September 25th, 2019





Orientation for Graduate Major in Global Engineering for Development, Environment and Society (GEDES)

Takehiko Murayama **GEDES** Chair (AY2018-2019)

Faculty Members

GEDES

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Professors (教授)		Associate Pro	ofessors(准教授)	
氏名	Name	Campus	氏名	Name	Campus
神田 学	Manabu KANDA	0	秋田 大輔	Daisuke AKITA	0
木内 豪	Tsuyoshi KINOUCHI	S	阿部 直也	Naoya ABE	0
髙田 潤一	Jun-ichi TAKADA	0	江頭 竜一	Ryuichi EGASHIRA	0
髙橋 邦夫	Kunio TAKAHASHI	0	佐藤 由利子	Yuriko SATO	0
中崎 清彦	Kiyohiko NAKASAKI	0	髙木 秦士	Hiroshi TAKAGI	0
野原 佳代子	Kayoko NOHARA	0	髙橋 史武	Fumitake TAKAHASHI	S
花岡 伸也	Shinya HANAOKA	0	時松 宏治	Koji TOKIMATSU	S
日野出 洋文	Hirofumi HINODE	0	中村 隆志	Takashi NAKAMURA	0
村山 武彦	Takehiko MURAYAMA	S	中村 恭志	Takashi NAKAMURA	S
山口 しのぶ	Shinobu YAMAGUCHI	0	錦澤 滋雄	Shigeo NISHIKIZAWA	S
			т	om HOPE	0
			山下 幸彦	Yukihiko YAMASHITA	0



Aim of the educational program

- 1. To create a new technology, value, and concept required in the society
- 2. To solve the numerous problems faced by the international society with an accurate understanding
- 3. To equip global engineers with the "ability to cocreate" including,
 - communication skills to work effectively in cooperation with an engineer from a different field
 - management skills to operate multiple projects or an organization.

Faculty Members



Campus

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Assistant Professors(助数)

Assistant Pro	ofessors(助教)		Professors (Su	ɪb-members)(副担当	当)
氏名	Name	Campus	氏名	Name	C
稲垣 厚至	Atsushi INAGAKI	0	吉田 尚弘	Naohiro YOSHIDA	
厳島 怜	Rei ITSUKUSHIMA	S	鼎 信次郎	Shinjiro AGATA	
川崎 智也	Tomoya KAWASAKI	0	齋藤 滋規	Shigeki SAITO	
Winart	o KURNIAWAN	0	Jeffrey	Scott CROSS	
小山 光彦	Mitsuhiko KOYAMA	0	屋井 鉄雄	Tetsuo YAI	
齋藤 健太郎	Kentaro SAITO	0	竹下 健二	Kenji TAKESHITA	
辻 潔	Kiyoshi TSUJI	0	浅輪 貴史	Takashi ASAWA	
はばき 広顕	Hiroaki HABAKI	0	吉村 千洋	Chihiro YOSHIMURA	
平野 拓一	Takuichi HIRANO	0	青柳 貴洋	Takahiro AOYAGI	
Pasomph	one HEMTHAVY	0			
渡邉 敦	Atsushi WATANABE	0			



Master's Course - Brief Introduction -

Outline procedures for 2 years



For students enrolling in September, 1Q means the third quarter in the academic year.

GEDES

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Completion Requirements

- 1. A total of 30 credits or more acquired from 400- and 500-level courses.
- 2. Meet the completion requirements indicated in Table M1. below.
- 3 Pass the master's thesis review and defense.

ible N	11.			С СЕДЕ
	Course category	<required courses=""> Required credits</required>	< <u>Electives></u> Minimum credits required	Minimum credits required
Liberal arts and basic science	Humanities and social science courses		 2 credits from 400- level 1 credit from 500- level 	5 credits
courses	Career development courses		2 credits	
	Other courses			
	Research seminars	 Seminar for Global Engineering S1 Seminar for Global Engineering F1 Seminar for Global Engineering S2 Seminar for Global Engineering F2 A total of 8 credits, 2 credits each from the above courses. 		24 credit
	Research-related courses			
Core courses	Major courses	Project Design & Management S Project Design & Management F A total of 4 credits, 2 credits each from the above courses.	12 credits	
	Major courses and Research- related courses <u>outside</u> the Graduate Major in Global Engineering for Development, Environment and Society standard curriculum			8



