# $\begin{array}{l} {\rm National \ Institute \ of \ Technology \ (KOSEN),} \\ {\rm Tomakomai \ College} \\ {\rm Guide \ 2024} \end{array}$



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#### **Our Mottos**

#### (As an individual)

1 The most effective learning fits the individual's personality. 2 Good health is one's most valuable asset. 3 Effort is the key to success.

(As a member of society)

- 1 A person who loves others and himself
- 2 A person who is neither too proud nor too humble 3 A person who acts with courage and responsibility

#### **Our Principles**

Sincere heart
 Friendly spirit
 Indomitable will

(Words selected on Feb.25,1966)



College Emblem



## **Objectives of the College**

#### Objectives of the College **Education Philosophy** Tomakomai College aims to cultivate a rich spirit of humanity, autonomy, and independence, to facilitate the well-balanced growth of knowledge, morality, and wellness among engineers, and to nurture talented human resources who will contribute to the development of society. **Regular course Learning Objectives** College Events Students acquire a rich spirit of humanity, knowledge, autonomy, and independence through daily study, school events, and extracurricular activities. Engineering for II. Practical Ability Students acquire practical skills and study habits that form a foundation of creativity for their future progress and advancement. Curriculum II. Global Mindset Stents acquire a global attitude and knowledge with a foundation of essential communication skills. Advanced Engineering Faculty Member Advanced Engineering Course Learning Objectives uipments for main experiment and practical training Students acquire a rich spirit of humanity, knowledge, and a broad perspective which empowers them to collaborate with others and contribute to the future of society. Guide of facilities Students acquire specialized major knowledge in engineering fields and business management, with a foundation of skills to approach tasks from multiple perspectives to innovate new technology. III. Global Mindset Students Students acquire knowledge and communication abilities with a spirit of mutual understanding to participate in the local community and international society. Employment Admission into Higher Schools **Department Objectives** coperation with the Community and the Department of Engineering for Innovation International Exchange The Department of Engineering for Innovation aims to provide an educational foundation which spans all fields Facilities

of engineering, with practical education in core major fields, including related knowledge and technology, in order to create a prosperous and safe future, and to nurture talented human resources with a rich spirit of humanity, autonomy, and broad perspectives.

## Advanced Engineering Course Objectives

#### Advanced Course of Engineering for Innovation

I. Humanity

T. Humanity

II. Innovation

Cultivation of practical and interdisciplinary skills with a foundation of specialized major knowledge and technical skills, with knowledge of business management and the flexibility to adapt to social change, and the capacity to play active roles in new fields.

Campus Map

## History

Objectives of the College	Following the re there was a strong the School Educa	emarkable development of industry and significant progression of science and technology in Japan, g need across greater society to train the next generation of talented engineers. In 1961, revision to tion Act allowed for the establishment of a new category of high school to create the 5 year technical
	college system, w	hich has a prerequisite of graduation from middle school. Tomakomai College was opened in 1964
History	under this system.	
	20 Dec 1062	ement te establish a National Institute of Technology (KOSEN) in Templomai City
	1 Apr 1964 Four	dation of Tomakomai College with three departments: mechanical engineering, electrical engineering, and industrial chemistry.
Organization	(revi	sion of National School Establishment Law Article 9 on 27 Mar 1964)
	Dr. N	IANAI Kozo (professor at Hokkaido University) appointed as first school president
	24 Mar 1965 First	stage of classroom and dormitory buildings completed
College Events	15 Mar 1966 Seco	and stage of classroom and dormitory buildings, and gymnasium completed
College Events	20 Nov I niro 26 Oct 1967 Cele	I stage of classroom and dormitory buildings completed
	1 Apr 1969 Esta	blackment of Department of Civil Engineering (revision of National School Establishment Law Ministry of Education
Department of	Ordi	
Engineering for	20 Feb 1970 Four	th stage of classroom and dormitory buildings completed
Innovation	1 Apr 1971 Dr. F	UKUTOMI Takaharu (doctor of Science, professor at Hokkaido University) appointed as second school president
	15 Mar 1973 Libra	ry completed
Curriculum	I Apr Dr. C	I SUKA HIRSKI (acctor of Lengineering, professor at Hokkaido University) appointed as third school president
	25 Dec 1978 Sec	Indiginal school all inversely
	24 Mar 1980 Lect	ure hall completed
Advanced	1 Apr 1981 Dr. H	IANAZAWA Hiroshi (doctor of Engineering, professor emeritus at Hokkaido University) appointed as fourth school president
Courses	26 Sep 1983 Stud	ent Welfare Center completed
	11 Mar 1985 Four	th wing of domitories completed
	1 Apr 1987 Educ	iational Media Development Center completed SHII Todas (depter of Engineering, professor amoritus at Hokkaida University) appointed as fifth school provident
Faculty Member	6 Oct 1989 Cele	or in radia (doctor or Engineering, professor ementus at horkaldo oniversity) appointed as intri school president bration of 25th school anniversary
	1 Apr 1990 Esta	olishment of Department of Computer Science and Engineering (revision of National School Establishment Law, Ministry of
Equipments for main	Educ	cation Ordinance 6)
experiment and	26 Mar 1992 Com	puter Science and Engineering building completed
practical training	1 Apr Esta	blishment of 5 day school week and major revisions to curriculum (revision of School Education Act Article 25 on 2 April
	1 Apr. 1992 Dr. 9	<ol> <li>(revision of high school establishment criteria, Ministry of Education Ordinance 36)</li> <li>AKLIMA School establishment criteria, Ministry of Education Ordinance 36)</li> </ol>
Guide of facilities	28 Apr Four	various relation (update of science, profession energies at howardo oniversity) appointed as skill school president variation of The Association for Tomakoma College
	1 Apr 1994 Dep	artment of Industrial Chemistry reorganized under Department of Materials Science and Engineering (revision of National
	Sch	pol Establishment Law, Ministry of Education Ordinance 8)
	1 Apr 1995 Dep	artment of Civil Engineering reorganized under Department of Civil Engineering (revision of National School Establishment
Students	Law	Ministry of Education Ordinance 8)
	29 Feb 1996 Mate	rials Science and Engineering Laboratory completed
	Sch	auterior Electrical Eligineering was related the Department of Electrical and Electronic Eligineering (revision of National on Establishment Law Ministry of Education Ordinance 27)
Employment	10 Oct Com	munity Cooperative Research Center completed
	1 Apr 2001 Dr. I	TOH Kiyohiko (doctor of Engineering, professor emeritus at Hokkaido University) appointed as seventh school president
	25 Dec Won	nen's dormitory building completed
Admission into	1 Apr 2003 Esta	blishment of Advanced Engineering Courses: Electronics and Production Systems Engineering, Environmental Systems
Higher Schools	1 Apr 2004 Tom	ieering acomai Collage reclassified under National Institute of Technology (under National Institute of Technology Law No. 113, 16
	July	2003) which divided General Education into two courses of Humanities and Science
Cooperation with the	25 Sep Cele	bration of 40th school anniversary
Local Industry	11 Mar 2005 Adva	nced Engineering Courses building completed
	1 Apr 2007 Adm	inistration reorganized from three sections (General Affairs, Finance, Student Affairs) to two sections (Administration,
International	1 Apr 2008 Dr /	ent Attains) KIVAMA Tachibike (dector of Engineering, professor amoritus at Acchikawa Callage) appointed as eighth school provident
Exchange	1 Feb 2009 Tech	the advertise interview of the advertise
	3 Apr Tech	inical Education Support Center office completed
	26 Mar 2010 Lect	ure hall renovated
Facilities	26 Dec 2011 Mate	rials Science and Engineering building renovated
	25 Jan 2013 Civil	Engineering building renovated
	14 Mar 2014 Man	er Education Center Opened, and Once Completed
Campus Map	1 Apr Dr. H	(UROKAWA Kazuya (doctor of Engineering, professor at Hokkaido University Center for Advanced Research of Energy and
	Mate	rials) appointed as ninth school president
	10 Oct Cele	bration of 50th school anniversary
	31 Mar 2016 Mec	nanical Engineering building renovated
	I Apr Five	aepartments (Mechanical Engineering, Electrical and Electronic Engineering, Computer Science and Engineering, Materials
	12 Oct 2018 Tom	akomai College Satellite Office (C-base) opened
	1 Sep 2019 Dr. 1	ADANO Shigeru (president of Hakodate KOSEN) appointed as tenth school president
	1 Oct 2019 Dr. I	(OBAYASHI Yukinori (doctor of Engineering, professor at Hokkaido University Graduate School of Engineering) appointed
	elev	enth school president
	23 Mar 2021 Libra	ry building renovated
	Engi	pering) under Advanced Course of Engineering courses (Electronics and Froduction Systems Engineering, Environmental Systems
	15 Mar 2022 Dorn	itory (management building) renovated
	14 Nov 2022 Cam	pus environment improvement (sports field netting) completed
	21 Nov 2022 Build	ling F (Materials) emergency exit stairs completed
	22 Feb 2023 Build	ling E (Workshop Studio) renovated
	28 Feb 2024 Dom	neening to minovation studio opened nitory (2nd building) renovated
	17 Jun 2024 Tree	nanting commemorating the school's 60th anniversary

