



Tokyo Tech

GSEP 2020

Orientation for 2nd year students

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

2020/04/24
GSEP Faculty

Welcome to TSE Department!

- Faculty
- Educational philosophy of TSE
- Curriculum and timetable
- Ethics Education
- Bulletin board/Internal website
- TSE Lounge/Locker
- Measures to COVID-19
- Lectures for Q1 and Q2
- B2D Scheme



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Students

- **New 2nd years 44**
 - Japanese 22
 - International Student 9
 - **GSEP 13**
- **Total (except 1st years) 159**
 - Japanese 87
 - International Student 32
 - **GSEP 40**



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Faculty

Primary Faculty (2020.4.1)

Professor 17

Associate Professor 19

Lecturer 3

Assistant Professor 18

Staff Ms. Yuko YAKO

(Ishikawadai 4 Bldg. 104)

Faculty List

(Including secondary faculty)

<https://educ.titech.ac.jp/tse/>

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**.



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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



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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



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TSE Curriculum

Q1-	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16
1 st year subjects	<p>Common basic courses over fields in science and engineering (Compulsory)</p> <p><u>Fundamentals of Mathematics</u></p> <p><u>Fundamentals of Engineering</u></p>				<p>Given autonomy for designing learning by Elective Courses</p>				<p>Consolidate and reinforce skills by Independent Research Project</p>		<p>Advanced Independent Research Project Overseas Internships Etc.</p>	
	<p>Practical courses with project based learning (Compulsory)</p> <p><u>Fundamentals of Co-creation</u></p>											



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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
反応工学基礎 Chemical Reaction Engineering
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
社会デザインプロジェクト Social 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

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

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

Additional references pertaining to undergraduate education

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



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Notifications for timetables and completing courses

Timetables (On-campus website) : <http://www.tse.ens.titech.ac.jp/en/>

- Timetables are changed from usual timetables due to COVID-19. There is possibility that it will be changed again so please pay careful attention.
- 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 announced at 3rd year orientation.



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Application requirements for Independent Research Project

Common requirements of the entire university (Refer to Study Guide)

Amendment: 44 and 50 in "Major course group" in Table 3
(Table 2 is still same)

Standard study program	Eligibility for Application for Independent Research Project for Bachelor's Degree (Research opportunity course is recorded as "Research Opportunity Project")	Eligibility for graduation (Research opportunity course is recorded as "Research Opportunity Project" and independent research project for the Bachelor's Degree is recorded as "Special Topic Research")
Undergraduate major in Transdisciplinary Science and Engineering	54 ⁴⁴ (28 ◎, 2 Research Opportunity Project)	60 ⁵⁰ (30 ◎, 2 Research Opportunity Project, 6 Special Topic Research)



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Required Liberal Arts credits for GSEP

- In addition to Table 2 of the study guide, amendments for liberal arts courses are implemented for GSEP students.
- Review the requirements through the link:
<https://www.titech.ac.jp/english/enrolled/life/resources/pdf/agreement.pdf>



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Notifications for timetables and completing courses

1st Quarter 2020 (For GSEP 2nd Year Students)							(Last updated April 23, 2020)	
Time		Mon	Tue	Wed		Thu	Fri	Intensive
8:50 9:40 10:30	1	Engineering Measurement TSE.A231-01 2 credits				Engineering Measurement TSE.A231-01 2 credits		
	2							
10:45 11:35 12:25	3	Introduction to International Development TSE.C301 2 credits		Introduction to Transdisciplinary Science and Engineering TSE.C201-01 1 credit		Introduction to International Development TSE.C301 2 credits		
	4							
13:30 14:20 15:10	5	English Presentation Seminar 5 LAE.E241 1 credit		English Speech Seminar 9 LAE.E371 1 credit	Oral Expression in English 5 [1] LAE.E231-01 1 credit	System Design Project TSE.C202 S323, I5-Design Workshop 1 credit		
	6							
15:25 16:15 17:05	7		Ordinary Differential Equations and Physical Phenomena TSE.M201-01 2 credits	Japanese 5 [GSEP] LAJ.J201-04 1 credit			Ordinary Differential Equations and Physical Phenomena TSE.M201-01 2 credits	
	8							



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- Elective courses**
- 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

Deepening study fields of department

- Global Engineering for Development, Environment and Society Graduate Major

Complex study fields over plural departments

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

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 course group

- 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)



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GSEP Japanese Language and Culture Courses 2020

Japanese language course orientation and first Japanese class for 1st year students: **May 7th, 15:35-17:05 (by Zoom)**

Japanese language courses for undergraduate students

100-level (1st year)

Japanese 1(1Q): Tuesday 13:30~ and Thursday 15:25~

Japanese 2(2Q), 3(3Q) and 4(4Q): Tuesday 13:30~ and Thursday 10:45~

200-level (2nd year)