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Table M2. Core Courses of GEDES

400	GEG. <mark>Z</mark> 491.R	0	Seminar for Global Engineering S1	0-2-0
level	GEG. <mark>Z</mark> 492.R	0	Seminar for Global Engineering F1	0-2-0
500	GEG. <mark>Z</mark> 591.R	0	Seminar for Global Engineering S2	0-2-0
level	GEG. <mark>Z</mark> 592.R	0	Seminar for Global Engineering F2	0-2-0

(a) : Required course

Required Core Courses for 1st half year

	Project Based	Global Env.	Social Env. Policy	International Dev.	Resourse/ Manufacring
Ę	Project Design & Management -S	Atmospheric Environment in Megacities	Environmental Policy	Sustainable Development and Integrated Management	Environmental Cleanup and Pollution Control Technology
σ			Global Science Communication and Engagement	Development Economics and Appropriate Technology	Technologies for Energy and Resource Utilization
Q2		Hydrology and Water Resources Conservation	Basic Behaviormetrics: Theory and Methods	Case Method for International Development and Human Resources	Introduction to Systems Engineering
		Global Environmental System and Ecosystem Dynamics	Environmental Impact Assessment	Concept Designing	Utilization of Resources and Wastes for Environment
					Energy&Environment -1 (Intensive) ¹¹

Groups of major courses



Core Courses for 2nd half year

	Project Based	Global Env.	Social Env. Policy	International Dev.	Resourse/ Manufacring
Q3		Coastal Disaster Mitigation for Engineers and Planners	The economics and systems analysis of environment, resources and technology	Project Management and Evaluation for Sustainable Infrastructure	Chemical Process Synthesis for Development
		Urban Environment			
		Environmental Hydraulics			
	Project Design & Management -F	Socio-ecological systems in changing global and local environments	History and Current Issues of Economic Development and Environmental Protection	Environmental Statistics	Introduction to Information and Communication Technologies for Development
Q4	Required		Environmental Statistics		Perspective and Understanding of Various Kinds of Material and Standardization





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GEDES

	School year			1	st	year			
Course c	ategory	1Q		2Q		3Q		4Q	
Liberal arts and	Humanities and social science courses			Leadership Workshop	1			Peer Review Practicum	1
oasic	English language course							-	
science	2nd foreign language courses								
courses	Career development	Master's Career Design	1			Master's Career Design Practice	1		
	Major courses	Project Design & Management S	2	oastal Disaster Mitigation for Engineers and Planners	1	Project Design & Management F	2	Socio-ecological systems in changing global and local environments	2
		Atmospheric Environment in Megacities	2	Hydrology and Water Resources Conservation	1	Global Environmental System and Ecosystem Dvnamics	2		
Core courses						Environmental Hydraulics	1		
						Global Environmental System and Ecosystem Dynamics	2		
	Research-related courses							Concession and the second s	
	Research seminars	Seminar for Glo	bal	Engineering S1	2	Seminar for Glo	bal	Engineering F1	2
	Out-dite		1	0			1	3	
	Greats				2	3			

Course numbering Rule

• GEG.T413.L 1-0-0 (Lecture - Exercise - Experiment/Training)

R: Required , L: Elective

E (Environment),

- S (Social environmental policy)
- I (International development)
- T (Technology),
- F (Fieldwork, internship)
- L (Lecture method)
- P (Project)

Some Core Courses of GEDES (400s)



