Department of Transdisciplinary Science and Engineering,
School of Environment and Society,
Tokyo Institute of Technology (Tokyo Tech)

Global Engineering for Development, Environment and Society (GEDES)

Considering the significance of multifaceted viewpoints with not only engineering but other academic fields, we promote researches and human development which we can place the meanings and roles in the current society.

Orientation for the Freshers

Graduate Major in

Global Engineering for Development, Environment and Society (GEDES)

28th September 2022

Prof. Kayoko NOHARA
GEDES Chair

AGENDA

- Welcome!

- Research Ethics

- Univ teaching policy on COVID (Sep 2022)

- Course overview

- How to complete your course:
    Master's / Doctoral Curriculum

- More info: Takuetsu academies,

  financial support for doctoral candidates…
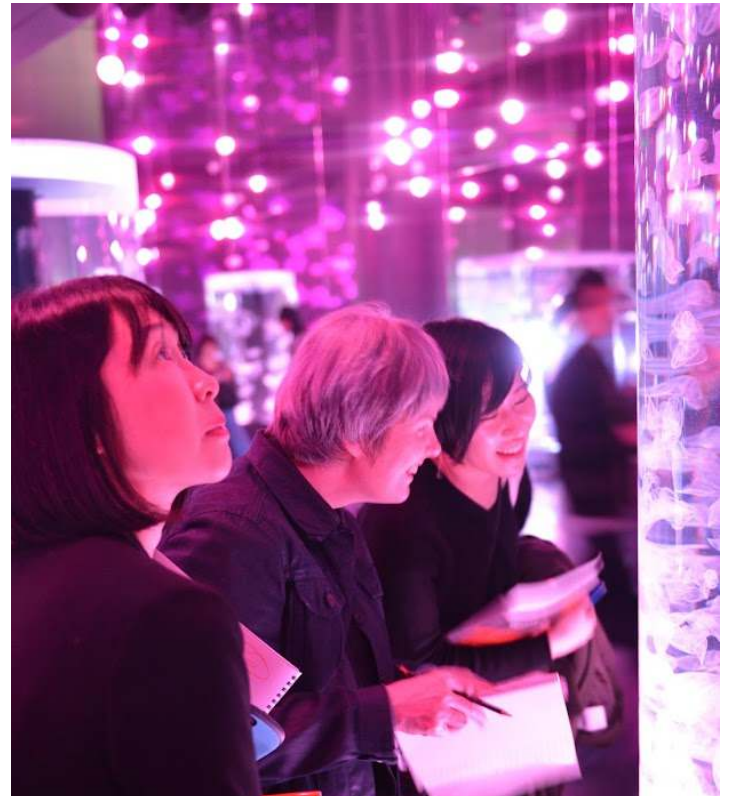
- Q & A

Welcome to GEDES!

Prof. Kayoko Nohara

@South 5 Bldg is speaking.

Linguistics, Translation Studies, Science Communication,

Science & Art/Design…

"To think and to be fully alive are the same."
人として生きるなら、思考を止めてはならない

Hanna Arendt

Research ethics education

– Approach in Tokyo Tech –

_____

Office of Education   (Japanese only)
https://www.eduplan.titech.ac.jp/activity/ethics/

2022/4/1

(Basic Responsibilities of Researchers)

1. Researchers shall recognize that they are responsible for assuring the quality of the specialized knowledge and skills that they themselves create, and for using their expert knowledge, skills, and experience to contribute to the health and welfare of humankind, the safety and security of society, and the sustainability of the global environment.

The Science Council of Japan's "Code of Conduct for Scientists" Article 1. Basic Responsibilities of Scientists has similar text.

Three levels of educational targets
  Level 1 (1st- to 3rd-year undergraduate students): Basic
  Level 2 (4th-year undergraduate students and master's students): Advanced
  Level 3 (Doctoral students): More advanced

Four Categories
  1. Academic integrity
  2. Roles and social responsibilities of researchers
  3. Responsible Conduct of Research (RCR)
  4. Compliance with laws and ordinances

  → You will learn how to conduct research appropriately through some courses, books and online materials
  → Check list

Whatever subject you study, your work and behavior need to ethically good.

Univ policy on Covid
September 2022

Schedule 2022 (R4)
  3Q: Mon. 3 Oct～ Thu. 24 Nov → exam
                    (Univ Fest phase 28～31 Oct)
  4Q: Tue. 6 Dec ～ Thu. 2 Feb, 2023 → exam
                    (Winter break: 28 Dec 2022 – 4 Jan 2023)

Graduate classes will be basically conducted in person. There might be local adjustments depending on each class and its content: on Zoom, hyflex, on-demand, combination… - refer to the syllabus on the WEB System and T2SCHOLA for the specific course implementation methods.

COVID Info: https://www.titech.ac.jp/english/news/2020/046441
Academic Calendar: https://www.titech.ac.jp/english/student/students/life/schedules

Aim of the GEDES educational program

1. To create a new technology, value, and concept responding to the environmantal, societal development and their needs.

2. To find and solve the numerous problems around the international society with an accurate understanding and transdisiplinary persopectives.

3. To equip global sientists and engineers with the "ability to co-create" including,

   – Communication skills to work effectively in cooperation with people from different fields and cultures.

   – Management skills to operate an organization or multiple projects.