Japanese 5(1Q) and 6(2Q): Wednesday 15:25~

Japanese 7(3Q) and 8(4Q): Wednesday 13:30~

300-level (3rd year)

Japanese 9(1-4Q): see note 2

GSEP students who will take Japanese language classes may do the following procedures by **May 6th**:

- 1) Make an account on Japanese Class Online System at JCOS (will open on April 27th) (<https://cuckoo.js.ila.titech.ac.jp/~yamagen/regi>)
- 2) Take an online placement test at the following site (<https://cuckoo.js.ila.titech.ac.jp/~yamagen/placement/>)
- 3) Send an email message to **Prof. M. Komatsu** (komatsu.m.ae@m.titech.ac.jp) with "GSEP 2020" as a subject, and mail body must contain your name, student ID, and Japanese language level (B3, I1 etc.) obtained after your JCOS placement test.



TSE Bulletin Board

South Entrance, O-okayama South 6 Bldg

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.
- Annual plans

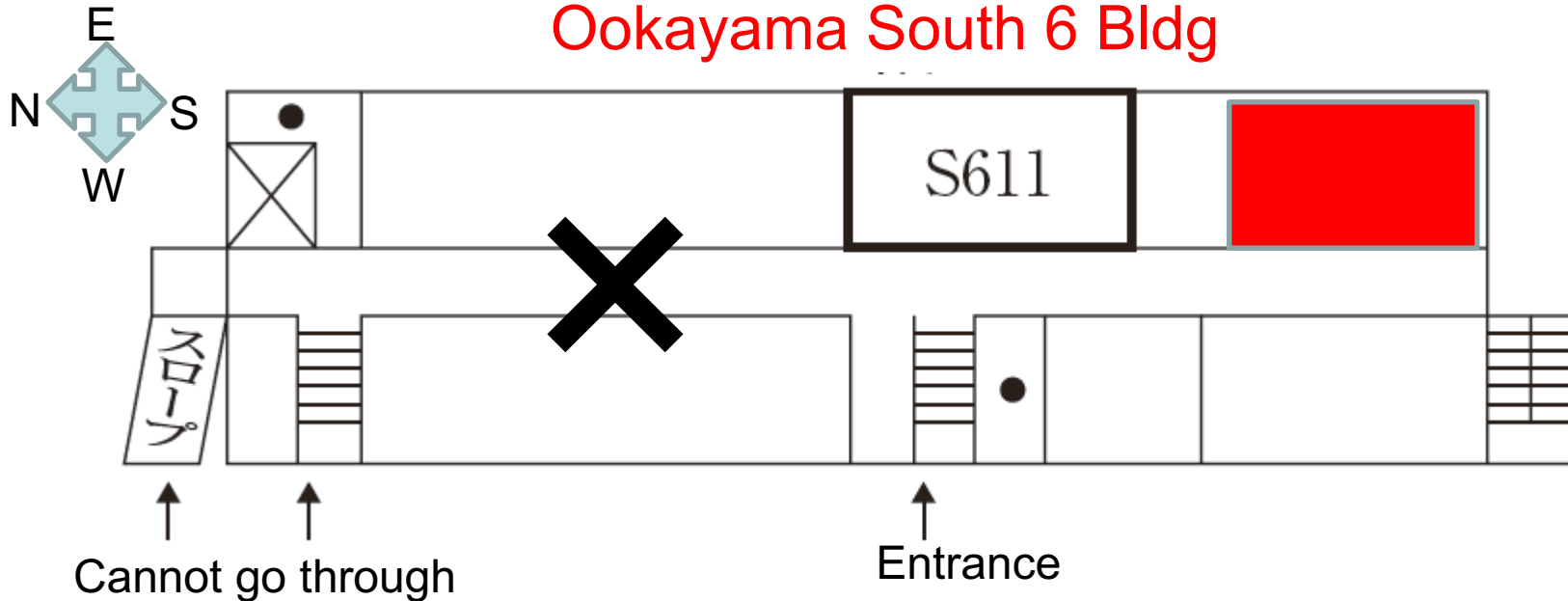


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TSE Lounge and Locker

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.



