



Tokyo Tech

GSEP 2023

Orientation for 2nd year students

2023/04/05

GSEP Faculty

Welcome back to the campus!

Welcome to TSE Department!

- Some numbers about TSE
- Educational philosophy of TSE
- Curriculum and required for graduation
- Timetable for Q1 and Q2
- Ethics education
- Bulletin board/Internal website
- Measures to COVID-19
- TSE Lounge/Locker
- B2D scheme

Students

- **New 2nd year students: 48**
 - Japanese students: 28
 - **GSEP: 11**
 - Other international student: 9

Faculty

Primary appointment faculty: 52 (2023.4.1)

- Professor 18, Associate Professor 17, Lecturer 3
- Assistant Professor 14

Staff: 3 (@Ishikawadai 4 Bldg. 104)

Faculty List : <https://educ.titech.ac.jp/tse/> (Including secondary faculty)

Vision of TSE

Pioneering new fields and solving global problems with knowledge from science and technology

Transdisciplinary science and engineering is a way of study where researchers go **beyond the boundaries of academic fields to solve the complex problems** shared by global society as a whole. **The Department of Transdisciplinary Science and Engineering is a fusion of a wide range of fields** — chemical engineering, mechanical engineering, electrical and communications engineering, civil engineering, biological engineering, encompassing even environmental policy and planning, applied economics, sociology, translation studies, and applied linguistics. Students acquire **practical skills — not simply academic knowledge**.

Specifically, our goal is to train **individuals as global scientists and engineers** with the following abilities: ability **to contribute to the innovation of novel technology, values, and concepts needed by society** (ability to define and solve problems, creative thinking and the ability to carry out projects); **to communicate with engineers in other fields with a global perspective and co-create**; and **to manage complex and large-scale projects and organizations**.

Vision of TSE

Specific action:

To establish **“Transdisciplinary Research”** as a new educational and research framework with the primary purpose of solving complex social problems through **interdisciplinary approaches** that transcend those of current individual research fields.

- Issues/problems that cannot be solved through single discipline
⇒ **Transdisciplinary**
- Issues that cannot be solved by one region/nation and has significant global impacts
⇒ **Global engineering**

Competencies

Basic abilities with a wide range of applications

- Logical and mathematical thinking and analytical skills
- Comprehension of physical and natural phenomena
- General-purpose measuring and computation techniques