GEDESの教育研究目標

J GEDES TOKYO TECH

グローバル時代の国際開発／環境・資源・エネルギー／社会的問題に取り組む

地球環境問題など、国際社会が抱える横断的課題が顕在化、産業構造も変化
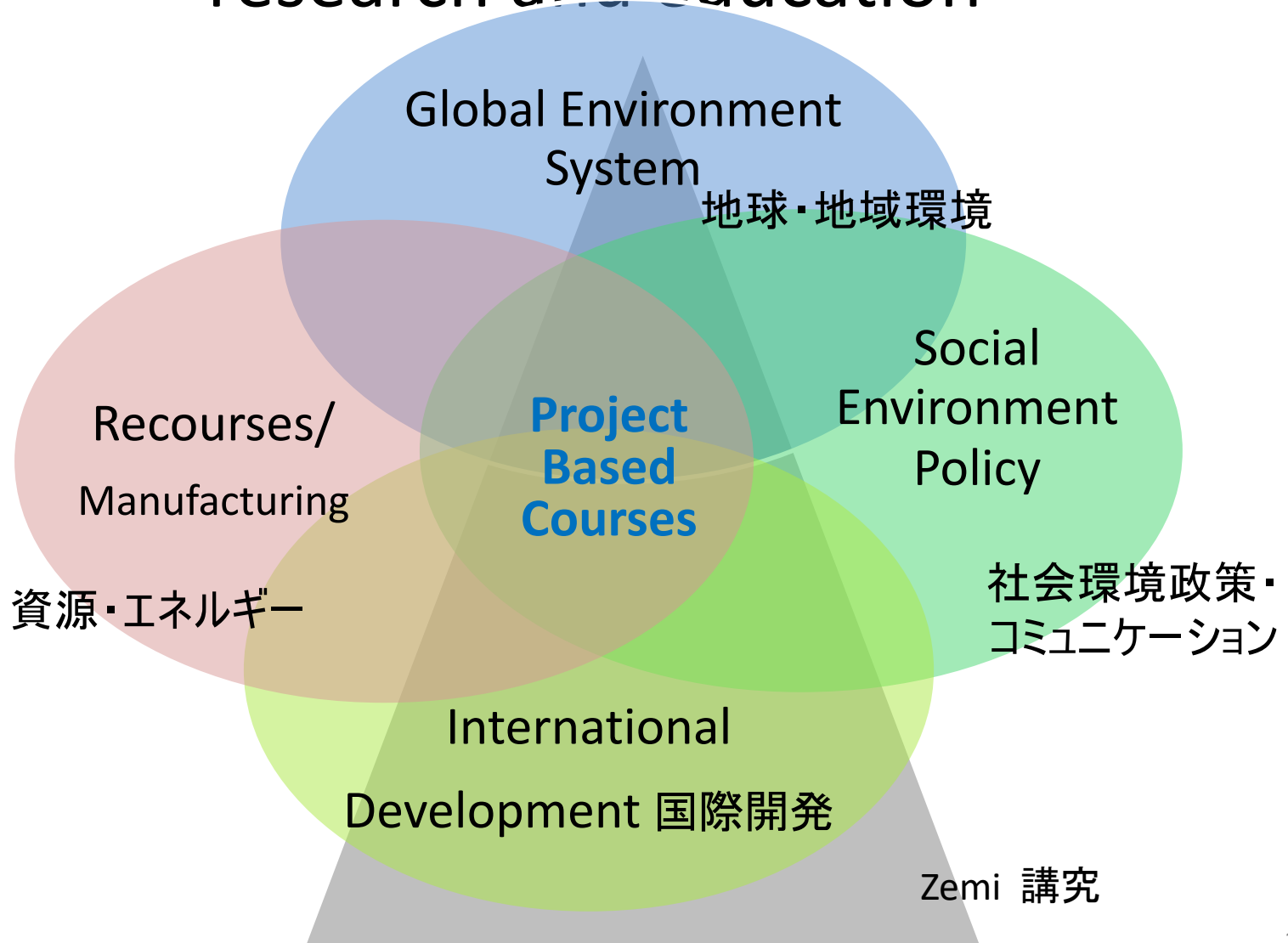要素技術の単純な足し合わせでは解決できない
→ 単なるモノづくりでない、学問体系の枠に囚われない新たな研究開発

1. 新たな技術・価値・概念の創出

2. 地球規模の複合的課題の解決（問題発見と解決、創造的思考・実行）

3. 共創力

- 異分野・異文化チームで力を発揮できるコミュニケーション力と俯瞰的視野

- 複合的プロジェクトや組織を動かすマネジメント能力

4 Groups of fields for research and education

Global Environment System
地球・地域環境

Social Environment Policy

Project Based Courses

Recourses/ Manufacturing
資源・エネルギー

社会環境政策・コミュニケーション

International Development 国際開発

Zemi 講究

How to complete your course: Master's Curriculum

Completion Requirements (Master course)

1. Attain 30 credits or more from the 400- and 500-level courses in the Liberal arts and basic science courses and the Core courses.

2. Fulfill the specific requirements: Table M1 and M2.

   24 credits from Core courses: 8 from Research Seminars, 16 from Major course

   5 from Liberal Arts and Basic Science Courses: 3 from Social Science courses and 2 from Career Dev. Courses

3. Give your interim presentation, submit your master's thesis, pass the review procedure and complete your final oral defense.

GEDES修士課程の修了要件

1. 30単位以上を大学院授業科目から修得
2. 指定された授業科目で次の要件を満たすこと

Table M1・M2参照

- **専門科目群**から24単位以上修得
  - 講究科目（ゼミ）を8単位修得
  - 専門科目16単位以上（必修4単位含む）
- **教養科目群**から5単位以上修得
  - 文系教養科目3単位以上・キャリア科目2単位以上含む

3. 中間発表、修士論文審査及び最終試験に合格すること

Table M1.

Course category		Required courses and credit	Electives Minimum credits required	Minimum credits required
Liberal arts and basic science courses 教養科目群	Humanities and social science courses 文系教養科目		• 2 credits from 400-level • 1 credit from 500-level	5 credits
	Career development courses キャリア科目		2 credits	
	Other courses			
Core courses	Research seminars 講究科目（ゼミ）	• 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			
	Major courses 専門科目	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 outside the GEDES standard curriculum 他専門科目			