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Details to be shared via e-mails

Measures against COVID19

**Keep in close communication with
your "Academic Advisers"**

Check the link below for the latest information from the university:

<https://www.titech.ac.jp/english/enrolled/health/coronavirus.html>



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Academic Advisers for 2nd year

ID	Name	G	Adademic Advisor (Main)	Adademic Advisor (Sub)
19B60015	BOONCHIT PUTTARANUN	F	VARQUEZ ALVIN CHRISTOPHER GALANG	ANDREWS EDEN MARIQUIT
19B60021	CHIMPALEE PONNAPOOM	M	松本 義久 (MATSUMOTO YOSHIHISA)	CHOI SUNKYUNG
19B60038	CHINZORIG ANAND	F	阿部 直也 (ABE NAOYA)	ANDREWS EDEN MARIQUIT
19B60044	ERDENEBELEG UNUBOLD	M	VARQUEZ ALVIN CHRISTOPHER GALANG	CHOI SUNKYUNG
19B60050	JANG JAE HYO	M	因幡 和晃 (INABA KAZUAKI)	SADEGHZADEH NAZARI MEHRDAD
19B60067	LEELAWORASET WORATAT	M	松本 義久 (MATSUMOTO YOSHIHISA)	SADEGHZADEH NAZARI MEHRDAD
19B60073	PANITPOTJAMAN PUCHISS	M	阿部 直也 (ABE NAOYA)	CHOI SUNKYUNG
19B60080	SUK SO YEON	F	VARQUEZ ALVIN CHRISTOPHER GALANG	ANDREWS EDEN MARIQUIT
19B60096	TAERAKUL JANAT	M	因幡 和晃 (INABA KAZUAKI)	SADEGHZADEH NAZARI MEHRDAD
19B60104	TANGKASEMJIT SARACH	M	松本 義久 (MATSUMOTO YOSHIHISA)	CHOI SUNKYUNG
19B60110	TATSARINGKANSAKUL NATTAS	M	阿部 直也 (ABE NAOYA)	ANDREWS EDEN MARIQUIT
19B60127	TRAN HUU BINH MINH	M	VARQUEZ ALVIN CHRISTOPHER GALANG	CHOI SUNKYUNG
19B60140	YEHUDA HAMONANGAN SIDABUT	M	因幡 和晃 (INABA KAZUAKI)	SADEGHZADEH NAZARI MEHRDAD



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Lectures for Q1 and Q2

- Lectures for Q1 will be held via Zoom.
 - In principle, attend classes virtually at home.
 - Personal computer (PC) is prepared in case.
 - Utilize broadband internet environment.
 - If it is difficult to prepare a PC or internet environment at home, consult with academic advisor.
- At the moment, online classes will continue until Q2.
- Official information from Tokyo Tech regarding courses will be sent to your Tokyo Tech email accounts. Tip: Switch on mail forwarding.



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B2D Scheme

- **“B2D Special Selection (B2D Scheme)”** : a learning program that maximizes the use of education through the world’s top-tier research which is one of the university’s strengths.
- You can apply for “B2D Special Selection” from the second year of the bachelor's program in 2020.
- **“B2D Special Selection” set a tailored type curriculum to consider each individual student’s career** (bachelor’s program – B2D Special Selection, graduate program – in principle, Standard Learning Program(標準学修課程)).
- Our aim is to produce outstanding one-of-a-kind doctoral course students who can drive society beyond the existing framework through a learning plan that anticipates toward the future.

Contact: Prof. Kanda Manabu (tse-b2d-faculty@tse.ens.titech.ac.jp)



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B2D Scheme: timeline

- **4/28: B2D Special Selection Briefing Session by registration for 2nd year students**

※It is mandatory to attend this session if you want to make application in May.

- **4/28 – 5/22 17:00PM: Application**
- **5/26 – 6/26: 1st round selection (Screening of documents)**
- The start of Q2: begin mentoring by faculty in charge of B2D to those who passed the 1st round selection
- **8月: 2nd round selection (Interview: presentation etc.)**
- 9月: Announcement of 2nd round selection results, implement B2D Special Studying Program
- Q3: Start studying under the B2D Special Studying Program (Start of the research)



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B2D Scheme: application

Deadline : May 22nd, 2020 (Fri) 17:00

【2020 年度】B2D スキーム特別選抜 申請書 (案)

*該当する方に○をつけてください。学士課程2年次学生向け全学説明会 [参加 ・ 不参加]

① 氏名	② 学籍番号
③ E-mail	
④ 志望理由 (将来何になりたいか・何をしたいかについて、400 字程度で記載してください。)	
⑤ B2D 特別選抜に選ばれた際にはどのような学修を行い、研究を実施したいか、計画を簡潔に記載してください。	
⑥ B2D 共通科目で志望する指導教員や研究分野などを 1 つ以上記載してください。	
第 1 希望	
第 2 希望	
第 3 希望	
*B2D 担当教員から上記以外の指導教員や研究分野を紹介してほしい場合は、右の□に○を入れてください。	
	<input type="checkbox"/>

Reasons for application (what would you like to do in future, 400 words)

If you are selected for B2D program, how would you conduct your research and learning.

Write which research field and whom you wanted to be advised under

If you want explanations on academic advisor and research field other than above, please check this box.

The following website provides application details and format.

https://www.titech.ac.jp/enrolled/certificate_current/b2d.html

Please submit your documents by e-mail and keep the deadline.

E-mail : B2D Scheme Working Group (kyo.kyo@jim.titech.ac.jp)