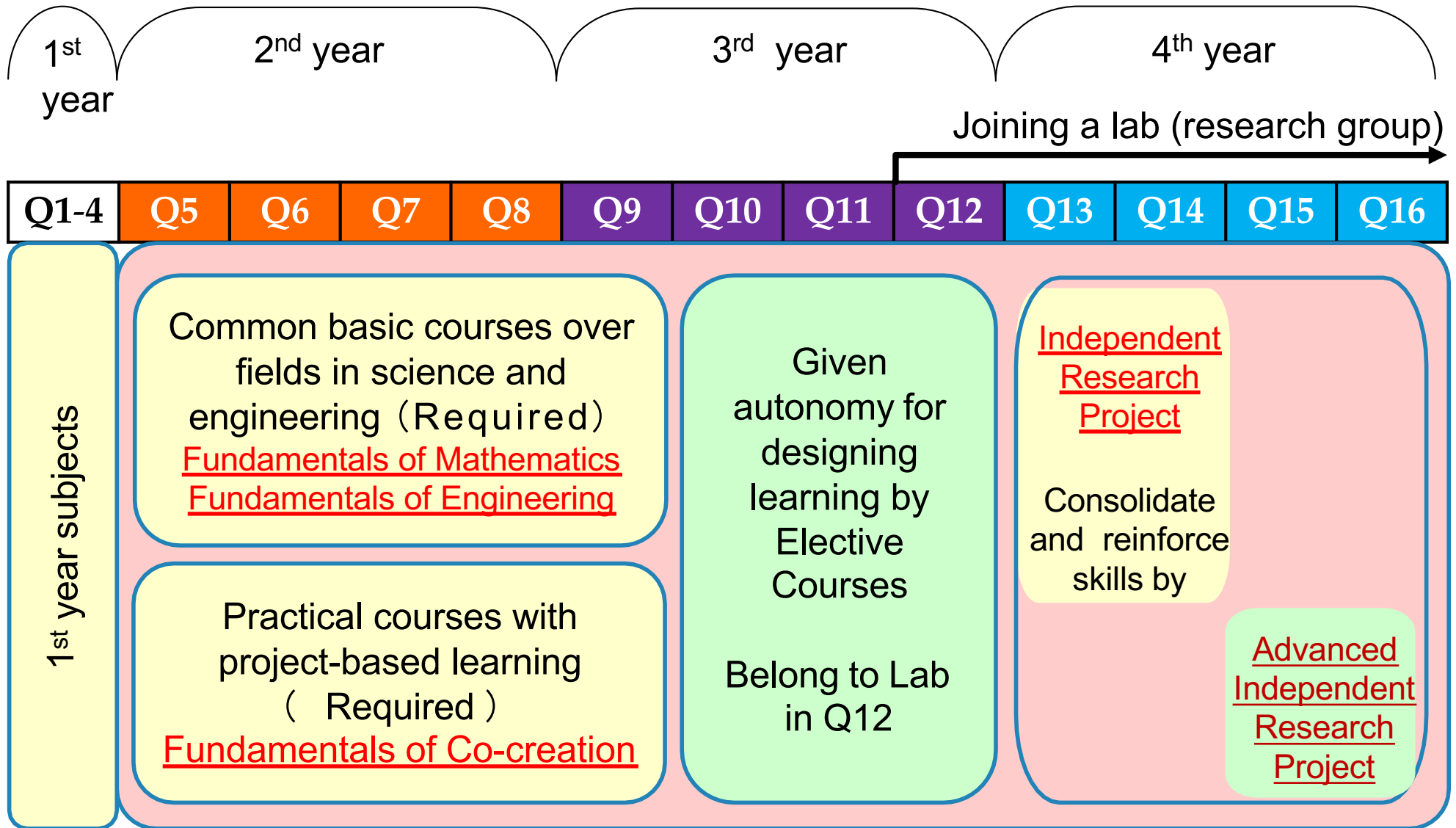
Applied abilities unhindered by existing academic fields

- Ability to solve given problems using suitable methods
- Ability to comprehend systems and operate them

Personal and social skills required as a global engineer

- Communication skills
- Sense of social responsibility and ethics
- Autonomy, ability to execute projects

TSE Curriculum (Undergraduate)



TSE Curriculum

100番台 | 100-Level

200番台 | 200-Level

300番台 | 300-Level

線形代数学第一
Linear Algebra I

線形代数学演習第一
Linear Algebra Recitation

微積分学第一
Calculus I

微積分学演習第一
Calculus Recitation I

力学基礎1・2
Fundamentals of Mechanics 1 / 2

電磁気学基礎1・2
Fundamentals of Electromagnetism 1 / 2

量子化学基礎
Basic Quantum Chemistry

無機化学基礎
Basic Inorganic Chemistry

有機化学基礎
Basic Organic Chemistry

化学熱力学基礎
Basic Chemical Thermodynamics

生命化学基礎第一1・2
Fundamentals of Life Science 1 / 2

類専門科目1～4
School type subjects

数理基盤群 FUNDAMENTALS OF MATHEMATICS

常微分方程式と物理現象
Ordinary Differential Equations and Physical Phenomena

偏微分方程式と物理現象
Partial Differential Equations for Science and Engineering

線形システム論
Theory of Linear Systems

統計とデータ解析
Statistics and Data Analysis

工学基盤群 FUNDAMENTALS OF ENGINEERING

材料・物性工学基礎
Material and Molecular Engineering

固体・構造力学基礎
Solid Mechanics and Structural Engineering

電気・磁気工学基礎
Electrical Engineering

熱力学基礎
Engineering Thermodynamics

流体工学基礎
Fluid Engineering

生物工学基礎
Biological Engineering

工学計測基礎
Engineering Measurement

融合理工学実験A
Transdisciplinary Engineering Experiments A

融合理工学実験B
Transdisciplinary Engineering Experiments B

共創基盤群 FUNDAMENTALS OF CO-CREATION

融合理工学基礎
Introduction to Transdisciplinary Science and Engineering

システムデザインプロジェクト
System Design Project

融合デザインプロジェクト
Transdisciplinary Design Project

システムデザイン&アセスメント
System Design & Impact Assessment

プロジェクトマネジメント
Project Management

専門科目群 ELECTIVE COURSES

融合理工学とデータサイエンス(I)
Data Science for Transdisciplinary Research (I)