Table M2. Core Courses of GEDES

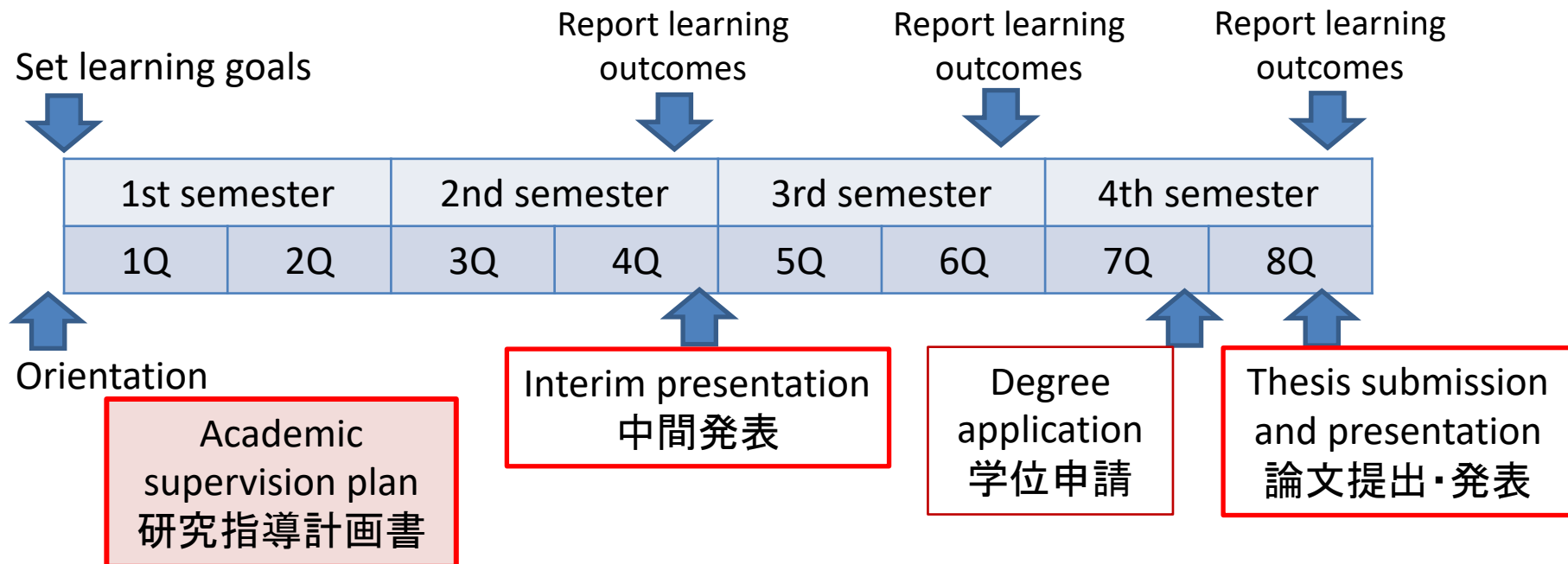|				
400 level	GEG.Z491.R	◎	Seminar for Global Engineering S1	0-2-0
	GEG.Z492.R	◎	Seminar for Global Engineering F1	0-2-0
500 level	GEG.Z591.R	◎	Seminar for Global Engineering S2	0-2-0
	GEG.Z592.R	◎	Seminar for Global Engineering F2	0-2-0

◎ : Required

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)

Master's Course

Outline procedures for 2 years (standard)

Set learning goals

Report learning outcomes

Report learning outcomes

Report learning outcomes

1st semester		2nd semester		3rd semester		4th semester	
1Q	2Q	3Q	4Q	5Q	6Q	7Q	8Q

Orientation

Academic supervision plan
研究指導計画書

Interim presentation
中間発表

Degree application
学位申請

Thesis submission and presentation
論文提出・発表

- The interim presentation: Sep 2023
- The final master's thesis presentation: August 2024

  (You can graduate earlier if you satisfy the requirement)

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How to complete your course:

Doctoral Curriculum

Completion Requirements (PhD course)

1. Attain a total of 24 credits or more from the 600 level courses in the "Liberal arts and basic science courses" and the "Core courses".

2. Fulfill the specific requirements shown in Table D1 and D2.

3. Give your interim presentation, complete your preliminary defense, pass the doctoral thesis review and successfully accomplish your final PhD defense.

4. The major part of the thesis shall be published, or prepared at a publishable level, in qualified academic journals.
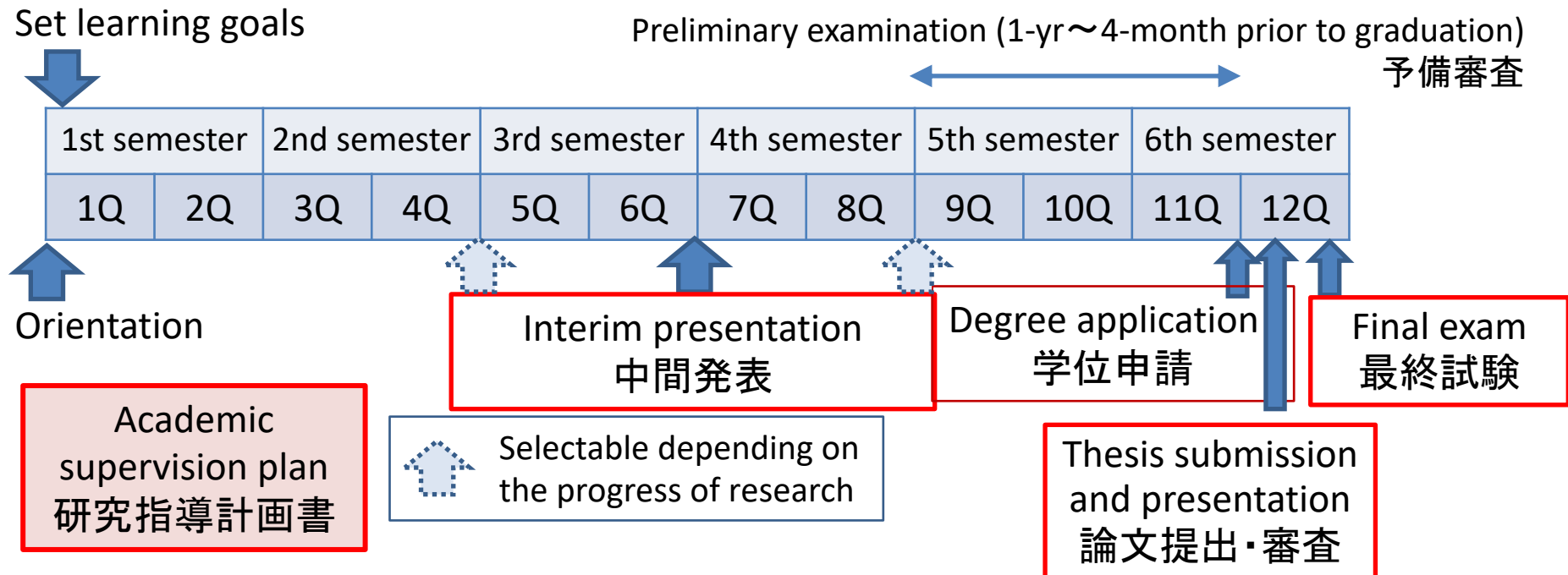
Table D1.

