semest		Summer break (Research)	Kyoto University (Second semeste	r)	Resea	arch a writ			S	Thesis	Thesis writing	Thesis examination at Kyoto University

#### 2 Tsinghua University students

Students study first-semester subjects from mid-August to January the following year at Tsinghua University while doing their Master's research. They then study subjects for one year (the first and second semesters) from April at Kyoto University while proceeding with their Master's research at Kyoto University in addition to their Master's research at Tsinghua University.

Students return to China in February in the second year and study subjects in the second semester at Tsinghua University. In the third year, students proceed with their Master's research at both Tsinghua University and Kyoto University and write their theses while studying at Tsinghua University. The theses are examined between January and March at Kyoto University and

between April and June at Tsinghua University.

Schedule of a double degree program for Tsinghua University students

	First yea	r	Second year					Third year					
8	3 9 10 11 12 1 2 3	4 5 6 7	3 9	10 11 12 1 2	2 3 4 5 6	7	8 9	10 11	12	1 2	3	4	5 6
				_									
	Tsinghua University (First semester)	Kyoto University (First semester)	Summer break (Research)	Kyoto University (Second semester)	Tsinghua University (Second semester)			rch an writin		Thesis examination at	Kyoto University	Thesis writing	Thesis examination at Tsinghua University

### 3. The curriculum and credit system

### 1 Master's Degree Program, Department of Environmental Engineering, Graduate School of Engineering, Kyoto University

#### ① Subjects that can be taken

To complete the Master's degree program, students are required to earn at least 30 credits in total. The table below shows the subjects available at the Department of Environmental Engineering. Twenty credits must be taken from the list in the table below, of which at least eight credits must be earned in major subjects. At least eight more credits must include Environmental Engineering Seminar A & B that are compulsory as research training (ORT) subjects. Students are allowed to earn up to 10 credits from subjects provided by Tsinghua Shenzhen International Graduate School.

## Subjects available in the Master's degree program, Department of Environmental Engineering, Graduate School of Engineering, Kyoto University

	Subject title	First semester	Second semester	Major	ORT
	Environmental Risk	2		0	
Core subjects	Urban Metabolism Engineering	2		0	
	Systems Approach on Sound Material Cycles Society	2		0	
	Water Quality Control Engineering	2		0	
	Water Sanitary Engineering	2		0	
	Nuclear Environmental Engineering, Adv.	2		0	
	Atmospheric and Global Environmental Engineering, Adv.	2		0	
	Environmental Engineering Seminar A		4		O
	Environmental Engineering Seminar B		1		O
	Environmental Microbiology, Adv.	2		0	
	Environmental Health, Adv.	2		0	
Developmental	Environmental-friendly Technology for Sound Material Cycle (*)	1.5		0	
and applied	Geohydro Environment Engineering, Adv.	2		0	
subjects	Lecture on Environmental Risk Management Leader	2			
	New Environmental Engineering I, Adv.	2			
	New Environmental Engineering II, Adv.		2		
	Environmental Organic Micropollutants Analysis Lab.	2			0
	Advanced Environmental Engineering Lab.		2		0

\* Compulsory subject \* (\*) every other year \* Subjects in red are taught in English

#### 2 Master's thesis –

Students are required to write a Master's thesis in Japanese or English using the format prescribed by the Department of Environmental Engineering at Kyoto University's Graduate school of Engineering. If writing in Japanese, students need to prepare an abstract in English on up to ten sheets of A4-size (210 mm  $\times$  297 mm) paper. To complete the Master's program, students are required to give an oral presentation (public hearing) on their thesis in English and pass the examination.

### 2 Master's Degree Program, Institute of Enviroment and Ecology, Shenzhen International Graduate School, Tsinghua University

#### ① Subjects that can be taken

To complete the Master's degree program, students are required to earn at least 32 credits in total. The table below shows examples of subjects available in Earth Resources and Environment (abbreviation: Environmental Engineering). Thirty-two credits must be taken from the list in the table below, of which five credits must be earned from Public: compulsory subjects, at least 18 credits from Subjective: specialized subjects, at least four credits from Vocational: quality subjects, and five credits from Practice: compulsory subjects including internships. Students are allowed to earn up to 10 credits from subjects provided by Department of Environmental Engineering, Graduate school of Engineering, Kyoto University (Note that similar subjects are excluded).