融合理工学とデータサイエンス(II)
Data Science for Transdisciplinary Research (II)

プログラミングと数値解析基礎
Programming and Numerical Analysis

プログラミングと数値解析応用
Applied Programming and Numerical Analysis

通信とネットワーク
Communications and Networks

電磁気学(融合理工)
Electromagnetics (TSE)

環境流体力学基礎
Basis of Environmental Hydrodynamics

防災工学基礎
Introduction to Natural Disaster Science and Engineering

剛体の運動力学
Rigid Body Dynamics

強度の力学
Mechanics of Strength

操作論
Unit Operations

工業化学
Industrial Chemistry

実用材料の冶金学基礎
Introduction to Metallurgy of Engineering Materials

原子核工学概論
Introduction to Nuclear Engineering

原子核工学基礎 第1～第4
Basic Nuclear Engineering 1-4

社会環境政策概論
Introduction to Environmental Policy and Social Systems

水・物質循環システム概論
Introduction to Water and Mass Transport in the Environment

気象学基礎
Introduction to Meteorology

地球・地域生態学概論
Introduction to Global and Local Ecology

地域・地球環境概論 第1&第2
Basic Theory of Regional and Global Environment 1 and 2

国際開発共創概論
Introduction to International Development

開発経済学入門
Introduction to Development Economics

融合技術論
Methodology of Transdisciplinary Research: Theory and Practice

エンジニアリングデザイン概論
Introduction to Design Engineering

国際エンジニアリングデザインプロジェクト基礎F&S
International Engineering Design Experience (Fall Semester and Spring Semester)

エンジニアリングデザインと技術経営基礎
Introduction to Engineering Design and Management of Technology

エネルギーシステム設計基礎論
Foundations of Energy Systems Design

資源・エネルギー工学概論
Theory of Resource and Energy Engineering

エネルギーと環境(融合理工)
Energy and Environment (TSE)

特定課題研究・特定課題研究プロジェクト など RESEARCH OPPORTUNITIES AT LABORATORIES, INDEPENDENT RESEARCH PROJECTS, INTERNSHIPS, ETC.

研究プロジェクト(融合理工学系)
Research Opportunities at Laboratories (TSE)

学士特定課題研究(融合理工学系)
Independent Research Project (TSE)

学士特定課題プロジェクト(融合理工学系)
Advanced Independent Research Project (TSE)

国際プロジェクト演習
Exercises in International Development Engineering

融合理工学海外研修
International Training in Transdisciplinary Science and Engineering

融合理工学インターンシップ
Transdisciplinary Science and Engineering Internship



Elective course groups at TSE (approximate categories, not definitive)

- International Development Courses
- Resource and Energy Engineering Courses
- Environmental Policy and Social Systems Courses
- Global and Regional Environment Courses
- Engineering Science and Design Courses
- Nuclear Engineering Courses.

Graduate courses in TSE (for your reference)

Deepening study fields at TSE department

- Global Engineering for Development,
Environment and Society (GEDES)

Interdisciplinary fields under multiple departments

- Nuclear Engineering
- Engineering Sciences and Design
- Energy Science and Engineering

Additional references pertaining to undergraduate education

https://www.titech.ac.jp/english/education/features/flexible_study.html

Notifications for timetables and completing courses

Timetables (On-campus website) :

<http://www.tse.ens.titech.ac.jp/en/>

- Please complete courses as recommended timetables
- It is possible to take 200s in other departments. However, this is recommended for 3rd years so that priority should be given to TSE 200s subjects.
- Laboratory assignments for “Independent Research Project” will be given by GPT ranking. Details will be explained at 3rd year orientation.