Liberal arts and basic science courses	Humanities and social science courses 文系教養科目		2 credits	6 credits
	Career development courses キャリア科目		4 credits	
	Other courses			
Core courses	Research seminars 講究科目（ゼミ）	•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 研究関連科目		6 credits	
	Major courses 専攻科目			

Table D2. (extract)

Research seminars	600 level	GEG.Z691.R	◎	Seminar for Global Engineering S3	0-2-0
		GEG.Z692.R	◎	Seminar for Global Engineering F3	0-2-0
		GEG.Z693.R	◎	Seminar for Global Engineering S4	0-2-0
		GEG.Z694.R	◎	Seminar for Global Engineering F4	0-2-0
		GEG.Z695.R	◎	Seminar for Global Engineering S5	0-2-0
		GEG.Z696.R	◎	Seminar for Global Engineering F5	0-2-0
Research-related courses	600 level	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
		GEG.L634.L		Advanced Theory of Teaching Method 1D	0-1-1
		GEG.L635.L		Advanced Theory of Teaching Method 2A	0-1-1
		GEG.L636.L		Advanced Theory of Teaching Method 2B	0-1-1
		GEG.L637.L		Advanced Theory of Teaching Method 2C	0-1-1
		GEG.L638.L		Advanced Theory of Teaching Method 2D	0-1-1
		GEG.L639.L		Advanced Theory of Teaching Method 3A	0-1-1
		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

Doctoral Course

Outline procedures for 3 years (standard)

Set learning goals

Preliminary examination (1-yr～4-month prior to graduation)
予備審査

1st semester		2nd semester		3rd semester		4th semester		5th semester		6th semester	
1Q	2Q	3Q	4Q	5Q	6Q	7Q	8Q	9Q	10Q	11Q	12Q

Orientation

Interim presentation
中間発表

Degree application
学位申請

Final exam
最終試験

Academic supervision plan
研究指導計画書

Selectable depending on the progress of research

Thesis submission and presentation
論文提出・審査

- The interim presentation will be scheduled after 1.5 years from your enrollment
- The final presentation on July 2025.
- (You can graduate earlier if you fulfill further requirement.)

For both Master's and Doctoral students

Research-related courses for master and doctoral courses in GEDES

Credits for the following courses are given based on the presentation in the Student Activity Workshop held in August and February in each year.

	Courses	Description	Course-level permission
Master only	Global Engineering Fieldwork (0-0-1)	Activities for 2 weeks 〜 1 month	
	Global Engineering Internship (0-0-2)	Activities for 1 month or longer	Required
M & D	Global Engineering International Workshop (0-0-1)	Presentation at international conferences*	
Doctor only	Advanced Theory of Teaching Method (0-1-1)	Support academic courses as a non-paid teaching assistant (TA)	
	Training in Teaching Method (0-0.5-0.5)	Support academic courses as a non-paid teaching assistant (TA)	
	Advanced Theory of Co-creation (0-1-1)	Student-led voluntary activities of co-creative plan outside the campus	
	Practice in Company (0-1-1)	Activities in company, institute, etc. for 1 month or longer	Required
	Global Engineering Off-Campus Project (0-0-1)	Activities for 2 weeks 〜 1 month	
	Sustainable Engineering Program Off-Campus Project (0-0-4) (for IGP(A))	3 months or longer; applicable for students in IGP(A) (ISSEP)	Required

* Int'l conferences held in Japan included. Presentations in online conferences are (tentatively) are allowed.

研究関連科目

J GEDES TOKYO TECH

以下の活動は、各科目を履修登録したうえで毎年2月と8月に行われる学生活動報告会で発表しレポートを提出することにより、単位取得が可能.

	科目名	概要	コースの事前承認
修士	地球環境共創フィールドワーク (0-0-1)	2週間以上1か月未満の学外実習	
	地球環境共創インターンシップ (0-0-2)	1か月以上の学外実習	必要
修士博士	地球環境共創国際発表 (0-0-1)	国際会議・国際ワークショップでの発表*	
博士	教授法実践特論 (0-1-1)	TAの機会を通じて、教育に従事する上で必要な技能を習得	
	教授法特別実習(0-0.5-0.5)	TAの機会を通じて、教育に従事する上で必要な技能を習得	
	共創実践特論 (0-1-1)	大学外の社会の関係者・組織と共創活動を実践する機会	
	企業特別実習 (0-1-1)	企業や研究所・大学における1か月以上の活動	必要
	博士派遣プロジェクト (0-0-1)	2週間以上1ヶ月未満の学外実習	
	持続性工学派遣プロジェクト (0-0-4) (for IGP(A))	IGP(A) (ISSEP)向けの3か月以上の学外実習科目	必要

* 国内開催の国際会議も可。当面の間、オンラインでの発表も可。

Research-related courses for master and doctoral courses in GEDES

Rules for workshop registration

- Your presentation should be made at the earliest workshop after the research-related activity.

- You cannot do the presentation after one year.

- Register for the courses in 1Q or 2Q if you plan to present at the workshop in August. Similarly, register for the courses in 3Q or 4Q if you plan to present at the workshop in February.

- For "Advanced Theory of Teaching Method", students paid as a teaching assistant (TA) are not eligible for this credit course.

Requirement for presentation and report

Number of Credit	Requirements		
	Presentation	Q and A	Report
1 credit	2 minutes	4 minutes	2 pages
2 credits	3 minutes		4 pages
3 credits	4 minutes		6 pages
4 credits	5 minutes		8 pages

Note: this table also applies for the accreditation of "Recurrent Program Advanced Practice" (doctoral program).