## Organization

## Chronological List of Presidents

Order	Name	Tenure of Office
1st	MANAI Kouzou	1 Apr 1964~31 Mar 1971
2nd	FUKUTOMI Takaharu	1 Apr 1971~31 Mar 1973
3rd	OHTSUKA Hiroshi	1 Apr 1973~31 Mar 1981
4th	HANZAWA Hiroshi	1 Apr 1981~31 Mar 1988
5th	ISHII Tadao	1 Apr 1988~31 Mar 1993
6th	SAKUMA Tetsurou	1 Apr 1993~31 Mar 2001
7th	ITOH Kiyohiko	1 Apr 2001~31 Mar 2008
8th	AKIYAMA Toshihiko	1 Apr 2008~31 Mar 2014
9th	KUROKAWA Kazuya	1 Apr 2014~31 Aug 2019
10th	TADANO Shigeru	1 Sep 2019~30 Sep 2019
11th	KOBAYASHI Yukinori	1 Oct 2019~

#### Directors

President	KOBAYASHI Yukinori
Vice-President (Dean of Administration)	HIRANO Hiroto
Vice-President (Dean of Academic Affairs)	MATSUDA Kanaho
Vice-President (Dean of Student Affairs)	SATOH Shin
Vice-President (Dean of Dormitory Affairs)	IKEDA Shin-ichi
Vice-President (Director of Advanced Engineering Courses)	INAGAWA Kiyoshi
Vice-President (Dean of Research)	INAGAWA Kiyoshi
Director of Academic Information Center	MURAMOTO Mitsuru
Director of Community Cooperative Research Center	NAGASAWA Tomoaki
Director of Career Education Center	HATTA Shigemi
Director of Technical Education Support Center	HIRANO Hiroto
Head of Division of Mechanical Engineering	MITOH Ayumi
Head of Division of Civil Engineering	SHITAMURA Mitsuhiro
Head of Division of Applied Chemistry and Biochemistry	OKUDA Yayoi
Head of Division of Electrical and Electronic Engineering	HORI Katsuhiro
Head of Division of Computer Science and Engineering	MIKAMI Tsuyoshi
Head of Division of Humanities and Social Sciences	YAMAGIWA Akitoshi
Head of Division of Natural and Physical Sciences	FUJISHIMA Katsuhiro
Director, Student Counseling Center	NAKAJIMA Hiroki
Head of Frontier Course	MURAMOTO Mitsuru
Director of Office Division	TAKAMI Moriaki
Director of Administration	YAMAGUCHI Fumiaki
Director of Student Affairs	ISHII Takahiro

Professors	Emeritus
1 101000010	

Position	Name	Award Date
President	SAKUMA Tetsurou	1 Apr 2001
Professor	MURAI Kuniaki	1 Apr 2001
Professor	WATANABE Isao	1 Apr 2001
Professor	UENO Masashi	1 Apr 2002
Professor	TANAKA Yoshikatsu	1 Apr 2006
Professor	SASAMURA Yasuaki	1 Apr 2006
Professor	FUJIKI Shigeo	1 Apr 2007
Professor	SUGAWARA Michihiro	1 Apr 2007
President	ITOH Kiyohiko	1 Apr 2008
Professor	AKINO Takahide	1 Apr 2008
Professor	YOSHIDA Takaki	1 Apr 2009
Professor	SATO Yoshinori	1 Apr 2011
Professor	SAWADA Tomoyuki	1 Apr 2011
Professor	MATSUBARA Tomoo	1 Apr 2011
President	AKIYAMA Toshihiko	1 Apr 2014
Professor	FUJII Kiyoshi	1 Apr 2014
Professor	HASEGAWA Hirokazu	1 Apr 2016
Professor	URASHIMA Saburo	1 Apr 2017
Professor	SHIMIZU Yuichi	1 Apr 2018
Professor	YAMAGUCHI Kazumi	1 Apr 2018
Professor	UEKI Masami	1 Apr 2019
Professor	YOSHIMURA Hitoshi	1 Apr 2019
Professor	NAKANO Wataru	1 Apr 2021
Professor	TADENUMA Masami	1 Apr 2021
Professor	KATO Hatsuyoshi	1 Apr 2022
Professor	HASHIMOTO Hisaho	1 Apr 2022
Professor	FURUSAKI Tsuyoshi	1 Apr 2023
Professor	ABE Tsukasa	1 Apr 2023

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03

### Faculty and Staff

Ti	tle	President	Professor	Assoc. Prof.	Lecturer	Assist Prof.	Subtotal	Office Staff	Technical Staff	Total
Cur	rrent	1	33	32	2	4	72	29	12	113
Gender ratio	Male	1	31	26	2	3	63	21	12	96
	Female	—	2	6	—	1	9	8	—	17

#### (as of 1 Apr 2024)

## **College Events**

## Objectives of the College History Organization College Events Department of Engineering for Innovation Curriculum Advanced Engineering Courses Faculty Member Equipments for main experiment and practical training Guide of facilities Students Employment Admission into Higher Schools Cooperation with the Community and the Local Industry

#### First Semester

April 1-8	Spring Vacation
April 9	Entrance Ceremony
April 10	Opening Ceremony, Guidance for Freshmen
April 11	First semester begins
April 18	Freshmen Orientation
April 20	School Anniversary
April 23	2nd Year Orientation
April 26	Classroom Visit Day
May 17	Advanced Engineering Courses (Referral Admissions)
May 28	Student General Assembly
June 7-10	First Semester (Special Schedule Period)
June 14	Advanced Engineering Courses (General Admissions)
June 18	Spring Sports Tournament
Early July	Farewell Party
July 6-21	Hokkaido KOSEN Sports Tournament
July 27-September 6	Summer Vacation
August 3-4	Open Campus
August 19	4th Year Transfer Entrance Exams
August 21-September 18	All-Japan KOSEN Sports Tournament

September 18-24 First Semester Final Exams



Entrance Ceremony



Sports Tournament

#### Second Semester

February 20-March 31 No Classes

March 14

September 9	Second semester begins
October 19-20	KOSEN Festival
October 25	Parent-teacher Consultation
November 5-8	4th year student class trip
November 7-8	3rd year student Hokkaido factory visits
November 29-December 2	Second Semester Midterm Exams
December 17	Winter Sports Tourpament
December 25-January 3	
	Winter vacation
January 18	Referral Admissions Interviews
January 18 February 5-12	Referral Admissions Interviews Second Semester Final Exams
January 18 February 5-12 February 9	Referral Admissions Interviews Second Semester Final Exams General Admissions Entrance Exams

Graduation/Completion Ceremony



KOSEN Festival

Campus Map

4

International Exchange

Facilities

## Department of Engineering for Innovation

## Department of Engineering for Innovation

Admission Quota: 200 students

The Department of Engineering for Innovation is dedicated to interdisciplinary education to instill students with a spirit of innovation and broad perspectives. Freshmen students are placed in general education without selecting a field of study, then students are divided into five majors starting in their 2nd year. Starting in the 4th year, students focus on a specific major.

The Frontier Course is a common course which can be selected by students from any major, which aims to develop "the next generation of entrepreneurs". This course teaches the foundation of business management to students in all engineering majors, while the 5th year students perform research to connect engineering to another field of study such as business, design, health care, and welfare. Students can also transfer to higher schools to pursue a variety of other fields, or continue in Advanced Engineering Courses.

The Major Courses are specialized courses (such as Mechanical Engineering) which aim to develop "the next generation of engineers" with leadership skills for corporate product development and production. These courses give students deeper experience in their major while providing a fundamental knowledge of other engineering fields to cultivate a talent pool of engineers with broad perspectives. In their 5th year, students can focus on their Graduation Research, transfer to higher schools to pursue engineering degrees, or continue in Advanced Engineering Courses.



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#### **Division of Mechanical Engineering**

Mechanical engineering is the core of all industrial technology, and it is applicable to an endless variety of fields. After graduation, students go beyond machinery to work in materials, electricity, electronics, and chemistry, and an even wider range of fields including food, construction, IT, trading companies, and government agencies.

Based on this understanding, the Division of Mechanical Engineering provides education with an aim to cultivate fundamental knowledge and applied skills so students will be equipped to play an active role in any field they choose in the future.

#### **Division of Civil Engineering**

The Division of Civil Engineering aims to provide students with the fundamental knowledge and technical experience required to build safe and prosperous home and communities while maintaining harmony with nature and preserving the environment. This major nurtures engineers with a broad skill set that can adapt to the progress of technology in the future.

In the lower grades, students will study the fundamental subjects of civil engineering including structural mechanics, hydraulics, geotechnical engineering, surveying, and building materials. In the upper grades, students will apply their knowledge of these fundamental subjects towards urban planning or environmental design.



#### **Division of Applied Chemistry and Biochemistry**

Chemistry is the keyword of the 21st century. Everything around us is based on chemistry, from our own biological processes to the materials and energy that support our lifestyle.

In the Division of Applied Chemistry and Biochemistry, we believe that the future of chemical technology lies in materials chemistry and biochemistry. Students will learn the fundamentals of these fields, and how they connect, while developing flexible thinking and applied skills that can embrace the integration and synthesis of technology.



#### **Division of Electrical and Electronic Engineering**

The world of electricity and electronic technology is constantly evolving through rapid advancement and diversification. In the division of Electrical and Electronic Engineering, we transform students into engineers who can match the fast pace of modern tech by providing a foundation of essential subjects while covering topics including energy, electronics, and telecommunications in a curriculum that represents the diverse applications of our field. Students will be actively engaged in experiments and workshops to learn about technology through hands-on work, and to develop problem-solving skills through the completion of their Graduation Research.



#### **Division of Computer Science and Engineering**

The Division of Computer Science and Engineering aims to nurture engineers with a practical skill set who can adapt flexibly and broadly to the development of rapid informatization and technological advancement. The curriculum focuses on a comprehensive science and technology education based on computers, communication, and control. In the lower grades, students will study fundamental engineering, theory, and general information processing. In the middle and upper grades, students will study specialized information processing and related engineering subjects.