Lecture schedule in 2023

First Quarter Classes: April 8-May 31, June 3

- Lectures for Q1 will be held in principle face-to-face basis.
- **April 5 - April 21: course registration for 1Q and 2Q via Tokyo Tech Portal**
- June 1 – June 10: Quarter-end exams and makeup classes for 1Q
- <Caution!> May 8: Thursday classes, May 9: Friday classes, May 20: No classes due to Homecoming Day, May 26: Classes will be held despite Foundation Day

Second Quarter Classes: June 12-July 31

- August 1-9: quarter-end exams and makeup classes for 2Q

Summer break: August 10 - September 26

Check the following page for the detailed

<https://www.titech.ac.jp/english/student/students/life/schedules>

Lecture schedule in 2023 (continued)

Third Quarter Classes: October 2 - November 21,24,25,27

Fourth Quarter Classes: December 5-26

- Winter break: December 27-January 3, 2024
- Classes in 2024: January 4-February 1,3

Check the following page for the detailed

<https://www.titech.ac.jp/english/student/students/life/schedules>

Notifications for timetables and completing courses

1st Quarter 2023 (For GSEP 2nd Year Students)				(Last updated Mar 27, 2023)			
Time		Mon	Tue	Wed	Thu	Fri	Intensive
8:50 9:40 10:30	1	Ordinary Differential Equations and Physical Phenomena TSE.M201-01 2 credits S323 GSIC PC room			Ordinary Differential Equations and Physical Phenomena TSE.M201-01 2 credits S323 GSIC PC room		
	2						
10:45 11:35 12:25	3	Engineering Thermodynamics TSE.A204-01 2 credits S. Boonyubol I321		Introduction to Transdisciplinary Science and Engineering TSE.C201 1 credit N. Abe Commons room	Engineering Thermodynamics TSE.A204-01 2 credits S. Boonyubol I321		
	4						
12:25 14:20	昼時間帯						
14:20 15:10 16:00	5	English Presentation Seminar 5 LAE.E241 1 credit W323	Special Lecture : Art and Design LAH.H217 1 credit M. Tanaka H1102	Japanese 5 [GSEP] LAJ.J201-04 1 credit H. Yoshizawa W935	System Design Project TSE.C202 1 credit T. Ohashi, S. Saito et al. IS Design Lab.		
	6						
16:15 17:05 17:55	7		Statistics and Data Analysis TSE.M204-02 2 credits S. Hanaoka, S. Choi S422			Statistics and Data Analysis TSE.M204-02 2 credits S. Hanaoka, S. Choi S422	
	8						
Note		Color Code					
* When choosing English courses, you should try to take the similar course in both 1Q and 2Q, or 3Q and 4Q		TSE (Compulsory)					
Course Registration Period		TSE					
Wednesday, April 5, 2023 9 : 00 ~ Friday, April 21, 2023 13:00		Basic Science & Tech. (Compulsory)					
		Basic Science & Tech.					
		English					
		Japanese					
		Humanities & Social Science					
		Breadth					
		Other Dept.					

Notifications for timetables and completing courses

2nd Quarter 2022 (For GSEP 2nd Year Students)

(Last updated March 28, 2022)

Time		Mon	Tue	Wed	Thu	Fri	Intensive
8:50 9:40 10:30	1		Introduction to International Development TSE.C301 2 credits N. Abe, et al (LIVESTREAM)	Solid Mechanics and Structure Engineering TSE.A202-01 2 credits B.T. Quoc, et al (BLENDED)		Introduction to International Development TSE.C301 2 credits N. Abe, et al (LIVESTREAM)	
	2						
10:45 11:35 12:25	3	Theory of Linear System TSE.M203-01 2 credits O. Takumi (BLENDED)			Theory of Linear System TSE.M203-01 2 credits O. Takumi (BLENDED)		
	4						
12:25 14:20	星時間帯						
14:20 15:10 16:00	5	English Presentation Seminar 6 LAE.E242 1 credit A. Page (LIVESTREAM)		Oral Expression in English 6 [2] LAE.E232-02 1 credit H. Makiko (LIVESTREAM)			
	6						
16:15 17:05 17:55	7	Engineering Measurement I TSE.A232 1 credit Y. Tohru (BLENDED)	Partial Differential Equations for Science and Engineering TSE.M202-01 2 credits A. Varquez (LIVESTREAM)	Japanese 6 [GSEP] LAJ.J202-04 1 credit Y. Yukari (FACE-TO-FACE)		Partial Differential Equations for Science and Engineering TSE.M202-01 2 credits A. Varquez (LIVESTREAM)	
	8						

Note

* When choosing English courses, you should take try to take the similar course in both 1Q and 2Q, or 3Q and 4Q

** There are limited seats for this course (because this is not a TSE course)

Course Registration Period

Wednesday, April 6, 2022 9:00 ~ Friday, April 22, 2022 13:00

Color Code

TSE (Compulsory)

TSE

Basic Science & Tech. (Compulsory)

Basic Science & Tech.