地球環境共創コースの研究関連科目

学生活動報告会の登録

- 活動後、直近（2月か8月）の学生活動報告会での発表をが望ましいが
- 活動後、1年以内であれば登録可能。
- 8月の報告会で発表：1Q／2Qの当該科目を履修。
- 2月の報告会で発表：3Q／4Qの当該科目を履修。
- 「教授法実践特論」で単位を取得したい場合、ティーチング・アシスタント(TA)として給与を受けてはならない。

学生活動報告会における発表およびレポートの要件

単位数	要件		
	発表時間	質疑応答時間	レポート頁数
1	2分	4分	2頁
2	3分		4頁
3	4分		6頁
4	5分		8頁

注: 上記の表は「博士リカレント教育発展研修」で3単位を取得する際の要件を含む。

Career Development Course
キャリア科目

- Master's students need to acquire the necessary credits from the career development courses
  - satisfying ALL the Graduate Attributes (GA) requirement shown in Table MA1.
  - by the end of your master's degree program.

Table MA1. Master's Degree Program Graduate Attributes

GA0M	**able to delineate one's career plan clearly and recognize the skills necessary to materialize the plan, also considering its relations to the society** 自らのキャリアプランを明確に描き，その実現に必要な能力を，社会との関係を含めて認識できる．
GA1M	**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** 学術・研究における誠実性について理解し，自身の専門能力を学術・科学技術の発展に活用し，専門能力が異なる他者と共同して課題解決に貢献できる．

Table MA2. Specific courses for each GA

GA0M	GA1M
• Master's Career Design (LAC.M401) • Master's Career Design Practice (LAC.M413) • Ethics of Scientists (CAP.E521) …	• Master's Critical Thinking (LAC.M448) • Social Contributions through Research (LAC.M537) • Master's Scientific Communication (LAC.M562) …

Make sure to check and update yourself on IIDP website!

Table MA3.
Courses for master students in GEDES that can be recognized as Career Development Courses

Course category	Course number	Course	Credits*	GA
Course that can be counted as Career Development Courses	GEG.F541. L - 544L	Global Engineering Fieldwork A, B, C, D (2 weeks or longer; courses conducted domestically acceptable)	0-0-1	GA1M
	GEG.F551. L - 554.L	Global Engineering Internship A, B, C, D (1 month or longer; courses conducted domestically acceptable)	0-0-2	GA1M
	GEG.F531. L - 534.L	Global Engineering International Workshop A, B, C, D (Master course) (presentation at international conferences; courses conducted domestically acceptable)	0-0-1	GA1M

* Detail of credits: Lecture - Exercise - Experiment/Training

Graduate Attributes in Doctoral Course

- Doctor course students are required to earn 4 credits which should meet the 2 Graduate Attributes (GAs).

- IIDP offers various career development courses for doctoral students.

- The career development courses include not only fundamental ones allowing students to acquire basic knowledge and skills, but also practical ones related to internship, teaching, presentations, and overseas experience.

- For more info, visit the following sites:

  - IIDP
  - Career education program
  - Study guides (in Japanese)
  - Syllabus

Table D1. Doctoral Program Graduate Attributes

	Knowledge and Abilities
GA0D	You can clearly design your own career and contribute to realizing scientific, technological, or social innovation through a comprehensive understanding of the knowledge, skills, social responsibilities and ethics required to become an active member of academia and/or industry.
GA1D	You can lead in realizing scientific, technological, or social innovation by acquiring the advanced leadership skills, entrepreneurial skills, knowledge and expertise, and by developing social responsibility necessary for materializing your designed career.

GEDES courses recognized as equivalent to Career Development Courses

Course category	Course number	Course	Credits	GA
Courses that can be counted as Career Develop-ment Courses	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	GA1D
	GEG.P651.L - 662.L	Advanced Theory of Co-creation 1A, 1B, 1C, 1D, 2A, 2B, 2C, 2D, 3A, 3B, 3C, 3D	0-1-1	GA1D
	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	GA1D
	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	GA1D
	GEG.P671.L GEG.P672.L	Sustainable Engineering Program Off-Campus Project (GEDES) S,F	0-0-4	GA1D

- Always go back to Study Guide 学修案内 2022 Not from a different year's!!
- TokyoTech Portal

https://portal.titech.ac.jp/

- GEDES Bulletin Board

https://www.tse.ens.titech.ac.jp/gedes/

- GEDES website

https://www.gedes-tokyo-tech.jp/index.html

Security Export Control

● **What is Security Export Control？**

Security Export Control is a framework, based on the Foreign Exchange and Foreign Trade Act (FEFTA)[1], to maintain international peace and security by preventing weapons[2] and goods and technologies that could potentially be used for military applications from falling into the hands of terrorists or states that may be a security risk.

[1] Penalties under FEFTA:【Criminal Penalty】 *Imprisonment:* No more than 10 years; *Fines:* Individual No more than JPY 30 million, Company No more than JPY 1 billion 【Administrative Penalty】 Prohibition of exports for no more than 3 years

[2] "Weapons" means both conventional weapons and weapons of mass destruction (WMD), including nuclear weapons, chemical weapons, biological weapons, and missiles which carry WMD

● <u>If you are thinking about doing any of the following activities, first consult with your academic supervisor. You may be required to follow Security Export Control procedures before proceeding.</u>

1) Going overseas[3]	2) Communicating with those overseas[3]	3) Leaving Tokyo Tech[3]
・Providing undisclosed technical information overseas ・Taking items (samples, equipment, USB memory) out of Japan ＊ Check with your supervisor before sending items abroad. The value of the item is not relevant.	・Transferring undisclosed technical information from your laboratory ＊ Providing information via SNS is also subject to Security Export Control procedures. ＊ Most laboratories prohibit the provision of technical information from the lab to non-lab members.	・Taking undisclosed technical information (data for a thesis/paper, etc.) out of Japan after graduation ・Taking samples of research material out of Japan after graduation

[3] In the case of international students, this includes returning to or communicating with those in their countries

Academic supervisors: When your students are to conduct any of the activities above, you are required to verify whether or not the activity in question is subject to Security Export Control. If internal examination is required, please fill out and submit the Consultation Form (available from the Security Export Control website for faculty members) to the section in charge of Export Control.   https://www.titech.ac.jp/english/staff/world/export_control/

If you have any questions, consult the section in charge of Security Export Control.
Email: stc.soudan@jim.titech.ac.jp

March 23, 2021

Three Takuetsu Programs

Financial support for doctoral students

At Tokyo Tech, almost all doctoral students receive financial support from public or private entities. The TAC-MI, WISE-SSS, and ISE academies engaging in Takuetsu programs offer students opportunities for financial support.

