

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



Students

Faculty

New 2nd years 44

- Japanese 22
- International 9
- GSEP 13
- Total(except 1st years)
 159
 - Japanese 87
 - International 32
 - GSEP 40





Undergraduate Major of Transdisciplinary Science and Engineering

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.





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

 \Rightarrow 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



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TSE Curriculum







TSE Curriculum

100番台 I 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

微分積分学第一 Calculus I

微分積分学演習第一 Calculus Recitation l

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 MATHE<u>MATICS</u>

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 <u>OF ENGINEERING</u>

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 FLFCTIVE 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



Notifications for timetables and completing courses

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

- 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.





Required Credits for Undergraduate Program

Courses	Eligibility for Application for Independent Research Project	Eligibility for graduation
Humanities and social science Courses	9 credits	13 credits
English language courses		4 credits
Basic science and technology courses	14 credits	14 credits (all in 1st year)
Japanese language courses		9 credits
Second foreign language courses	2 credits	4 credits
Research-related courses	2 credits	8 credits
Other major courses	Determined by the department for TSE, refer to the Study Guide	Determined by the department for TSE, refer to the Study Guide
TOTAL	110 or more	124 units or more

For more detailed information, refer to Table 2 and Table 3 of the **Study Guide** but some special rules apply for GSEP students, consult your advisers.





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	44	50
Transdisciplinary Science and	54 (28 ◎, 2 Research Opportunity	60 (30 ◎, 2 Research Opportunity
Engineering	Project)	Project, 6 Special Topic Research)



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





Notifications for timetables and completing courses

1st Quarter 2020 (For GSEP 2nd Year Students) (Last updated April 23, 202							(Last updated April 23, 2020)	
Tim	ne	Mon	Tue	Wed		Thu	Fri	Intensive
8:50 9:40 10:30	1 2	Engineering Measurement TSE.A231-01 2 credits				Engineering Measurement TSE.A231-01 2 credits		
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		
13:30 14:20 15:10	5 6	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		
15:25 16:15 17:05	7 8		Ordinary Differential Equations and Physical Phenomena TSE.M201-01 2 credits	Japanese LAJ.J20 1 cre	5 [GSEP])1-04 edit	S323, I5-Design Workshop 1 credit	Ordinary Differential Equations and Physical Phenomena TSE.M201-01 2 credits	



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- - 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

Complex study fields over plural departments

- Global Engineering for Development, Environment and Society Graduate Major
 - 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) OEthics in Engineering A/B/C(LAH.T105, T206, T305) OFrontiers of science and technology (LAS.F101)

Major course group

©Research Opportunities at Laboratories (TSE.Z381)

©Independent Research Project (TSE.Z389)





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~

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300-levelv (3<sup>rd</sup> year)
Japanese 9(1-4Q): see note 2
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GSEP students who will take Japanese language classes may do the following procedures by May 6th:

- Make an account on Japanese Class Online System at JCOS (will open on April 27th) (https://cuckoo.js.ila.titech.ac.jp/~yamagen/regi
- Take an online placement test at the following site (<u>https://cuckoo.js.ila.titech.ac.jp/~yamagen/placement/</u>)



 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





TSE Lounge and Locker

Ookayama South 6 Bldg



Cannot go through

Entrance

- Use for group meeting, self studying, etc.
- <u>There is no trash bin.</u> 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.

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• Passcode to enter the lounge will be notified.



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





Academic Advisers for 2nd year

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





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.



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)).
- <u>Our aim is to produce outstanding one-of-a-kind doctoral course</u> <u>students</u> 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)



B2D Scheme: timeline

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

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

- 4/28 5/22 17:00PM: Application
- <u>5/26 6/26</u>: 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
- <u>8月: 2nd round selection(Interview: presentation etc.)</u>
- 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)





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(業)	
	*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 武名	② 学籍番号	
@ E-moil		
© 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たう	さい。)
⑤ B2D 特别	」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 担当教員が	▶ ら上記以外の指導教員や研究分野も紹介して歌しい場合は、右の口に✓を入れてください。	

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

Please submit your documents by e-mail and keep the deadline. E-mail : B2D Scheme Working Group (kyo.kyo@jim.titech.ac.jp)

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