English

Japanese

Humanities & Social Science

Breadth

Other Dept

University-wide requirements (continued)

Other major courses	—	Determined for each standard curriculum	Determined for each standard curriculum
Total	31 credits above * The upper limit for the required courses and restricted elective courses in humanities and social science courses described above is 5 credits, the upper limit for required English language courses is 4 credits, and the upper limit for required basic science and technology courses is 14 credits.	110 credits or more that satisfy the above requirements	124 credits or more that satisfy the above requirements

See next slide

Note: Credits attained from the Japanese language and culture courses, teacher education courses, and some global awareness and other breadth courses do not count toward the minimum of 31 credits required to be eligible for department affiliation. (Credits from the wellness courses can be counted as part of the required credits.)

Credits attained from the teacher education courses do not count toward the minimum of 110 credits required to be eligible for the independent research project or the minimum of 124 credits for graduation eligibility. (Credits from the wellness courses, global awareness and other breadth courses, and Japanese language and culture courses can be counted as part of the required credits.)

Please check the following pdf for the GSEP students in HSS and language course work.
<https://www.titech.ac.jp/english/student/pdf/20b.pdf>

Eligibility for graduation by TSE curriculum (in addition to university-wide requirements)

- © 30 credits from the Table of the courses for TSE undergraduate major
- Completed Laboratory Opportunity for Research (TSE) and IRP
- More than 50 credits from the Table of the courses for TSE undergraduate major
- More than 124 credits in total

Agreement	Credits acquired by students	→ Can be counted toward the credit requirements for the courses below
1.1	Humanities and Social Science Courses (200-level restricted electives)	→ Humanities and Social Science Courses (100-level restricted electives)
1.2	Humanities and Social Science Courses (300-level restricted electives) (A)	→ Humanities and Social Science Courses (100- or 200-level restricted electives) (B)
1.3	English Language Courses (200- or 300-level electives) (courses other than “English 1” to “English 9”)	→ Second Foreign Language Courses (restricted electives)
1.4	Japanese Language and Culture Courses (up to 3 credits) (up to 3 out of the following 4 courses: “Japanese Culture: Adaptation,” “Japanese Culture: Society,” “Japanese Culture: Arts,” and “Japanese Culture: Japanology”)	→ Humanities and Social Science Courses (100- or 200-level restricted electives) (C)
1.4	Japanese Language and Culture Courses (9 credits) (In principle, the following 9 courses: “Japanese 1 GSEP” to “Japanese 9 GSEP”; For students who enrolled in 2016, “Survival Japanese 101, 102” and “Introduction to Japanese 2A, 2B” are deemed equivalent to “Japanese 1A, 1B, 2A, 2B.”)	→ English Language Courses (required courses) (9 credits) (9 courses: from “English 1” to “English 9”)
1.5	Global Awareness and Other Breadth Courses (2 specific courses)	→ Humanities and Social Science Courses (100-level restricted electives)

Notes for section 1	International students may use up to 12 credits acquired from Japanese Language and Culture Courses to fulfill the requirements for Humanities and Social Science Courses. For consistency with that rule, regarding credits that can be counted toward the credit requirements for Humanities and Social Science Courses (100- or 200-level restricted electives) under agreement 1.4, GSEP students may use up to 3 credits (9 credits for English Language Courses subtracted from the 12 credits) to fulfill the same requirements. (C)
Notes for section 2	For example, when a student attains 300-level course credits from Humanities and Social Science Courses (200- and 300-level restricted electives) as stipulated in (A) and uses those credits to fulfill the requirements stipulated in (B), the student may not use those credits to fulfill the requirements for 300-level restricted electives .