Takuetsu programs and academies

As part of efforts to foster outstanding doctoral graduates, Tokyo Tech has established the aforementioned three academies that function **across academic disciplines at the Institute**, and enable **seamless transition between master's and doctoral degree programs**. With the objective of developing students' abilities and skills required to **create new value and solve social problems**, these academies offer unique programs. They aim to promote **interdisciplinary research**, and encourage **personnel exchanges** among various organizations such as industrial entities, national institutions, and overseas institutions, while placing value on laboratory work and activities.

Takuetsu programs are waiting to welcome you!

Tokyo Tech Academy for Convergence of Materials and Informatics (TAC-MI)	Tokyo Tech Academy for Super Smart Society (WISE-SSS)	Tokyo Tech Academy of Energy and Informatics (ISE)

* Takuetsu programs: Programs offered by the TAC-MI, WISE-SSS, and ISE academies are supported by MEXT's Doctoral Degree Program for World-leading Innovative & Smart Education (WISE Program). They are commonly called *Takuetsu* (卓越 in Japanese, meaning excellence or superiority) programs.

3つの卓越教育院

博士後期課程学生への経済的支援の一つの取り組み

　本学では、博士後期課程に在籍するほぼ全ての学生が、つばめ博士学生奨学金や博士後期課程学生向けプログラム、日本学術振興会、民間企業・財団などから経済的支援を受けています。

　　本学の取り組みの一つに、卓越した博士人材を育成する、**全学横断型の修博一貫の大学院教育プログラム**として、**３つの卓越教育院**があります。

　　卓越教育院は、　**経済的支援**を行いながら、学生の研究室での研究活動も大切にしつつ、**異分野融合研究**、産業界・国立機関・海外機関との**人材交流**等の様々なイベントを通して、**新たな価値の創造による社会課題を解決**する人材を養成します。

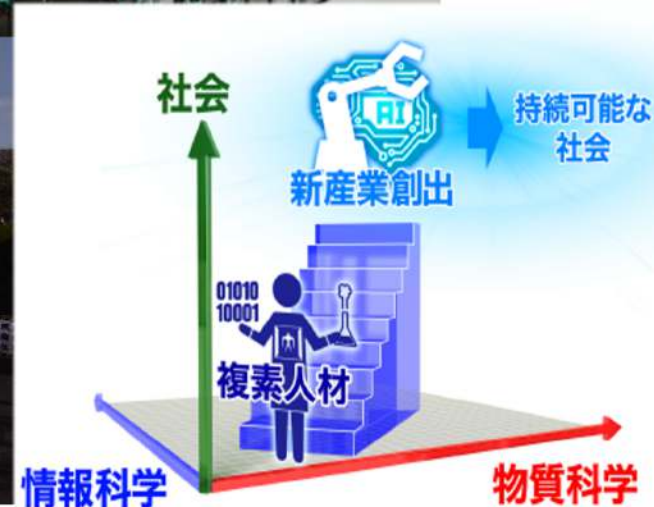## 皆さん、これから本学の卓越教育院で一緒に学んでみませんか？

物質・情報 卓越教育院	超スマート社会 卓越教育院	エネルギー・情報 卓越教育院
TAC-MI	SSS	

Creating sustainable societies through [Material×Information] multi-talented human resource development

Tokyo Tech Academy for Convergence of Materials and Informatics (TAC-MI)

物質・情報卓越教育院

Super Smart Society (SSS) Promotion Consortium

A next-generation education and research platform has been established!
Students have opportunities to form interdisciplinary research teams with consortium partners and participate in the team with financial support.

how?
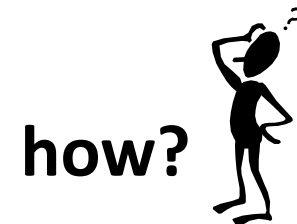
SSS matching workshop

Match the needs of the Consortium partners with the seeds of the research and human resources of students through mutual presentations and discussions

Matching results

2020: 35 cases 2021: 18 cases

Next chance is coming soon!

Nov 26 (Wed) … Seeds from students

Dec 7   (Wed) … Needs from industry

All of you are eligible for attending.
Register on the web!

(Event web will be open in October)

↑SSSの紹介動画です

- 最先端の科学技術の粋を集めた複数の教育研究フィールドを構築し、これらを活用した教育と先端研究の機会を提供
- 社会と連携した魅力ある教育プログラムを提供
- 学業・研究に集中できる経済的サポートを実施
- キャリアパス支援を実施

是非，学生募集説明会に参加してください！

2022年10月20日(木)　17:00〜18:00（日本語）

超スマート社会推進コンソーシアム

- 人材育成から研究開発までを統合した超スマート社会創出のための産官学連携による次世代型社会連携教育研究プラットフォームを構築
- **異分野融合研究チームを構築し，学生が経済的支援を受けつつ研究に参加**

マッチングワークショップ

参加機関を対象に研究発表し，参加機関のニーズと、学生の技術的・人材的シーズをマッチング

【マッチング成立実績】

2020年: 35件　2021年: 18件

2022年11月26日(水)
　　　・・・学生からの発表
2022年12月7日(水)
　　　・・・参加機関からの発表

登録はコンソーシアムwebまで
10月中旬イベントサイトオープン予定
（皆さんは全員参加可能です）

当教育院の**特長**

- ✓ **修博一貫プログラム**
- ✓ **教育研究支援制度：年253万円を上限**
  （つばめ奨学金、指導教員RAを含む）
- ✓ **すべてのコースから参加可能**

GOOD DESIGN AWARD 2012

東京工業大学
エネルギー・情報卓越教育院
Tokyo Tech Academy of Energy and Informatics

エネルギー・情報卓越教育院

マルチスコープ・エネルギー卓越人材プログラムのご案内

2023年度春期登録学生募集説明会

日時：2022年10月4日（火）
日本語 16:30-17:30 / 英語 17:45-18:45
場所：Zoomによるオンライン開催
 HP: https://www.infosyenergy.titech.ac.jp/Academy/