#### Humanities and Social Sciences & Natural Sciences

The Division of Humanities and Social Sciences & Natural and Physical Sciences is a faculty organization responsible for leading subjects in humanities, social science, natural science, and physical education for undergraduate and advanced engineering courses (students are not affiliated with this department). The curriculum is designed to guide the smooth progress of students as they advance in grade levels from high school to engineering college studies. Each subject prioritizes personal development to facilitate the well-balanced growth of knowledge, morality, and wellness of students through the use of ICT equipment and sports facilities.

## Department of Engineering for Innovation

Objectives of the College

## **Regular Course** Admissions Policy

Tomakomai College welcomes a wide range of domestic and international students with fundamental academic ability in a variety of fields, a passion for learning, and diverse personal qualities. Our aim is to cultivate a rich spirit of humanity, autonomy, and independence, to facilitate the well-balanced growth of knowledge, morality, and wellness among engineers, and to nurture talented human resources who will contribute to the development of society.

#### Students Who Choose to Study Engineering for Innovation

- Desire to acquire diverse education, specialized major knowledge, and technological expertise
- Interest in manufacturing and a passion for helping society through technology
- Possession of an inquiring mind and ambition to pursue new things

#### **Engineering for Innovation Admissions Policies**

Referral admissions are based on student reports and referral letters, with comprehensive evaluation of motivation, ambition, and aptitude based on interviews and personal statements, in order to determine if students have the right background and academic abilities to study at Tomakomai College.

General admissions are based on the comprehensive evaluation of academic test results (with a priority on math, science, and English) and student reports in order to determine if students have the right background and academic abilities to study at Tomakomai College.

Returnee (international) admissions promote a rich sense of global awareness, and are based on the evaluation of academic test results and student evaluations, with comprehensive evaluation of motivation, ambition, and aptitude based on interviews, in order to determine if students have the right background and academic abilities to study at Tomakomai College.

Transfer admissions are based on the evaluation of academic test results and student evaluations, with comprehensive evaluation of motivation, ambition, and aptitude based on interviews, in order to determine if students have the right background and academic abilities to study in their preferred major and class level.

See the descriptions below to find which major is the best fit.

#### **Division of Mechanical Engineering**

The Division of Mechanical engineering explores the mechanisms and methods of drawing energy from nature, and how to use it. We welcome students who are interested in building and operating machine systems, and creating a brighter and safer future.

- Interest in the development and application of energy, materials, and IT, and motivation to try something new
- Passion to learn about manufacturing and why things work
- Ambition to build a better life for everyone while maintaining harmony with nature

#### **Division of Civil Engineering**

The Division of Civil Engineering covers a wide range of topics, including field work which explores local conditions, to teach students about the facilities and systems that keep our lives safe and comfortable. We welcome students who share our vision and goals.

- Interest in the design and construction of bridges, roads and other public structures
- Interest in disaster prevention technology to build safe and strong cities
- Interest in the design of pleasant environments and landscapes for everyday life

#### Division of Applied Chemistry and Biochemistry

The Division of Applied Chemistry and Biochemistry welcomes students who are aspiring to become chemical engineers to use chemistry and biochemistry to create substances which benefit our daily lives while considering environmental impact.

- Interest in the How? and Why? of materials and living creatures in our daily lives
   Good background in science and mathematics, and an interest in experiments
- Ability to proactively and enthusiastically engage in new tasks through teamwork

#### Division of Electrical and Electronic Engineering

The Division of Electrical and Electronic Engineering welcomes students who want to make the world a better place through the study and application of a wide variety of fields including natural energy, robotics, electric vehicles, electronics, IT, and telecommunications.

- Interest in natural energy sources like solar and wind, and robotics
- Interest in electrical and electronic engineering
- Interest in the mechanisms of IT and telecommunications

#### **Division of Computer Science and Engineering**

The Division of Computer Science and Engineering aims to cultivate human resources with knowledge and skills in technology that supports rapid informatization of our society including software, hardware, information systems, and embedded systems. We welcome students who share our vision and goals.

- Interest in computers and networks
- Interest in information processing, system design, and development using computers
- Desire to help society through knowledge and technology based on computer science and engineering

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## Department of Engineering for Innovation Diploma Policy

#### Department of Engineering for Innovation

The Department of Engineering for Innovation aims to instill students with a greater interest and appreciation for engineering technology, and to help students acquire a foundation of academic capabilities in specialized fields and communication skills, while enabling students to study their core major field from a broad perspective. This approach is intended to develop a global mindset, a capacity for self-motivated study, and skills for problem identification and resolution among individuals with a talent for creativity and inquisitiveness.

Starting in the 4th year, students are divided into a specific major course or the Frontier Course. Major courses aim to cultivate human resources with a deeper knowledge of specific engineering fields, and the Frontier Course arms students with a management perspective in addition to engineering knowledge. In order to ensure the development of talented human resources, graduation is recognized based on the acquisition of specific skills as described below, and earning required academic credits.

#### Skills and Capabilities

- Fundamental science knowledge (including mathematics, data science, AI) and liberal arts experience required for practical engineers
- Fundamental knowledge in a specific engineering major, and the capability to apply and practice that knowledge in the real world through labs/workshops and exercises/practice
- Skills for problem identification and analysis to express opinions in a logical manner from a correct ethical viewpoint
- Communication skills and people skills to understand, respect, and collaborate with others
- Possess a global mindset and a capacity for ongoing self-motivated study

#### **Division of Mechanical Engineering**

The Division of Mechanical Engineering aims to fulfill educational objectives by nurturing the skills to play an active role with a broad perspective in the field of mechanical engineering, including drawing, machine design, mechanics, thermofluid dynamics, assembly, materials, information processing, and instrumentation control.

#### **Division of Civil Engineering**

The Division of Civil Engineering aims to fulfill educational objectives by nurturing the skills to play an active role with a broad perspective in the field of civil engineering, including surveying, materials, structure, geotechnical engineering, hydraulics, environment, planning, construction, regulations, and drawing.

#### **Division of Applied Chemistry and Biochemistry**

The Division of Applied Chemistry and Biochemistry aims to fulfill educational objectives by nurturing the skills to play an active role with a broad perspective in the field of applied chemistry and biochemistry, including organic chemistry, inorganic chemistry, analytical chemistry, physical chemistry, chemical engineering, basic biology, biochemistry, bioengineering, as well as applied chemistry and biochemistry subjects including functional materials, food science, and biochemistry.

#### **Division of Electrical and Electronic Engineering**

The Division of Electrical and Electronic Engineering aims to fulfill educational objectives by nurturing the skills to play an active role with a broad perspective in the field of electrical and electronic engineering, including electric circuits, electromagnetism, electronic circuits, electronics engineering, electric power, instrumentation, control, and telecommunications engineering.

#### **Division of Computer Science and Engineering**

The Division of Computer Science and Engineering aims to fulfill educational objectives by nurturing the skills to play an active role with a broad perspective in the field of computer science and engineering, including programming, software, computer engineering, computer systems, system programs, telecommunication networks, math for computer science, computer science theory, and embedded systems.

## Department of Engineering for Innovation

Objectives of the

## Department of Engineering for Innovation Curriculum Policy

In order to acquire the skills described in the Diploma Policy, students will study general education subjects to develop fundamental academic capabilities in natural sciences, humanities, and social sciences, as well as information processing skills, and students will also study major subjects to gain practical knowledge and skills in the majors of mechanical engineering, civil engineering, applied chemistry and biochemistry, electrical and electronic engineering, computer science and engineering.

In the upper grades, students are divided into a specific major course or the Frontier Course. Major course subjects aim to cultivate a deeper knowledge of specific engineering fields, and Frontier Course subjects arm students with a management perspective in addition to engineering knowledge.

## 1. To be able to acquire the basic scientific knowledge and liberal arts necessary for practical engineers

- (1) Natural science subjects such as mathematics, physics and chemistry, and fundamental computer science subjects will be based on lectures and exercises for students to acquire fundamental science knowledge, including mathematical science, data science, and AI.
- (2) Humanities and social sciences subjects will be based on lectures for students to acquire a broad range of education.
- (3) Starting in the 1st year, subjects which introduce majors and career education will be based on lectures and exercises.

#### Knowledge of the engineering expertise of the system, and knowledge through experiments, practical training, exercises, and practical skills To acquire the ability to apply and practice in social implementation

- (1) Major subjects corresponding to specialized fields of study will be based on lectures and exercises for students to acquire fundamental knowledge in their major.
- (2) Workshop subjects and problem-solving classes corresponding to specialized fields of study will be based on experiments and workshops for students to acquire applied and practical skills.
- (3) In the upper grades, students will prepare for their Graduation Research, or Frontier project, through comprehensive study.

#### Note : Major Fields

Mechanical Engineering : Drawing, machine design, mechanics, thermal fluid, machining, materials,
information processing, instrumentation control
Civil Engineering : Surveying, materials, structure, geotechnical engineering, hydraulics, environment, planning,
construction, regulations, and drawing
Applied Chemistry and Biochemistry : Organic chemistry, inorganic chemistry, analytical chemistry, physical
chemistry, chemical engineering, basic biology, biochemistry,
bioengineering, as well as applied chemistry and biochemistry subjects
including functional materials, food science, and biochemistry
Electrical and Electronic Engineering : Electric circuits, electromagnetism, electronic circuits, electronics
engineering, electric power, instrumentation, control, and
telecommunications engineering
Computer Science and Engineering : Programming, software, computer engineering, computer systems, system
programs, telecommunication networks, math for computer science,
computer science theory, and embedded systems

#### Acquire problem identification and analysis skills to express opinions in a logical manner from a correct ethical viewpoint

 ${\scriptstyle (1)}$  Subjects dealing with content related to ethics and engineering ethics will be based on lectures.