GSEP Japanese Language and Culture Courses 2023

GSEP students must obtain the following 9 credits of Japanese language and culture courses to receive your bachelor's degree.

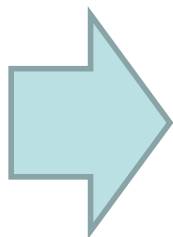
[Course list]

- 100-level (1st year), Beginner level
Japanese 1(1Q): Tuesday 14:20~ and Thursday 16:15~
Japanese 2(2Q), 3(3Q) and 4(4Q): Tuesday 14:20~ and Thursday 10:40~
- 200-level (2nd year), Pre-intermediate level
Japanese 5(1Q), 6(2Q), 7(3Q) and 8(4Q) : Wednesday 14:20~
- 300-level (3rd year)
Japanese 9(1-4Q)

Japanese Class Online System (JCOS) will open at noon on **Apr. 4.**

Please complete the following procedures by April 5th, Wednesday:

- 1) Make an account on Japanese Class Online System at
(<https://cuckoo.js.ila.titech.ac.jp/~yamagen/regist-h/>)
- 2) Take an online placement test at the following site
(<https://cuckoo.js.ila.titech.ac.jp/~yamagen/placement/>)
- 3) Please enter your test results into Google Forms
(<https://forms.gle/HojGnraDpekHe3uM9>)



You have done. So register the courses LAJ.J201/202 Japanese 5/6 GSEP

Ethics Education

- Level 1: 1st year to 3rd year in bachelor's program
(before starting “Independent Research Project”)
- Level 2: 4th year in bachelor's program (From the start of “Independent Research Project”) to master's program
- Level 3: Doctoral program

Liberal Arts Courses

- ◎Tokyo Tech Visionary Project(LAH.C101)
- Ethics in Engineering A/B/C(LAH.T105, T206, T305)
- Frontiers of Science and Technology (LAS.F101)

Major Courses

- Processes for Creation in Science and Technology
【School of Environment and Society】(XES.P101)
- School of Environment and Society Academic Group Literacy (XES.A101)
- ◎Research Opportunities at Laboratories(TSE.Z381)
- ◎Independent Research Project (TSE.Z389)