#### Examples of subjects available in the Master's degree program, Institute of Enviroment and Ecology, Shenzhen International Graduate School, Tsinghua University

	Subject title	First semester	Secono semesto
Public: Compulsory subjects	A Panoramic View of Chinese Culture	2	
	Interpretation of Frontier Issues of China's Economy	1	
	Chinese language	2	
	Principles of Environmental Behavior	2	
	Advanced Environmental Chemistry	2	
	Membrane Science and Technology-	2	
	Sustainable Nanotechnology: Environmental Applications and Implications	3	
Subjective:	Environmental Monitoring and Analysis	3	
Specialized subjects	Air Pollution Control Technology	3	
	Management and Treatment of Solid Waste	3	
	Fundamentals and Application of Environmental Biotechnology	3	
	Technology for Wastewater Treatment and Reuse	3	
	Drinking Water Treatment Technology	3	
	Literature Review and Thesis Writing	1	
	Professional Ethics	1	
Vocational: Quality subjects	Frontiers of Chinese Contemporary Issues Research	1	
Quality Subjects	Management of Entrepreneurship	2	
	Professional Development and Presentation	2	
	Internship		3
Practice: Compulsory subjects	Literature Review and Research Proposal		1
compulsory subjects	Academic activities		1

\*\*Subjects in red are taught in both English and Chinese \*\*Specific subjects and starting dates may vary year by year.

#### 2 Master's thesis

Students are required to write a Master's thesis in English using the format prescribed by Institute of Environment and Ecology, Shenzhen International Graduate School, Tsinghua University. To complete the Master's program, students are required to give an oral presentation (public hearing) on their thesis in English and pass an examination.

## 4. Application guidelines, application schedule and contact.

### 1 Application guidelines

Please see the following Web page regarding the entrance examinations held by Kyoto University's Graduate School of Engineering.

https://www.t.kyoto-u.ac.jp/ja/admissions/graduate/exam1

Applicants must pass the entrance examination for the Department of Environmental Engineering in August or that for the Master's program for international students at the Department of Environmental Engineering in February to be able to enroll in the Department of Environmental Engineering. However, students with Chinese nationality are not eligible.

### 2 Application schedule

Applicants who wish to participate in this program are recruited within one month after enrollment.

### 3 Contact

C Cluster Office, Graduate Student Section, Graduate School of Engineering, Kyoto University TEL: +81-75-383-2967 E-mail: 090kckyomu@mail2.adm.kyoto-u.ac.jp

(Ref.) Website of Kyoto University - Tsinghua University, Cooperative Research and Education Center for Environmental Technology (CRECET) https://crecet.env.kyoto-u.ac.jp/contact/?lang=en

## 5. Examples of living expenses (as of 2021)

#### 1 Example for Shenzhen International Graduate School, Tsinghua University

(The cost of the trip to China will be supported by Kyoto university.)

An example of monthly living expenses (2021), Chinese yuan (renminbi) (Rate: 18.2 Japanese yen/renminbi @ as of February 2022.)

Rent	Dormitory: 1,000 yuan/month/single, 500 yuan/month/twin, deposit: 2,000 yuan, utility expenses: around 100 yuan/month
Food expenses	School cafeteria: 1,500 yuan/month
Transportation expenses	Students do not need a commuter pass because students live in on-campus housing. (Public bus: 2 yuan per trip; subway: 2 - 10 yuan per trip depending on distance traveled)
Cell phone bill	10 GB, 100-min call: 59 yuan/month
Social insurance fees	None. Tsinghua University pays for all medical examinations and medicine fees. However, fees for imported medicines are not covered.
Internet fees	Free Internet at the school
Grant	1,500 yuan/month (from Tsinghua University to international students)

### 2 An example for Graduate School of Engineering, Kyoto University

(International students can stay in Kyoto University's exclusive dormitory for about one year at a low cost. For more information, please visit the following website for more information. https://kuiso.oc.kyoto-u.ac.jp/cn/housing/facilities/)

An example of monthly living expenses (2021), Japanese yen

Rent	50,000 yen/month, deposit: 40,000 yen, utility expenses: around 6,000 yen/month
Food expenses	40,000 yen/month
Transportation expenses	From home (near Katsura station on the Hankyu Line) to school: 480 yen/one round trip by bus
Cell phone bill	3 GB basic charge: around 2,000 yen/month plus call charges (22 yen/30 sec. with tax)
Social insurance fees	Prefectural mutual insurance: 1,000 yen/month, health insurance: 1,600 yen/month, and student insurance 1,800 yen/year
Internet fees	Mobile WiFi Router: 5,350 yen/month; free Internet at the school
Daily necessities, miscellaneous expenses	2,000 yen/month
Subsidy	25,000 yen/month (for international students from Kyoto University)





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