(2) In the upper grades, students will prepare for their Graduation Research, or Frontier project, through comprehensive study.

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## 4. To acquire the communication skills and interpersonal abilities to understand, respect, and cooperate with others

- (1) Subjects which aim to deepen understanding of behaviors for promoting cooperation and collaboration as a group will be based on exercises.
- (2) Workshop subjects will include group work assignments.

#### 5. Possess a global mindset and a capacity for ongoing self-motivated study

- (1) Foreign language (English) subjects will be based on lectures and exercises.
- (2) In the upper grades, students will prepare for their senior project, or Frontier project, through independent study and research.

#### Grading Method Policy

- In lecture-based subjects, attainment goals for the subject will be established, regular performance (such as exercises and reports) and results of regular exams will be comprehensively considered, and the level of achievement against the attainment goals will be evaluated.
- In subjects based on practice, experiments and exercises, regular performance such as assignments, reports and presentations will be comprehensively considered, and the level of achievement against the attainment goals will be evaluated.
- 3. In the Graduation research, papers summarizing research results, presentations, and attitudes toward studies will be comprehensively considered, and the level of achievement against the attainment goals will be evaluated.

#### Grading and Evaluation Criteria

Grades are based on a 100-point scale, with 60 points or higher being considered successful and the prescribed credits being awarded. Grading will be based on the following criteria.

Evaluation	Points
Excellent	90-100 points
Very good	80-89 points
Good	70-79 points
Pass	60-69 points
Fail	<60 points

# 06

## **General Education**

	the number of credits	1st vear	2nd vear	3rd vear	4th vear	5th vear	Note
Compulsive Subjects		,	,	,	,	,	
Japanese I A	2	2					
Japanese I B	2	2					
Japanese II	2		2				
Japanese III	2			2			*1
Japanese Language T	2			2			*2
Japanese Language II	2			2	2		*2
Geography	2	2			~		
Modern and Contemporary History	2	-	2				
Public T	2		2				
Public I	2		2	2			× 1
Mathematica T A	2	4	_	2	-		~ 1
Mathematics L R	4	4					
	2	2					
Mathematics II A	4		4				
Mathematics II B	2		2				
Mathematics III	4			4			
Mathematics IV A	2			_	2	_	
Chemistry I	2	2					
Chemistry II	2		2				
Introduction to Physics	1	1					
Physics I	2		2				
Physics II	2			2			
Earth science and Biology	1	1					
Health	1	1					
Physical Education I	2	2					
Physical Education II	2		2				
Physical Education III	2			2			
English I A	4	4					
English I B	1	1					
English II	4		4				
EnglishⅢ A	2			2			
English III B	2			2			
EnglishIV	4				4		
EnglishV	4					4	
Introduction to Data Science	2	2		_	_	_	
Minimum Credits Required	74	26	22	16(14)	6(8)	4	
				,			
Elective Subjects							
Introduction to Law	2				2		
Philosophy	2				2		
Economics	2				2		
History	2				2		
Provid Locture Course of English	2				2		
Special Lecture Course of English	2				2		
Second Foreign Language	2				2		
Mathematics IV B	2				2		
Ivialnematical Science A	2				2		
iviathematical Science B	2				2		
Introduction to Astrophysics	2				2		
Special Credits A	Within 2				Within 2		
Establishment Credits	22	0	0	0	22	0	
Minimum Credits Required	4 or more	0	0	0	4 or more	0	
Total Credits Offered	100	26	22	18	30	4	
Minimum Credits Required	78 or more	26	22	16(14)	10(12) or more	4	

%1 compulsory for domestic students

\*2 compulsory for International students

% (Minimum Credits Required for International students)

Division	of	Mechanical	Engineering

	of credits	1st year	2nd year	3rd year	4th year	5th year	Note
Compulsive Subjects							
Creative Engineering I	4	4					
Creative Engineering II	2		2				
Creative Engineering II	2			2			
Al and Data Science I	2		2	~			
Al and Data Science II	2			2			
	2			2	0		
Applied Mathematics I	2				2		
Applied Mathematics II	2				2		
Pre-Besearch Project	1				1		
Engineering Mechanics I	1		1	-			
Engineering Mechanics II	2			2			
Strength of Materials I	2			2			
Strength of Materials II	2				2		
Engineering Materials I	1			1			
Engineering Materials II	1				1		
Engineering Materials III	1					1	
Thermal Engineering I	2				2		
Thermal Engineering II	2					2	
Fluid Mechanics I	2				2		
Fluid Mechanics II	2				2		
Manufacturing Technology I	1			1			
Manufacturing Technology II	2				2		
Dynamics of Machinery	2				2		
Control Engineering	2				~	2	
Instrumentation Engineering	2		2		2		
Machine Design and Drawing I	3		3	0			
Machine Design and Drawing II	2			2	2		
Machine Design and Drawing II	2				2	1	
Mechanical Engineering Practice I	3		3				
Mechanical Engineering Practice I	3		9	3			
Mechanical Engineering Laboratory I	3			Ũ	з		
Mechanical Engineering Laboratory II	2					2	
Mechanical Engineering Course							
Numeric Calculation	2				2		
Applied Mechanical Engineering	2				2		
Computer Simulation	2					2	
Graduation Research	8					8	
Frontier Course							
Management I	2				2		
Management II	2				2		
Management	2					2	
Case Study for Getting Management Skill	2					2	
Graduation Research in Frontier Course	6					6	
(Mechanical Engineering Course)	81	4	11	17	31	18	
Minimum Credits Required				47	~	40	
(Frontier Course)	81	4	11	17	31	18	
Elective Subjects							
Internship A	1				1		
Internship B	2				2	0	
Introduction to Civil Engineering	2					2	
Introduction to Biotechnology	2					2	
Introduction to Electrical Engineering	2		_		_	2	
Outline of Digital Eabrication	2					2	
Outline of Disaster Prevention Engineering	2					2	
Outline of Resources and Materials Engineering	2					2	
Practical Electronics	2					2	
Outline of Medical Engineering	2					2	
Special Credits B	Within 2					Within 2	
Biomedical Engineering	2					2	
System Control Engineering	2					2	
Environmental Energy System	2					2	
Production Engineering	2					2	
Special CreditsC	Within 2					Within 2	
Total Credits Offered	128	4	11	17	38	58	
(Mechanical Engineering Course)	89 or	4	11	17	57 or	r more	
Minimum Credits Required	89 or	4	11	17	57 0	more	
(Frontier Course)	more	7		.,	07 01	more	

Objectives of the College	01
History	02
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	_
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Faculty Member	08
Equipments for main experiment and practical training	09
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Students	11
Employment	12
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	_
International Exchange	15
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Campus Map	

Objectives of the College History Organization College Events Department of Engineering for Innovation Curriculum Advanced Engineering Courses Faculty Member Equipments for main experiment and practical training Guide of facilities Students Employment Admission into Higher Schools Cooperation with the Community and the Local Industry

International Exchange
Facilities
Campus Map

#### **Division of Civil Engineering**

the number of credits 1st year 2nd year 3rd year 4th year 5th year Note

#### Compulsive Subjects Creative Engineering I 4 4 Creative Engineering II 2 2 Creative Engineering III 2 2 Al and Data Science I 2 2 Al and Data Science II 2 2 AI and Data Science II 2 2 2 2 Applied Mathematics I Applied Mathematics II 2 2 2 Applied Physics 2 Pre-Research Project 1 1 ntroduction to Civil Engineering 1 1 Civil Engineering Materials 1 1 2 Surveying I 2 2 Surveying II 2 2 Structural Mechanics T 2 Structural Mechanics II 2 2 2 2 Structural Mechanics III Hydraulics I 2 2 2 Hydraulics II 2 2 Geotechnical Engineering I 2 2 Geotechnical Engineering II 2 Reinforced Concrete Engineering 2 2 Highway Engineering 2 2 Urban Planning 2 2 Infrastructure Planning 2 2 Sanitary Engineering 2 2 Practice on Surveying I 1 1 Practice on Surveying II 2 2 Civil Engineering Design & Drawing I 1 1 Civil Engineering Design & Drawing I 1 1 Civil Engineering Design & DrawingⅢ 2 2 Civil Engineering Laboratory I 2 2 Civil Engineering Laboratory II З З Civil Engineering Exercise I 2 2 Civil Engineering Exercise II 2 2 Civil Engineering Course Field Work I 2 2 Field Work II 2 2 Construction Management 2 2 Graduation Research 8 8 Frontier Course 2 Management I 2 2 2 Management II Management III 2 2 Case Study for Getting Management Skill 2 2 Graduation Research in Frontier Course 6 6 Minimum Credits Required (Civil Engineering Course) 81 4 11 17 31 18 Minimum Credits Required (Frontier Course) 81 4 11 17 31 18

Elective Subjects							
Internship A	1				1		
Internship B	2				2		
Introduction to Mechanical Engineering	2					2	
Introduction to Biotechnology	2					2	
Introduction to Electrical Engineering	2					2	
Introduction to Computer Science and Engineering	2					2	
Outline of Digital Fabrication	2					2	
Outline of Disaster Prevention Engineering	2					2	
Outline of Resources and Materials Engineering	2					2	
Practical Electronics	2					2	
Outline of Medical Engineering	2					2	
Special Credits B	Within 2					Within 2	
River & Water Resource Engineering	2					2	
Transportation and Traffic Engineering	2					2	
Landscape Engineering	2					2	
Environmental Engineering	2					2	
Special CreditsC	Within 2					Within 2	
Total Credits Offered	128	4	11	17	38	58	
Minimum Credits Required (Civil Engineering Course)	89 or more	4	11	17	57 (	or more	
Minimum Credits Required (Frontier Course)	89 or more	4	11	17	57 (	or more	