	GEG.E401.L			Global Environmental System and Ecosystem Dynamics	2-0-0							
	GEG.E402.L			Urban Environment	2-0-0							
	GEG.E403.L			Environmental Cleanup and Pollution Control Technology	1-0-0							
	GEG.E404.L			Technologies for Energy and Resource Utilization	1-0-0							
	GEG.E411.L			Atmospheric Environment in Megacities	2-0-0							
400 level	GEG.E412.L			Hydrology and Water Resources Conservation	1-0-0							
	GEG.E421.L			Energy&Environment-1	1-0-0							
	GEG.I401.L			Sustainable Development and Integrated Management	1-0-0							
	GEG.I402.L			Development Economics and Appropriate Technology	2-0-0							
	GEG.P451.R	0		Project Design & Management S	0-1-1							
	GEG.P452.R	0		Project Design & Management F	0-1-1							
		© :	Rea	uired courses 🗆 : Elective courses	©: Required courses : Elective courses							



Specific Info on each course

- Study Guide(学修案内), Timetable(時間割表)
- OCW (Tokyo Tech OpenCourseWare)
 - Course materials, such as lecture notes and course syllabi, for both internal and external visitors.
- OCW-i (Tokyo Tech OpenCourseWare internal)
 - only be accessed by students who have registered courses.
 - Students can confirm the course schedules, lecture cancellations, and get individual tasks.



Links for study guide

- Japanese
- https://www.titech.ac.jp/guide/guide_2019/gr aduate/pdf/03-17.pdf
- English (Intgegrated Graduate Program: IGP)
- https://www.titech.ac.jp/guide/guide_2019/E nglish_F/pdf/29.pdf

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Liberal arts and basic science courses

- For International Students
 - Japanese Language and Culture Courses can be recognized as Humanities and Social Science Courses of the corresponding course level
- For other Liberal Arts and Basic Science Courses
 - Please refer to the relevant pages

Ta	b	e	M	1.



	Course category	<required courses=""> Required credits</required>	<pre><electives> Minimum credits required</electives></pre>	Minimum credits required
Liberal arts and basic science	Humanities and social science courses		 2 credits from 400- level 1 credit from 500- level 	5 credits
courses	Career development courses		2 credits	
	Other courses			
	Research seminars	 Seminar for Global Engineering S1 Seminar for Global Engineering F1 Seminar for Global Engineering S2 Seminar for Global Engineering F2 A total of 8 credits, 2 credits each from the above courses. 		24 credits
	Research-related courses			
Core courses	Major courses	Project Design & Management S Project Design & Management F A total of 4 credits, 2 credits each from the above courses.	16 credits	
	Major courses and Research-			
	related courses <u>outside</u> the			
	Engineering for Development			
	Environment and Society standard curriculum			18

Career Development Course

- Master's students are required to acquire the necessary credits in the career development courses
 - with fulfilling ALL of the Graduate Attributes
 (GA) shown in Table MA-1,
 - by the end of your master's degree program.

Table MA-1 Master's Degree Program Graduate Attributes

COMable to delineate one's career plan clearly and
recognize the skills necessary to materialize the
plan, also considering its relations to the society

C1M able to utilize its own expertise to the development of academia and technology, and work with others with different expertise to contribute to problem-solving

Specific courses for each GA

 Master's Career Design Master's Career Plan Strategies for Balancing Career, Personality and Lifestyle Master's Career Design Practice Ethics of Scientists Ethics of Engineers Pre ALP Practice Social Contributions through Research Master's Critical Thinking Master's Critical Thinking Master's Critical Thinking Master's Critical Thinking Master's Technical Discussion Master's Technical Writing Smart Business Career Development Ethics of Scientists Pre ALP Practice Social Contributions through Research Master's Scientific Communication 	СОМ	C1M
	 Master's Career Design Master's Career Plan Strategies for Balancing Career, Personality and Lifestyle Master's Career Design Practice Ethics of Scientists Ethics of Engineers 	 Master's Critical Thinking Master's Technical Discussion Master's Technical Writing Smart Business Career Development Ethics of Scientists • Ethics of Engineers Pre ALP Practice Social Contributions through Research Master's Scientific Communication