みなさまの奮ってのご参加お待ちしております。

**説明会
参加登録は
こちら→**

Outline of Tokyo Tech Academy of Energy and Informatics

Tokyo Tech Academy of Energy and Informatics

Tokyo Tech

Expectations

Create, design and lead the future society
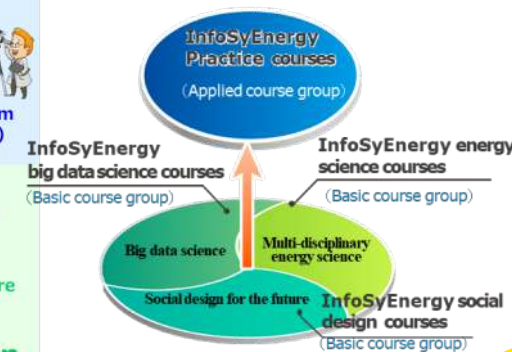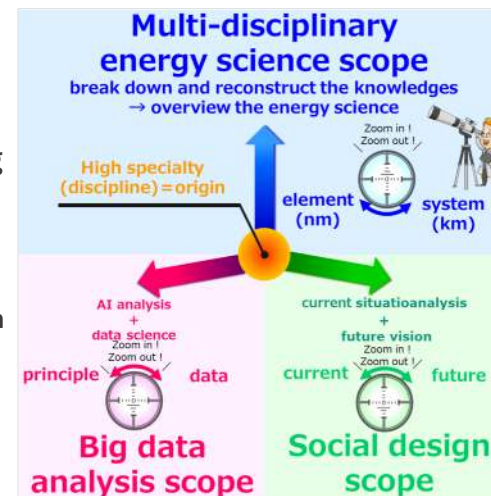
Multi-Scope・Energy WISE Professionals

= "Professionals" with "Multi-disciplinary energy science scope" applied by "Big Data Science" (AI analysis+Data science) who can design a new sustainable energy

Our Efforts

➢ Hitotsubashi University's cooperation by providing knowledges of social science, educational skills and professional skills

➢ Utilization of energy big-data in smart energy system developed and demonstrated at Tokyo

➢ Collaboration with consortium members of 24 companies, 6 public institutes **and** 16 world's leading universities

• Cultivating abilities of flexibly handling on the site and finding problems by providing internship and co-research programs with domestic/overseas companies and universities

• Constructing a global human network centered on doctoral students by participating in various events such as cutting-edge research workshops and exchange events with consortium member companies and overseas universities

• The business and international mentorship system will help students develop multifaceted viewpoints

Our Curriculum

Cultivate "3 scopes" by "4 course groups" collaborating with "InfoSy**Energy** Research and Education Consortium"

Tokyo Tech InfoSyEnergy Research and Education Collaboration

Promote the integrative researches of "system" and "devices"

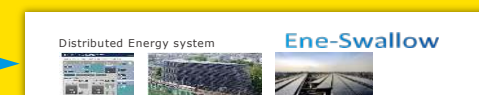| Companies	Public institutions	World's top universities
24	6	16

× Tokyo Tech

● Over 70 Professors/Assoc. Professors participating from across all of Tokyo Tech's schools
● Organized into nine areas, teams design and conduct collaborative research
● "Multi-scope" energy education through academia-industry cooperation
● Strategic student-industry matching, and a recurrent education system
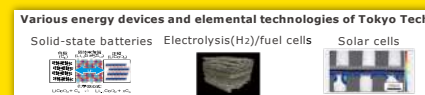
The Aim of InfoSyEnergy

「Synergistic effects from integrated promotion of "energy device development" and "system development」
Campus system technology developed and demonstrated at Tokyo Tech

Various energy devices and elemental technologies of Tokyo Tech

Solid-state batteries Electrolysis(H2)/fuel cells Solar cells

Distributed Energy system **Ene-Swallow**

エネルギー・情報卓越教育院概要

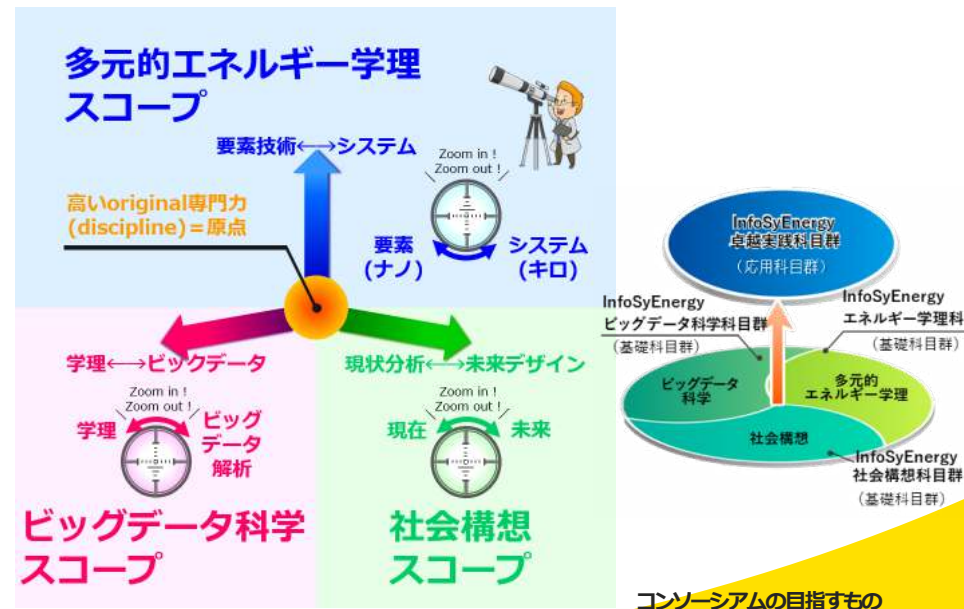## 目指す人材像

未来社会を創造・デザイン・牽引する

マルチスコープ・エネルギー卓越人材 ＝ "ビックデータ科学"（AI解析+データ科学）を活用したマルチスコープで新しいサステイナブルなエネルギー社会をデザインする人材