#### **Division of Applied Chemistry and Biochemistry**

the number

	of credits	1st year	2nd yea	r 3rd year	4th year	5th year	Note
Compulsive Subjects							
Creative Engineering I	4	4					
Creative Engineering II	2		2				
Creative Engineering II	2			2			
Al and Data Science I	2		2				
Al and Data Science II	2			2			
Al and Data Science™	2			2			
Applied Mathematics T	2			2	2		
Applied Wathematics I	2				2		
Applied Wathematics II	2				2		
Applied Physics	2				2		
Pre-Research Project	1				1		
Basic Concepts of Analytical Chemistry and Inorganic Chemistry	2		2				
Analytical Chemistry I	1			1			
Analytical Chemistry II	2				2		
Analytical Chemistry Exercise	1					1	
Inorganic Chemistry I	1			1			
Inorganic Chemistry II	2				2		
Organic Chemistry I	1		1				
Organic Chemistry II	1			1			
Organic Chemistry II	2			•	2		
Physical Chemistry I	1			1	2		
Physical Chemistry I					0		
Physical Chemistry II	2				2		
Physical Chemistry Exercise	1					1	
Biology	1		1				
Biochemistry I	1			1			
Biochemistry II	2				2		
Molecular Biology	2				2		
Applied Microbiology	2					2	
Chemical Engineering I	2				2		
Chemical Engineering II	2					2	
Chemical Engineering Exercise	1					1	
Safety Science Exercise	1						
Chomistry Laboratory I	2		2				
Chemistry Laboratory I	3		3	~			
	0			0			
Chemistry Laboratory III	6				6		
Functional Materials Engineering Course	_	_	_			_	
Science of Functional Materials I	2				2		
Science of Functional Materials II	2				2		
Applied Physical Chemistry	2					2	
Graduation Research	8					8	
Bioengineering Course							
Molecular Cell Biology	2				2		
Genetic Engineering	2				2		
Food Science	2					2	
Graduation Besearch	8					8	
Frontier Course	U					0	
Management T	2				2	_	
	2				2		
	2				2	-	
Management III	2					2	
Case Study for Getting Management Skill	2					2	
Graduation Research in Frontier Course	6					6	
Minimum Credits Required (Functional Materials Engineering Course)	81	4	11	17	31	18	
Minimum Credits Required (Bioengineering Course)	81	4	11	17	31	18	
Minimum Credits Required (Frontier Course)	81	4	11	17	31	18	
Elective Subjects							
Internship A	1				1		
Internship B	2				2		
Introduction to Mechanical Engineering	2					2	
Introduction to Civil Engineering	2					2	
Introduction to Electrical Engineering	2					2	
Introduction to Computer Science and Engineering	2					2	
Outline of Digital Eabriaction	2					4	
	2					2	
Outline of Disaster Prevention Engineering	2					2	
Uutline of Hesources and Materials Engineering	2					2	
Practical Electronics	2					2	
Outline of Medical Engineering	2					2	
Special Credits B	Within 2					Within 2	
Natural Polymers	2					2	
Surface Science	2					2	
Environmental Science	2					2	
Quality Control	2					2	
Special CreditsC	Within 2					Within 2	
Total Credits Offered	142	4	11	17	42	68	
Minimum Credits Required	89 or	4	11	17	57 0	r more	
(Functional Materials Engineering Course)	more				5. 0		
Minimum Credits Required	89 or	4	11	17	57 o	r more	
(Bioengineering Course)	more						
(Frontier Course)	89 or	4	11	17	57 o	r more	

#### **Division of Electrical and Electronic Engineering**

the number of credits 1st year 2nd year 3rd year 4th year 5th year Note

Compulsive Subjects									
Creative Engineering I	4	4							
Creative Engineering II	2			2					
Creative Engineering III	2					2			
Al and Data Science I	2			2					
Al and Data Science II	2					2			
Al and Data Science III	2					2			
Applied Mathematics I	2						2		
Applied Mathematics II	2						2		
Applied Physics	2						2		
Pre-Research Project	1						1		
Electromagnetics I	2		_	2	_				
Electromagnetics II	2					2			
Electric Circuits I	2			2					
Electric Circuits II	2					2			
Applied Electric Circuits	2						2		
Electronic Devices	2					2			
Electrical Machinery and Apparatus I	2					2			
Electrical Machinery and Apparatus II	2						2		
Electronic Circuits I	2						2		
Electronic Circuits II	2						2		
Digital Circuits	2						2		
Electric and Electronics Measurement	2						2		
Electric Energy Conversion Engineering	2						2		
Electrical and Electronic Engineering Materials	2							2	
Control Engineering	2							2	
Electronics and Information Engineering Exercise	2						2		
IoT System Exercise	2							2	
Electrical and Electronic Creative Laboratory	3			3					
Electrical and Electronic Engineering Laboratory I	3					3			
Electrical and Electronic Engineering Laboratory II	4						4		
Electrical and Electronic Engineering Laboratory II	2							2	
Electrical and Electronic Engineering									
Transmission Line Theory	2				_		2		
Electrical Communication	2						2		
Advanced and Applied Technology	2							2	
Graduation Research	8							8	
Frontier Course									
Management I	2		_		_		2		
Management II	2						2		
Management III	2							2	
Case Study for Getting Management Skill	2							2	
Graduation Research in Frontier Course	6							6	
Minimum Credits Required (Electrical and Electronic Engineering)	81	4		11		17	31	18	
Minimum Credits Required (Frontier Course)	81	4		11		17	31	18	
Elective Subjects									
Internship A	1						1		
Internship B	2						2		
Introduction to Mechanical Engineering	2							2	
Introduction to Civil Engineering	2							2	
Introduction to Biotechnology	2							2	
Introduction to Computer Science and Engineering	2							2	
Outline of Digital Fabrication	2							2	
Outline of Disaster Prevention Engineering	2							2	
Outline of Resources and Materials Engineering	2							2	

2

Within 2

2

2

2

Within 2

128 4 11

89 or

more

4 11

4 11

2

Practical Electronics

Special Credits B

Power Electronics

Special CreditsC

Total Credits Offered

Outline of Medical Engineering 2

Electric Power System Engineering

Semiconductor Engineering

Electromagnetic Wave Engineering

Minimum Credits Required (Frontier Course)

Minimum Credits Required 89 or (Electrical and Electronic Engineering) more

2

2

Within 2

2

2

2

2

V Within 2 2

17

17

38 58

17 57 or more

57 or more

	the number of credits	1st year	2nd year	3rd year	4th year	5th year	Note
Compulsive Subjects							
Creative Engineering I	4	4					
Creative Engineering II	2		2				
Creative Engineering Ⅲ	2			2			
Al and Data Science I	2		2				
AI and Data Science II	2			2			
AI and Data Science III	2			2			
Applied Mathematics I	2				2		
Applied Mathematics II	2				2		
Applied Physics	2				2		
Pre-Research Project	1				1		
Logic Circuit	2		2				
Circuit Theory	2			2			
Computer Architecture and Organization	2			2			
Computer Network	2			2			
Database	2				2		
Operating System	2				2		
Information Security I	2				2		
Systems Engineering	2					2	
Embedded System	2					2	
Programming I	2		2				
Programming II	2			2			Ж1
Basic Information I	2			2			%2
Data Structure and Algorithm	2				2		Ж1
Basic Information II	2				2		%2
Software Engineering	2				2		
Mathematical Folundations for Computer Science	2				2		
Exercise of Data Science	2				2		
Exercise of Computer Networks	2					2	
Exercise of Language Analysis	2					2	
Required Subjects	2				2		
Computer Science and Engineering Laboratory I	З		3				
Computer Science and Engineering Laboratory II	з			з			
Computer Science and Engineering Laboratory II	4				4		
Computer Science and Engineering Course							
Computer Graphics	2				2		
Machine Learning	2				2		
Artificial Intelligence	2					2	
Graduation Research	8					8	
Frontier Course							
Management I	2				2		
Management II	2				2		
Management III	2					2	
Case Study for Getting Management Skill	2					2	
Graduation Research in Frontier Course	6					6	
Minimum Credits Required (Computer Science and Engineering Course)	81	4	11	17	31	18	
Minimum Credits Required (Frontier Course)	81	4	11	17	31	18	
Elective Subjects							
Internship A	1				1		
Internship B	2				2		
Introduction to Mechanical Engineering	2					2	
Introduction to Civil Engineering	2					2	
Introduction to Biotechnology	2					2	
Introduction to Electrical Engineering	2					2	
Outline of Digital Fabrication	2					2	
Outline of Disaster Prevention Engineering	2					2	
Outline of Resources and Materials Engineering	2					2	
Practical Electronics	2					2	
Outline of Medical Engineering	2					2	

**Division of Computer Science and Engineering** 

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	_
Organization	03
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Faculty Member	08
Equipments for main experiment and practical training	09
Guide of facilities	10
Students	11
Employment	12
Admission into Higher Schools	13
Cooperation with the Community and the Local Industry	14
International Exchange	15
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Total Credits Offered	132	
Minimum Credits Required	89 or	
(Computer Science and Engineering Course)	more	
Minimum Credits Required	89 or	
(Frontier Course)	more	
*1 compulsory for domestic	students	

Within 2

2

2

2

2

Within 2

132

4 11

4 11 17

4 11 17

\*2 compulsory for International students

Special Credits B

Special CreditsC

Outline of Hardware

Information Security II

Information Security III Digital Signal Processing

Total Credits Offered

Within 2

2

2

2

2

Within 2

57 or more

57 or more

19 40 58



## Advanced Engineering Course Advanced Course of Engineering for Innovation Admission Quota : 20 students

The Advanced Engineering Course is a 2-year program for students who have completed the 5-year undergraduate program at KOSEN, which provides a more advanced level of technical education. This programs aims to cultivate human resources with a broad range of advanced knowledge, including technical innovation experience and problemsolving skills, who can contribute to a wide scope of industrial development. Students who complete the Advanced Engineering Course are eligible to apply for a bachelor's degree if they have fulfilled the requirements set by the National Institution for Academic Degrees and Quality Enhancement of Higher Education (NIAD-QE). Bachelor's degrees from KOSEN are recognized as equivalent to bachelor's degrees from a 4-year university, and students are eligible to advance to graduate school.