Doctoral Course

- Brief Introduction -

С БЕДЕЯ

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Table M3. Courses of the Graduate Major in GEDES that can be recognized as Career Development Courses

Course category	Course number	Course	Credits	GA*
h	GEG.F541. L - 544L	Global Engineering Fieldwork A, B, C, D	0-0-1	C1M
recognized as Career Development	rized as GEG.F551. L - 554.L Global	Global Engineering Internship A, B, C, D	0-0-2	C1M
Courses	GEG.F531. L - 534.L	Global Engineering International Workshop A, B, C, D (Master course)	0-0-1	C1M



GEDES TOKYO TECH

Outline procedures for 3 years

Set the learning goals

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*												
1 st ser	emester • 2 nd semester •		2 nd semester • 3 rd semester • 4 th semester • 5 th se		5 th ser	semester - 6 th se		emester •				
1Q -	2Q ~	3Q	4Q -	5Q -	6Q	7Q -	8Q	9Q -	10Q -	11Q .	12Q ~	÷
$\hat{\Box}$					$\hat{}$	2	ų			$\widehat{\Box}$	公	
Orienta	tion .			(Interme present	ediate ation	4J		Degre applic	e ation	Fin exa	al . mination.
يا يا									\langle	Thesis and pres	submiss sentation	ion n .
la,												

For students enrolling in September, 1Q means the third quarter in the academic year. $$^{\sc 25}$$

Table D1

Liberal arts	Humanities and social science courses		2 credits	
and basic science courses	Career development courses		4 credits	6 credits
	Other courses			
Core courses	Research seminars	 Seminar for Global Engineering S3 Seminar for Global Engineering F3 Seminar for Global Engineering S4 Seminar for Global Engineering F4 Seminar for Global Engineering S5 Seminar for Global Engineering F5 A total of 12 credits, 2 credits each from the above courses. 		18 credits
	Research-related courses		6 credits	
	Major courses			27

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Completion Requirements

- 1. A total of 24 credits or more acquired from 600-level courses.
- 2. Meet the completion requirements indicated in Table D1. below.
- 3. Pass the doctoral thesis review and defense.

Table D1. (a part)

GEDES TOKYO TECH

					TORIGI
Re		GEG.Z691.R	0	Seminar for Global Engineering S3	0-2-0
sear		GEG.Z692.R	0	Seminar for Global Engineering F3	0-2-0
ch se	600	GEG.Z693.R	0	Seminar for Global Engineering S4	0-2-0
mina	level	GEG.Z694.R	0	Seminar for Global Engineering F4	0-2-0
ars		GEG.Z695.R	0	Seminar for Global Engineering S5	0-2-0
		GEG.Z696.R	0	Seminar for Global Engineering F5	0-2-0
		GEG.L631.L		Advanced Theory of Teaching Method 1A	0-1-1
		GEG.L632.L		Advanced Theory of Teaching Method 1B	0-1-1
		GEG.L633.L		Advanced Theory of Teaching Method 1C	0-1-1
R		GEG.L634.L		Advanced Theory of Teaching Method 1D	0-1-1
esea		GEG.L635.L		Advanced Theory of Teaching Method 2A	0-1-1
rch-		GEG.L636.L		Advanced Theory of Teaching Method 2B	0-1-1
rela	600	GEG.L637.L		Advanced Theory of Teaching Method 2C	0-1-1
ted	level	vel GEG.L638.L Advanced Theory of Teaching Method 2D	Advanced Theory of Teaching Method 2D	0-1-1	
cour	COL	GEG.L639.L		Advanced Theory of Teaching Method 3A	0-1-1
ses		GEG.L640.L		Advanced Theory of Teaching Method 3B	0-1-1
		GEG.L641.L		Advanced Theory of Teaching Method 3C	0-1-1
		GEG.L642.L		Advanced Theory of Teaching Method 3D	0-1-1
		GEG.F651.L		Practice in Company 1A (Global Engineering)	0-1-1
		GEG.F652.L		Practice in Company 1B (Global Engineering)	0-1-1 28