TSE Bulletin Board

South Entrance, S-6 Bldg
Near entrance , I-4 building

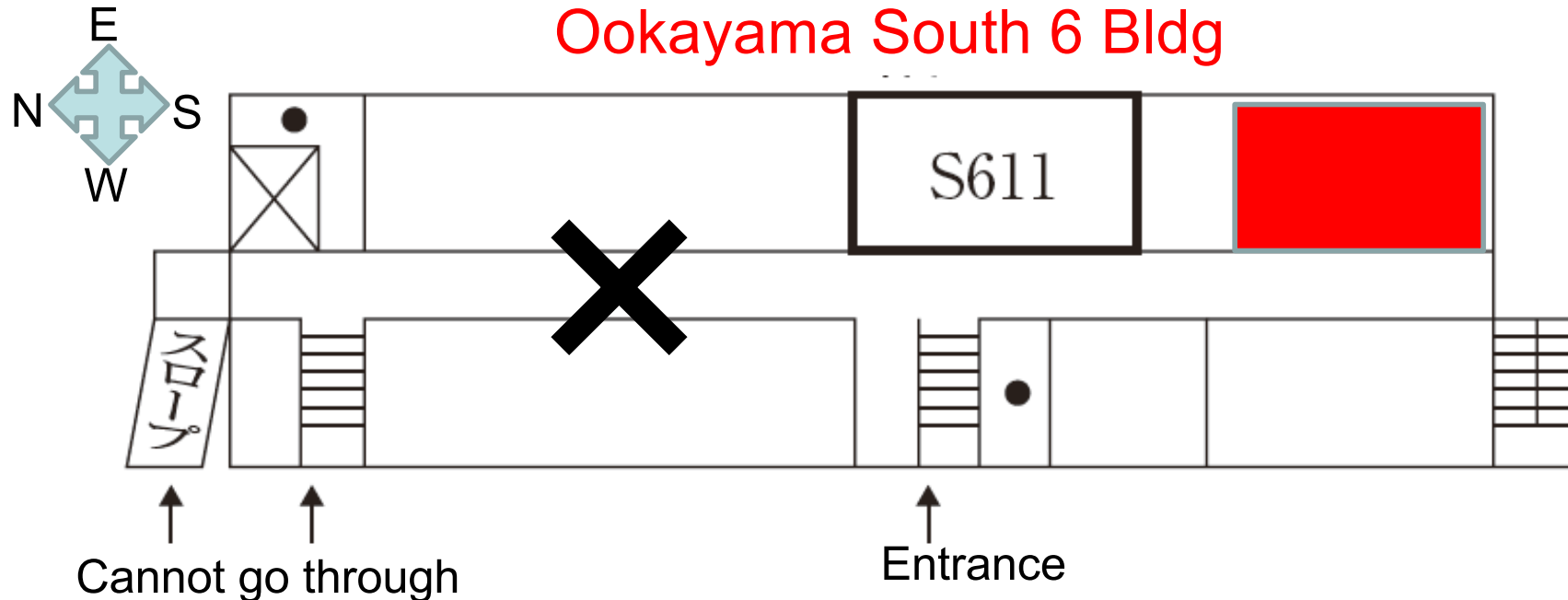
On-campus Website

<http://www.tse.ens.titech.ac.jp/en/>

- Contact for TSE students
- Latest information on timetables can be confirmed
- Announcements for presentations etc.

TSE Lounge and Locker

Ookayama South 6 Bldg



- Use for group meeting, self studying, etc.
- There is no trash bin. Please bring back your trashes.
- Keep it clean and neat
- Keep your voice low since it is close to houses around
- Please sign distributed 'oath' if you agree with the rules.
- Passcode to enter the lounge will be notified.

Details to be shared via e-mails

Academic Advisors (AA)

Students are assigned academic (primary and secondary) advisors to oversee their academic affairs in the department

Academic Advisors for GSEP Batch 2022

Student names	Primary advisors	e-mail (add ".titech.ac.jp")	Secondary advisor (advisor, you contact first)	e-mail (add ".titech.ac.jp")
HOANG DUC QUANG	EGASHIRA, Ryuichi	regashir@tse.ens	VARQUEZ ALVIN CHRISTOPHER GALANG	varquez.a.aa@m
KOOSAKUL PONTAKORN	MATSUMOTO, Yoshihisa	matsumoto.y.ac@m	SADEGHZADEH NAZARI MEHRDAD	mehrdad.aa@m
MURANCATHUPARAMBIL RACHEL	TAKAHASHI, Kunio	takahak@tse.ens	CHOI SUNKYUNG	choi.s.ae@m
NEERAPATTANAGUL SASIPHA	TAKAHASHI, Kunio	takahak@tse.ens	CHOI SUNKYUNG	choi.s.ae@m
RALPH CAMERON JOSEPH	INABA, Kazuaki	inaba.k.ag@m	SADEGHZADEH NAZARI MEHRDAD	mehrdad.aa@m
SAENGAROON PHRAEWA	Ohashi, Takumi	ohashi.t.af@m.	CHOI SUNKYUNG	choi.s.ae@m
SETTAGAROON SETTASIT	HANAOKA, Shinya	hanaoka@ide	VARQUEZ ALVIN CHRISTOPHER GALANG	varquez.a.aa@m
SYED AHAMED MOHAMED ILYAS	EGASHIRA, Ryuichi	regashir@tse.ens	VARQUEZ ALVIN CHRISTOPHER GALANG	varquez.a.aa@m
VILLALUZ RAPHAEL CRUZ	MATSUMOTO, Yoshihisa	matsumoto.y.ac@m	SADEGHZADEH NAZARI MEHRDAD	mehrdad.aa@m
WATTANASOPON MOK	INABA, Kazuaki	inaba.k.ag@m	SADEGHZADEH NAZARI MEHRDAD	mehrdad.aa@m
WIJAYA MIKAEL	Ohashi, Takumi	ohashi.t.af@m.	CHOI SUNKYUNG	choi.s.ae@m
YANG PU	HANAOKA, Shinya	hanaoka@ide	VARQUEZ ALVIN CHRISTOPHER GALANG	varquez.a.aa@m