Tomakomai College offers five courses under four majors in the Advanced Engineering Course. The Advanced Frontier Course continues to develop the education provided in the undergraduate Frontier Course. Each course includes major subjects, and general subjects in the humanities and social sciences, plus subjects designed to cultivate skills for management. The aim of this course is to nurture human resources who possess both advanced specialized major knowledge and business knowledge (management skills). The Advanced Course on Engineering for Innovation is also open to international students and mid-career engineers who are already have work experience.



## Advanced Engineering Courses

Objectives of the College

> Engineering for Innovation

> > Advanced Engineering Courses

Faculty Member

upments for main experiment and practical training

Guide of facilities

Higher Schools

community and the

Facilities

Campus Map

## Advanced Engineering Course Admissions Policy

The Advanced Course on Engineering for Innovation welcomes students who have a foundation in engineering, including KOSEN graduates, who share our vision and goals.

- Desire to contribute to local and international development through science and technology
- Motivated to study a higher level of technology in their major to find creative solutions for society
- Enthusiasm for new and more advanced methods in manufacturing

The Tomakomai College admissions policy aims to cultivate human resources who reflect our education philosophy, and admissions for the Advanced Engineering Course emphasize a foundation in engineering. Admissions are divided into academic admissions, referral admissions, mid-career admissions, and international admissions to select students with diverse personal qualities who possess both academic capabilities and a passion for learning.

## Advanced Engineering Course Diploma Policy

The Advanced Course on Engineering for Innovation aims to provide specialized major knowledge in engineering fields and business management skills, to cultivate a rich spirit of humanity, knowledge, and a broad perspective, with a foundation of skills to approach tasks from multiple perspectives to innovate new technology, and to nurture human resources who possess knowledge and communication abilities with a spirit of mutual understanding to participate in the local community and international society. In order to ensure the development of talented human resources, graduation/completion is recognized based on the acquisition of specific skills as described below, and earning required academic credits.

#### Skills and Capabilities

- Capacity to acquire a rich spirit of humanity, knowledge, and a broad perspective which can be expressed logically
- Skills to find creative solutions for society through fundamental concepts and specialized major knowledge, exercises, and research in engineering fields
- Problem identification and analysis skills to find solutions from a correct ethical viewpoint
- Communication abilities with a goal of cooperation to participate in the local community and international society
- Talent to acquire business knowledge, demonstrate leadership, and use management skills

## Advanced Engineering Course Curriculum Policy

In order to acquire the skills described in the Diploma Policy, students will study general education subjects to cultivate a rich spirit of humanity, knowledge, and a broad perspective, and students will also study major subjects to gain practical knowledge and skills in the majors of mechanical engineering, civil engineering, applied chemistry and biochemistry, and electronics and information engineering.

In the Advanced Engineering Course, the curriculum focuses on the following educational objectives, based on a systematic program of subjects intended to cultivate human resources with the right background to participate in international society, including business knowledge, communication skills, leadership, and good judgement.

 Acquire a rich spirit of humanity, knowledge, and a broad perspective which can be expressed logically

Classes for English I and II, and Advanced Humanities and Social Studies I, II, and III, will be based on lectures.

#### Obtain skills to find creative solutions for society through fundamental concepts and specialized major knowledge, exercises, and research in engineering fields

- (1) Classes for Advanced Mathematical Science I III, and IV will be based on lectures.
- (2) Classes for major subjects and major electives will be based on lectures (see details below) .
- (3) Classes for Special Research I and II, and Special Exercises, will be based on exercises and research.

#### **Major Subjects**

Mechanical Engineering : Advanced Applied Mechanics, Fluid Dynamics, Advanced Environmental Engineering for Cold Regions, Machine Materials Engineering, Advanced Energy Conversion Engineering, and Quality Control Systems Engineering

Civil Engineering : Advanced Applied Mechanics, Fluid Dynamics, Advanced Geotechnical Engineering, Advanced Project Planning, Maintenance Engineering, and Disaster Prevention Engineering Objectives of the

## Advanced Engineering Courses

	CONERE
02	History
03	Organization
04	College Events
05	Department of Engineering for Innovation
06	Curriculum
07	Advanced Engineering Courses
08	Faculty Member
09	Equipments for main experiment and practical training
10	Guide of facilities
11	Students
12	Employment
13	Admission into Higher Schools
14	Cooperation with the Community and the Local Industry
15	International Exchange
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Campus Map

Applied Chemistry and Biochemistry : Advanced Organic Chemistry, Advanced Inorganic and Analytical Chemistry, Advanced Biotechnology, Advanced Physical Chemistry, Process Engineering, and Environmental Science

Electronics and Information Engineering : Advanced Electrical Engineering, Advanced Informatics, Information Media Engineering, Applied Instrumentation Engineering, Advanced Electronic Engineering, Embedded Network Design, Introduction to Artificial Intelligence, and Project Management

#### **Elective Subjects**

Quality Control Systems Engineering, Disaster Prevention Engineering, Environmental Science, and Project Management

#### Acquire problem identification and analysis skills to find solutions from a correct ethical viewpoint

- (1) All four majors will be engaged in Management Exercises through joint and collaborative projects with local companies.
- (2) Frontier Course majors will be engaged in Entrepreneurship Exercises through joint and collaborative projects with local companies.
- (3) Classes for Special Research I and II will be based on independent study and research.

## 4. Acquire communication abilities with a goal of cooperation to participate in the local community and international society

- (1) Classes for Thesis Writing Skills and Special Research Seminar I and II will be based on exercises.
- (2) Classes for English  $\, {\rm I} \,$  and  $\, {\rm I\hspace{-0.2mm}I} \,$  will be based on lectures.
- (3) Classes for Off-Campus Training will give students experience in collaborative and practical projects in a group.

#### 5. Develop talent to acquire business knowledge, demonstrate leadership, and use management skills

- (1) Classes for Advanced Management  $\, {\rm I} \,$  and  $\, {\rm I\hspace{-0.5mm}I} \,$  will be based on lectures.
- (2) All four majors will be engaged in Management Exercises through joint and collaborative projects with local companies.
- (3) Advanced Frontier Course majors will be engaged in Entrepreneurship Exercises through joint and collaborative projects with local companies.

#### Grading Method Policy

- 1. In subjects based on lectures, students will be evaluated comprehensively including engagement with general participation in exercises and reports, and performance in regular tests, to judge how well they achieve their goals.
- 2. In subjects based on lab work and exercises, students will be evaluated comprehensively including engagement with tasks, writing reports, and making presentations, to judge how well they achieve their goals.
- In classes for Special Research I and II, students will be evaluated comprehensively including progress in summarizing research results in a thesis, making presentations, and engagement in projects, to judge how well they achieve their goals.

#### Grading and Evaluation Criteria

Grades are based on a 100-point scale, with 60 points or higher being considered successful and the prescribed credits being awarded. Grading will be based on the following criteria.

Evaluation	Points	
Excellent	90-100 points	
Very good	80-89 points	
Good	70-79 points	
Pass	60-69 points	
Fail	<60 points	

## Advanced Engineering Courses

#### Curriculum Division of Mechanical Engineering Division of Civil Engineering

the number	1st year	2nd year

Compulsive Subjects					
General Subjects for All Divisions					
Comprehensive English I	2		2		
Comprehensive English II	2				2
Advanced Course of Humanities and Social Sciences I	2		2		
Advanced Course of Humanities and Social Sciences II	2		2		
Advanced Course of Humanities and Social SciencesIII	2				2
Specialized Subject for All Divisions					
Advanced Course of Management I	2		2		
Advanced Skill for Writing Thesis	2		2		
Internship	1-4		1-4		
Special Exercises	2		2		
Special Research Seminar I	2		2		
Special Research Seminar II	2				2
Special Research I	6		6		
Special Research II	8				8
Specialized Subject for Divisions of Mechanical Engineering					
Advanced Course of Applied Mechanics	2		2		
Fluid Mechanics	2		2		
Advanced Course of Environmental Engineering in Cold Region	2		2		
Mechanical Materials Engineering	2		2		
Advanced Course of Energy Conversion Engineering	2				2
	-				-
Specialized Subject for Advanced Mechanical Engineering Course					
Advanced Course of Mathematical Science I	2	_	2	_	
Quality System Engineering	2				2
Specialized Subject for Advanced Frontier Course					
Advanced Course of Management II	2				2
Entrepreneurship Exercise	2		2		
Elective Subjects					
Specialized Subject for All Divisions					
Advanced Course of Mathematical Science II	2		2		
Advanced Course of Mathematical Science III	2				2
Advanced Course of Mathematical Science IV	2				2
Specialized Subject for Divisions of Mechanical Engineering					
Disaster Prevention Engineering	2				2
Environmental Science	2				2
Project Management	2				2
Specialized Subject for Advanced Mechanical Engineering Course					
Advanced Course of Management II	2				2
Management Exercise	2		2		
Specialized Subject for Advanced Frontier Course					
Advanced Course of Mathematical Science I	2		2	_	
Quality System Engineering	2				2
Total	73-76	6 (	39-42	2	34