Types of research-related courses

- Advanced Theory of Teaching Method (0-1-1)
- Practice in Company (0-1-1)
- Advanced Theory of Co-creation (0-1-1)
- Global Engineering Off-Campus Project (0-0-1)
- Global Engineering International Workshop (0-0-1)
- Sustainable Engineering Program Off-Campus Project (0-0-4) (just for IGP(A))

Career Development Courses

- Register in either the Academic Leader Program (ALP) or the Productive Leader Program (PLP) based on their individual career plans.
- Innovator and Inventor Development Platform (IIDP) will ask you the registration of the programs 6 months after your doctoral degree program started.
- Students are required to earn 4 credits which should meet the 4 Graduate Attributes (GAs).

Table A-1 Academic Leader Program (ALP) Graduate Attributes

A0D	You will be able to precisely draw your own career plan and self- train yourself to acquire the skills required for attaining your goals in the academic field
A1D	You will be able to ascertain the true nature of phenomena, master the secret of learning, and lead the pioneering of a new academic discipline or research area
A2D	You will be able to understand the position of academia in society, and adequately explain the academic progress to members of society
A3D	You will be able to nurture junior students in educational institutions, inculcating in them an interest in academics and enabling them to later join in the pioneering of new academic disciplines or research areas

Table A-2 Productive Leader Program (PLP) Graduate Attributes

P0D	You will be able to precisely draw your own career plan and self- train yourself to acquire the skills required for attaining your goals in the industry, etc.
P1D	You will be able to precisely grasp the needs of society and detect its problems, and lead the future developments in science and technology
P2D	While leading teams consisting of members with varied specialties and value systems, you will be able to create products and enterprises that bring forth new values in the society
P3D	Through the project, you will be able to nurture junior students, enabling them to later join in the development of next generation society and industry

Specific courses for ALP

A0D	A1D	A2D	A3D
 Doctoral Career 	ALP Introduction	 ALP Advanced 	ALP Practice I
Design	 ALP Advanced 	Practice I	(Teaching Practice)
 Doctoral Career Plan 	Practice I	 ALP Advanced 	 ALP Practice II
 Strategies for 	 ALP Advanced 	Practice II	(Overseas Training)
Balancing Career,	Practice II	 ALP Advanced 	 ALP Advanced
Personality and	 ALP Advanced 	Practice III	Practice I
Lifestyle	Practice III	 ALP Advanced 	 ALP Advanced
 ALP Practice I 	 ALP Advanced 	Practice IV	Practice II
(Teaching Practice)	Practice IV	 Developing Career 	 ALP Advanced
 ALP Practice II 	 Technical Writing 	Adaptability for	Practice III
(Overseas Training)		Global	 ALP Advanced
		Competitiveness	Practice IV
		 Critical Thinking 	 Developing Career
		 Technical Discussion 	Adaptability for
		 Scientific 	Global
		Communication	Competitiveness
			 Critical Thinking
			 Technical Discussion
			 Scientific
			Communication

Table D3-1. GEDES that can be recognized as Career

Development	Courses in t	he Academic	Leader	Program	(ALP)	
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Course category	Course number	Course	Credits	GA*
	GEG.L631.L -642.L	Advanced Theory of Teaching Method 1A, 1B, 1C, 1D, 2A, 2B, 2C, 2D, 3A, 3B, 3C,3D	0-1-1	A2D, A3D
	GEG.F651.L -662.L	Practice in Company (Global Engineering) 1A, 1B, 1C, 1D, 2A, 2B, 2C, 2D, 3A, 3B,3C, 3D	0-1-1	A2D, A3D
can be recognized	GEG.P651.L -662.L	Advanced Theory of Co-creation 1A, 1B, 1C, 1D, 2A, 2B, 2C, 2D, 3A, 3B, 3C, 3D	0-0-1	A2D, A3D
as Career Developme nt Courses	GEG.P631.L -642.L	Global Engineering Off-Campus Project (Global Engineering) 1A, 1B, 1C, 1D, 2A, 2B, 2C, 2D, 3A, 3B, 3C, 3D	0-0-1	A2D, A3D
	GEG.F631.L -642.L	Global Engineering International Workshop (Doctor course) 1A, 1B, 1C, 1D, 2A, 2B, 2C, 2D, 3A, 3B, 3C, 3D	0-0-1	A2D, A3D
	GEG.P671.L ,GEG.P672. L	Sustainable Engineering Program Off-Campus Project (GEDES) S,F	0-0-4	A2D, A3D 34