教育院の取り組み

➢ 一橋大学からの社会科学、教育力、専門力の提供
➢ 東工大開発実装のスマートエネルギーシステムにおけるエネルギー ビッグデータの活用
➢ コンソーシアムの会員で**ある24の企業、6の公的機関、16の世界トップ大学**との協業
- 国内外の企業、大学等での共同研究、インターンシップ経験を通じ、現場対応能力、問題発見能力を涵養する。
- 最先端の研究ワークショップや会員企業・海外大学との交流イベント、国際フォーラムなどへの参加を通じ、博士学生を中心とするグローバルな人的ネットワークを構築する。
- 企業メンター・国際メンター制度を導入し、多角的な視野を養成する。

教育課程

「4つの科目群」による教育課程、
「InfoSyEnergy研究/教育」との協業により
3つのスコープ力を涵養

多元的エネルギー学理スコープ
要素技術⟷システム
高いoriginal専門力(discipline)=原点
要素（ナノ） システム（キロ）
学理⟷ビックデータ
学理 ビッグデータ解析
現状分析⟷未来デザイン
現在 未来
ビッグデータ科学スコープ　社会構想スコープ

InfoSyEnergy 卓越実践科目群（応用科目群）
InfoSyEnergy ビッグデータ科学科目群（基礎科目群）
InfoSyEnergy エネルギー学理科目群（基礎科目群）
InfoSyEnergy 社会構想科目群（基礎科目群）
ビッグデータ科学／多元的エネルギー学理／社会構想

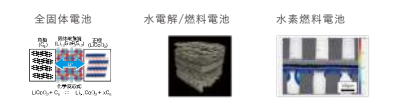## ISE Tokyo Tech InfoSyEnergy 研究/教育コンソーシアム

デバイスと一体となったシステム研究

企業 24 × 公的機関 6 × 世界トップ大 16
東京工業大学

- 各学院横断で全学から教授・准教授70名以上が参画
- 主要9部門を編成し、チーム型産学共同研究を提案、推進
- 「未来のエネルギー社会をデザインする人材」を産学協働で育成
- 学生と企業の人材戦略のマッチング、体系的リカレント教育の実現

コンソーシアムの目指すもの

「エネルギーデバイス開発」と「システム開発」を一体で推進することによるシナジー効果

東工大の様々なエネルギーデバイス・要素技術
全固体電池／水電解/燃料電池／水素燃料電池

東工大で開発、実証されるキャンパス システム技術
系統協調/分散エネルギーシステム
Ene-Swallow
東工大EEI棟

Financial support for doctoral students（JASSO, JSP）

１．奨学金 Scholarships

（１）日本学生支援機構（JASSO）による奨学金

種類		貸与月額
第一種奨学金 （無利子）	修士	5万円、8.8万円から選択
	博士	8万円、12.2万円から選択
第二種奨学金（有利子）		5万円、8万円、10万円、13万円、15万円から選択

（２）民間財団等による奨学金（日本人学生向け）

・大学推薦なしで直接申請できる奨学金と、大学推薦必要な奨学金あり。
・地方公共団体の貸与奨学金（返還必要・無利子）と、民間の給与奨学金（返還不要）、貸与奨学金（返還必要・多くが無利子）がある。

（３）民間財団等による奨学金（私費外国人留学生向け）

・「大学推薦」は、春と秋に学生支援課で登録申請必要。推薦学生を選出。
・「直接応募」は、学内の掲示板や大学ウェブサイトに掲載。各自で応募。

２．日本学術振興会による制度・プログラム JSPS Programs

（１）「特別研究員(DC)」制度

・研究奨励金20万円/月と特別研究員奨励費（研究費）約100万円/年。アルバイトや奨学金併給不可。

（２）若手研究者海外挑戦プログラム

・博士後期課程在籍中に研究留学経費の支援（渡航費・滞在費・研究費）

Internal support for doctoral students

名称	財源	一人当たりの年間支援額	備考
つばめ博士学生奨学金	東京工業大学（大学経費）	480,000円（一般奨学金） 635,400円（特別奨学金）	フェローシップ＆越境型の採択者以外は申請可
高度人材育成博士フェローシップ　（高度CPS2人材育成フェローシップ）	文部科学省 （科学技術イノベーション創出に向けた大学フェローシップ創設事業）	・180万円/年 　＋研究費最大 30万円/年 ・授業料全額免除	2021年度から7年間限りの時限措置
殻を破るぞ！越境型理工系博士人材育成	文部科学省 （JST次世代研究者挑戦的研究プログラム）	・180万円/年 　＋研究費最大 180万円/年	2021年度から5年間限りの時限措置
リサーチフェロー制度（科学技術創成研究院，生命理工学院）	東京工業大学（大学経費）	84万円/年	RA相当
東工大基金奨学金	東京工業大学（大学経費）	『青木朗記念奨学金』(M)5万円/月 『草間秀俊記念奨学金』(D)6万円/月	所得制限有

この他，TA/RAがあります。 http://www.jinjika.jim.titech.ac.jp/syoku/index.html
現時点での支援です。変更もあるので，詳細は各ホームページ等を確認してください。

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Takuetsu Academies & ToTAL

名称	財源	一人当たりの年間支援額	備考
卓越教育院経済支援制度 （物質・情報卓越教育院） （超スマート社会卓越教育院） （エネルギー・情報卓越教育院）	協賛金，寄附金，共同研究経費等	・170万円程度/年（奨励金、RA給与等） つばめ博士学生奨学金の併給可 同奨学金（一般）を併給した場合 **220万円程度/年** ・上記のほか、研究費、旅費支援等の様々な 　支援あり	「高度人材育成博士フェローシップ」または「越境型理工系人材育成プロジェクト」に応募が可能であり、両方の採択者は、支援額がさらにアップします。
リーダーシップ教育院 （ToTAL）	東京工業大学 （大学経費）	・授業料全額免除	「高度人材育成博士フェローシップ」または「越境型理工系人材育成プロジェクト」に応募が可能です．越境型の採択者は授業料半額免除

現時点での支援です。変更もあるので，詳細は各ホームページ等を確認してください

Well done , you are through.

Have a wonderful time at Tokyo Tech!