\* Requirements for graduation: 62 credits which must include 10 of general credits, 20 of specialized credits, and 32 of specialized related credits.

	the numb of credit	ber ts	1st yea	r 2	nd yea
Compulsive Subjects					
General Subjects for All Divisions					
Comprehensive English I	2		2		
Comprehensive English II	2				2
Advanced Course of Humanities and Social Sciences I	2		2		
Advanced Course of Humanities and Social Sciences II	2		2		
Advanced Course of Humanities and Social Sciences	2				2
Specialized Subject for All Divisions					
Advanced Course of Management I	2		2		
Advanced Skill for Writing Thesis	2		2		
Internship	1-4		1-4		
Special Exercises	2		2		
Special Research Seminar I	2		2		
Special Research Seminar II	2				2
Special Research I	6		6		
Special Research II	8		-		8
	Ũ				Ũ
Specialized Subject for Divisions of Civil Engineering					
Advanced Course of Applied Mechanics	2	_	2		
Fluid Mechanics	2		2		
Advanced Course of Geotechnics	2		2		
Advanced Course of Planning	2		2		
Maintenance Engineering	2		_		
	-				2
Specialized Subject for Advanced Civil Engineering Course					-
Advanced Course of Mathematical Science I	2		2		
Disaster Prevention Engineering	2				2
Specialized Subject for Advanced Frontier Course					
Advanced Course of Management II	2				2
Entrepreneurship Exercise	2		2		
Elective Subjects					
Specialized Subject for All Divisions					
Advanced Course of Mathematical Science II	2		2		
Advanced Course of Mathematical Science III	2				2
Advanced Course of Mathematical Science IV	2				2
Specialized Subject for Divisions of Civil Engineering					
Quality System Engineering	2				2
Environmental Science	2				2
Project Management	2				2
Specialized Subject for Advanced Civil Engineering Course					
Advanced Course of Management II	2				2
Management Exercise	2		2		
Specialized Subject for Advanced Frontier Course					
Advanced Course of Mathematical Science I	2		2		
Quality System Engineering	2				2
Total	73-76	6	39-42	2	34

\*Requirements for graduation: 62 credits which must include 10 of general credits, 20 of specialized credits, and 32 of specialized related credits.

Objectives of the College	
	_
History	
Organization	03
	-
College Events	04
Desertes est of	-
Engineering for Innovation	05
	-
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Advanced	
Engineering Courses	07
	-
Faculty Member	08
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experiment and practical training	09
Guide of facilities	10
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Employment	12
Admission into Higher Schools	13
Cooperation with the	
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International Exchange	15
Facilities	16
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Objectives of the College

History Organization College Events Department of Engineering for Innovation Curriculum Advanced Engineering Courses Faculty Member Equipments for main experiment and practical training Guide of facilities Students Employment Admission into Higher Schools Cooperation with the Community and the Local Industry International Exchange Facilities

Campus Map

#### **Division of Applied Chemistry and Biochemistry**

	the number of credits	1st yea	ar 2nd yea
Compulsive Subjects			
General Subjects for All Divisions			
Comprehensive English I	2	2	
Comprehensive English II	2		2
Advanced Course of Humanities and Social Sciences I	2	2	
Advanced Course of Humanities and Social Sciences II	2	2	
Advanced Course of Humanities and Social Sciences III	2		2
Specialized Subject for All Divisions			
Advanced Course of Management I	2	2	
Advanced Skill for Writing Thesis	2	2	
Internship	1-4	1-4	
Special Exercises	2	2	
Special Research Seminar I	2	2	
Special Research Seminar II	2		2
Special Research I	6	6	
Special Research II	8		8
Specialized Subject for Divisions of Applied Chemistry and Biochemistry			
Advanced Organic Chemistry	2	2	
Advanced Inorganic and Analytical Chemistry	2	2	
Advanced Biotechnology	2	2	
Advanced Physical Chemistry	2	2	
Process Engineering	2		2
Specialized Subject for Advanced Applied Chemistry and Biochemistry Course			
Advanced Course of Mathematical Science I	2	2	
Environmental Science	2		2
Specialized Subject for Advanced Frontier Course			
Advanced Course of Management II	2		2
Entrepreneurship Exercise	2	2	
Elective Subjects			
Specialized Subject for All Divisions			
Advanced Course of Mathematical Science II	2	2	
Advanced Course of Mathematical Science III	2		2
Advanced Course of Mathematical Science IV	2		2
Specialized Subject for Divisions of Applied Chemistry and Biochemistry			
Quality System Engineering	2		2
Disaster Prevention Engineering	2		2
Project Management	2		2
Specialized Subject for Advanced Applied Chemistry and Biochemistry Course			
Advanced Course of Management II	2		2
Management Exercise	2	2	
Specialized Subject for Advanced Frontier Course			
Specialized Subject for Advanced Frontier Course Advanced Course of Mathematical Science I	2	2	
Specialized Subject for Advanced Frontier Course Advanced Course of Mathematical Science I Quality System Engineering	2 2	2	2

#### Division of Electronics and Information Engineering

the number of credits 1st year 2nd year

Compulsive Subjects					
General Subjects for All Divisions					
Comprehensive English I	2	2			
Comprehensive English II	2			2	
Advanced Course of Humanities and Social Sciences I	2	2			
Advanced Course of Humanities and Social Sciences II	2	2			
Advanced Course of Humanities and Social Sciences II	2			2	
Specialized Subject for All Divisions					
Advanced Course of Management I	2	2			
Advanced Skill for Writing Thesis	2	2			
Internship	1-4	1-4			
Special Exercises	2	2			
Special Research Seminar I	2	2			
Special Research Seminar II	2	-		2	
	6	e		2	
Special Research I	0	0		~	
Special Research II	8			8	
Specialized Subject for Divisions of Information and Electronics					_
Advanced Course of Electrical Engineering	2	2			
Advanced Course of Informatics	2	2			
Information Media Engineering	2	2			
Specialized Subject for Advanced Information and Electronics Course					
Advanced Course of Mathematical Science I	2	2			
Project Management	2			2	
Specialized Subject for Advanced Frontier Course					
Advanced Course of Management II	2			2	
Entrepreneurship Exercise	2	2			
Elective Subjects					
Specialized Subject for All Divisions					
Advanced Course of Mathematical Science II	2	2			
Advanced Course of Mathematical Science III	2			2	
Advanced Course of Mathematical Science IV	2			2	
Specialized Subject for Divisions of Information and Electronics					
Quality System Engineering	2			2	-
Disaster Prevention Engineering	2			2	
	2			2	
	2	2		2	
Advensed Course of Electronics	2	2		2	
Advanced Course of Electronics	2			2	
Embedded Network Design	2			2	
Introduction to Artificial Intelligence	2			2	
Specialized Subject for Advanced Information and Electronics Course				_	
Advanced Course of Management II	2			2	
Management Exercise	2	2			
Specialized Subject for Advanced Frontier Course					
Advanced Course of Mathematical Science I	2	2			
Quality System Engineering	2			2	
Total	77-80	39-42	2	38	

★ nequirements for graduation: 62 credits which must include 10 of ger credits, 20 of specialized credits, and 32 of specialized related credits.

\*Requirements for graduation: 62 credits which must include 10 of general credits, 20 of specialized credits, and 32 of specialized related credits.