Specific courses for PLP

POD	P1D	P2D	P3D
Doctoral Career Design Doctoral Career Plan Strategies for Balancing Career	Technical Writing PLP Introduction PLP Advanced Practice P&D Activities of	•Developing Career Adaptability for Global Competitiveness •Critical Thinking	• Developing Career Adaptability for Global Competitiveness • Critical Thinking
Personality and Lifestyle •Recurrent Program	Global companies I •R&D Activities of Global companies II	Critical Hinking Technical Discussion Scientific Communication Our Discussion	Critical Hinking Technical Discussion Scientific Communication
•Recurrent Program Advanced Practice 2 •Recurrent Program	 Technology Management Practice Recurrent Program 	PLP Practice PLP Advanced Practice Recurrent Program	PLP Practice PLP Advanced Practice Recurrent Program
Advanced Practice 3 • Recurrent Program Advanced Practice 4	Advanced Practice 1 • Recurrent Program Advanced Practice 2 • Recurrent Program	Advanced Practice 1 •Recurrent Program Advanced Practice 2 •Recurrent Program	Advanced Practice 1 •Recurrent Program Advanced Practice 2 •Recurrent Program
	Advanced Practice 3 • Recurrent Program Advanced Practice 4	Advanced Practice 3 •Recurrent Program Advanced Practice 4	Advanced Practice 3 • Recurrent Program Advanced Practice 4

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GEDES

Table D3-2. GEDES that can be recognized as Career Development Courses in the Productive Leader Program (PLP)

Course category	Course number	Course	Credits	GA*
	GEG.F651.L - 662.L	Practice in Company (Global Engineering) 1A, 1B, 1C, 1D, 2A, 2B, 2C, 2D, 3A, 3B, 3C, 3D	0-1-1	P2D, P3D
can be recognized	GEG.P651.L Advanced Theory of Co-creation 1A, 1B, 1C, 1D, - 662.L 2A, 2B, 2C, 2D, 3A, 3B, 3C, 3D		0-1-1	P2D, P3D
as Career Developme nt Courses	GEG.P631.L - 642.L	Global Engineering Off-Campus Project 1A, 1B, 1C, 1D, 2A, 2B, 2C, 2D, 3A, 3B, 3C, 3D	0-0-1	P2D, P3D
	GEG.F631.L - 642.L	Global Engineering International Workshop (Doctor course) 1A, 1B, 1C, 1D, 2A, 2B, 2C, 2D, 3A, 3B, 3C, 3D	0-0-1	P2D, P3D



2019. 9. 26 (Thu.)

<u>10:45~11:30 大岡山(Ookayama)W521</u>

<u>13:20~14:05 すずかけ台(Suzukakedai)J221</u>

The same explanation is given in English and Japanese for both Master's and Doctoral program students.

Important site for all students

http://www.tse.ens.titech.ac.jp/ja/



GEDES Orientation for New Grad Students

Date & Time: 4:30 pm -, April 2nd (TUE), 2019

Venue: Room B02/05, Ishikawadai Bldg. 4, Ookayama

After the orientation, welcome party will be held at the same venue.

Handout GEDES_Oritenataion2019S

Study guide Japanese English

回2019年4月1日 ▲editor ▶所属学生へ ∂編集