## Faculty Member

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	i.			
Position	In alphabetical order	Division	The main subjects in its duty	The main research themes
Prof. Dr.Eng.	ABE Tsukasa	Computer Science and Engineering	Computer Communication, Exercise of Network Programming, Embedded Network Design	Computer Communication, Embedded Systems
Assoc Prof. Dr.Eng.	ARIMA Takashi	Natural and Physical Sciences	Mathematics	Nonequilibrium thermodynamics, Theoretical fluid dynamics
Assoc Prof. Dr.Sci	ARTEAGA ARTEAGA FERNANDO	Applied Chemistry and Biochemistry	Creative EngineeringⅢ, Chemistry Laboratory Ⅱ, Advanced Chemistry Laboratory	Development of photoresponsive metal- catalyst and smart materials
Assoc Prof. Dr.Eng.	ASAMI Hiroki	Mechanical Engineering	Creative Engineering II, Machine Design and Drawing II · III, Strength of Materials II, Mechanical Engineering Practice I, Al and Data Science I · II	Study of hard ceramics material
Prof. Dr.Eng.	DOI Shigeo	Computer Science and Engineering	Systems Engineering, Exercise of Information Security, Computer Science and Engineering Laboratory II-IV, Project Management, Computer Network, Outline of Medical Engineering	Swarm Intelligence, Information Systems, Information Security
Prof.	FUJISHIMA Katsuhiro	Natural and Physical Sciences	Mathematics	Mathematics Education
Assoc Prof. Dr.Env.Sci.	FUJITA Sayaka	Applied Chemistry and Biochemistry	Creative Engineering III, Biochemistry II, Polymer Chemistry, Outline of Medical Engineering, Advanced Chemistry Laboratory, Bioengineering Laboratory	Effective Utilization of bioresources
Prof. Dr.Eng.	FURUSAKI Tsuyoshi	Applied Chemistry and Biochemistry	Creative Engineering I, Inorganic Chemistry III, Chemistry Laboratory II, Advanced Chemistry Laboratory	Preparation and properties of functional ceramics
Assoc Prof. Dr.Info Sci	HARADA Keiwu	Computer Science and Engineering	Al and Data Science I · II · III. Programming II, Exercise of Software Design III, Computer Science and Engineering Laboratory II · III, Introduction to Artificial Intelligence,	Complex Networks,Machine Learning
Prof. Dr.Eng.	HATTA Shigemi	Civil Engineering	Hydraulics $I\cdot {\rm I\!I}$ , Structural and Geotechnical Engineering, Creative Engineering $I\cdot {\rm I\!I}$	Study on river runoff process
Prof.	HIGASHI Toshifumi	Humanities and Social Sciences	English	Semantics and Pragmatics of English
Prof. Dr.Eng.	HIRANO Hiroto	Applied Chemistry and Biochemistry	Chemistry II, Creative Engineering II, Chemical Engineering II, Chemical Engineering Exercise, Process Design, Process Engineering, Chemistry Laboratory I, Advanced Chemistry Laboratory, Quality Control	Development of high efficient separation unit by use of inclined continuous thickener
Prof. Dr.Eng.	HORI Katsuhiro	Electrical and Electronic Enginnering	Electric Circuits I , Control Engineering I , Creative Engineering II , Information Processing Exercise ${\rm I\!I}$	Control of autonomous mobile robot
Prof. Dr.Eng.	IKEDA Shin-ichi	Mechanical Engineering	Manufacturing Technology II, Machine Design and Drawing I, Creative Engineering II, Mechanical Engineering Laboratory II	Cutting of titanium alloy
Prof. Dr.Eng.	INAGAWA Kiyoshi	Computer Science and Engineering	Fundamentals of Hardware, Circuit Theory, Creative Engineering II, Computer Science and Engineering Laboratory $I\cdot II\cdot II$	Hardware Design, SAW Device Design
Assoc Prof.	ISHIKAWA Ayumi	Humanities and Social Sciences	English	American Literature
Assoc Prof. Dr.Eng.	ITO Yoshihiro	Electrical and Electronic Enginnering		High speed camera
Prof. Dr.Agr.	IWANAMI Shunsuke	Applied Chemistry and Biochemistry		Research on the food processing and environmental purification of biological function
Assoc Prof. Dr.Eng.	KANEKO Tomomi	Natural and Physical Sciences	Thermodynamics, Thermal Science and Engineering, Advanced Lecture on Environmental Engineering for Cold Region, Physics I, Business I · II · III, Management Exercise, Entrepreneurship Exercise, Advanced Course of Management II	Thermal energy conversion, Automotive engineering, Gamification
Assoc Prof. Dr.Eng.	KASHIMURA Nao	Applied Chemistry and Biochemistry	Organic Chemistry I · II · III, Creative Engineering III, Applied Physical Chemistry, Chemistry Laboratory I, Advanced Chemistry Laboratory	Development of up-grading process of organic resources
Assist Prof. Dr.Earth System Science	KASHIWASE Haruhiko	Natural and Physical Sciences	Applied mathematics, Mathematics, AI and Data Science $I\cdot {\rm I\!I}$	Mathematics climate change, Satellite remote sensing
Assoc Prof. Dr.Eng.	KATO Akira	Civil Engineering	Geotechnical Engineering I, Practice on Surveying I, Civil Engineering Design & Drawing I, Creative Engineering II	Mechanical and mass transport characteristics of recycled aggregate for roadbed materials
Lecturer	KAWANO Tomoya	Humanities and Social Sciences	Japanese, Graduation Research in Frontier Course	The study of Chinese classical literature in Japan (Focusing on the Heian Period)
Prof. Dr.Eng.	KIKUTA Kazushige	Mechanical Engineering	Advanced Lecture on Environmental Engineering for Cold Region, Creative Engineering I, Thermal Engineering II, Mechanical Engineering Laboratory	Thermal energy conversion
Prof. Dr.Eng.	KONDO Takashi	Civil Engineering	Civil Engineering Materials, Structural mechanics I, Surveying I, Highway Engineering, Maintenance Engineering	Study on pavement for cold region
Assoc Prof. Dr.Sci	KONNO Kohkichi	Natural and Physical Sciences	Mathematics	Gravity theory, Astrophysics
Prof. Ph. D. Sci.	KONO Hiroyuki	Applied Chemistry and Biochemistry	Physical Chemistry I · II., Physical Chemistry Exercise, Advanced Course of Physical Chemistry, Polymer chemistry, Management Exercise, Entrepreneurship Exercise, Chemistry Laboratory II, Advanced Chemistry Laboratory, Business III	Synthesis and Application of functioal polysaccharides
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## Faculty Member



Position	In alphabetical order	Division	The main subjects in its duty	The main research themes	
Assoc Prof. Dr.Eng.	KOYABU Eitaro	Mechanical Engineering	Fluid Mechanics,Creative Engineering I $\cdot$ II, Machine Design and Drawing IV,Business III, Management Exercise, Entrepreneurship Exercise	Analysis of flow over a turbine blade surface and the high-efficiency of fluid machinery	
Prof. Dr.Eng.	KUDO Akihiro	Electrical and Electronic Enginnering	Creative Engineering ${\rm I\!I}$ , AI and Data Science ${\rm I\!I}\cdot {\rm I\!I}$ , Digital Circuits	Binaural sound synthesis	
Prof.	MATSUDA Kanaho	Humanities and Social Sciences	English	American Literature	
Assoc Prof. Dr.Eng.	MATSUO Yuko	Civil Engineering	Structual Mechanics $I\!\!I\cdot\!I\!I$ , Bridge and Seismic Engineering, Coastal and Port Engineering, Advanced Course of Applied Mechanics,Infrastructure Engineering	Maintenance of Structures	
Prof. Dr.Info Sci	MIKAMI Tsuyoshi	Computer Science and Engineering	Creative Engineering I-II, Computer Architecture and Organization, Computer Science and Engineering Laboratory I-IV, Digital Signal Processing Biosignal Analysis, Special Exercises, Outline of Medical Engineering, Advanced Course of Informatics, Exercise of Linear System	Biosignal Analysis, Pattern Recognition	
Prof. Dr.Eng.	MITOH Ayumi	Mechanical Engineering	Fluid Mechanic II, Instrumentation Engineering, Biomedical Engineering, Fluid Mechanics	Artificial organ, Bioengineering	
Prof. Dr.Eng.	MURAMOTO Mitsuru	Natural and Physical Sciences	$\label{eq:main_state} \begin{array}{l} \mbox{Mathematics, Creative Engineering I}, \mbox{Electromagnetic Wave Engineering,} \\ \mbox{Advanced Course of Management I}, \mbox{business} \box{II}, \mbox{Management Exercise,} \\ \mbox{Entropreneurship Exercise, Graduation Research in Frontier Course} \\ \end{array}$	Electromagnetic Field Analysis, Science Education	
Assist Prof.	NAGAO Masanori	Applied Chemistry and Biochemistry	Creative Engineering I $\cdot I\!\!I$ , Chemistry Laboratory II, Advanced Course of Inorganic and Analytical Chemistry, AI and Data Science I $\cdot I\!\!I$ , Inorganic Chemistry I, Advanced Chemistry Laboratory	Synthesis of functional metal oxides for application as a heterogeneous catalyst	
Prof. Dr.Sci.	NAGASAWA Tomoaki	Natural and Physical Sciences	Applied physics, Physics, business Ⅲ, Management Exercise, Entrepreneurship Exercise, Graduation Research in Frontier Course	Elementary particle, Quantum mechanics, PBL	
Prof.	NAKAJIMA Hiroki	Natural and Physical Sciences	Physical Education II · III	Studies on ice hockey	
Prof. Dr.Eng.	NAKAMURA Tsuneo	Computer Science and Engineering	$\begin{array}{l} \mbox{Programming I},\mbox{ Computer Graphics, Computer Science and Engineering Laboratory I}\cdot I\!\!I,\mbox{ Information Media Engineering, Introduction to Data Science} \end{array}$	Media Information Processing	
Prof. Dr.Eng.	NAKAMURA Tsutomu	Civil Engineering	Geotechnical Engineering $I$ , Surveying $I$ , Practice on Surveying $I$	Properties of in-soil geogrid deformation	
Assoc Prof. Dr.Info Sci	NAKAMURA Yoshihiko	Computer Science and Engineering	Introduction to Data Science,Creative Engineering II, Database, Computer Science and Engineering Laboratory $I\cdot II\cdot IV$ , Outline of Medical Engineering	Medical Image Processing	
Prof. Dr. Enviromental Earth Science.	NIHASHI Sohey	Mechanical Engineering	Environmental Energy system, Programing, Advanced Lecture on Energy Conversion	Ice-ocean system, Earth environment and energy	
Lecturer Litt.D.	NOMURA Yuki	Humanities and Social Sciences	History, Geography	History of the Republic of Venice	
Prof. Dr.Eng.	OHNISHI Takaomi	Computer Science and Engineering	$eq:logic circuit, Seminar on Computer Science and Engineering, Circuit Theory II, Computer Science and Engineering Laboratory I \cdot II \cdot III, Creative Engineering III$	Instructology and Promoting Formal Method	
Assist Prof.	OHSAWA Takuto	Electrical and Electronic Engineering	Electric Energy Conversion Engineering, Electric Power System Engineering, Electri- cal and Electronic Creative Laboratory	Power System Analysis and Operation	
Assoc Prof.	OKUDA Yayoi	Applied Chemistry and Biochemistry	Basic Concepts of Analytical Chemistry and Inorganic Chemistry, Analytical Chemistry I , Creative Engineering II , Chemistry II , Chemistry Laboratory I	Chemical characterization of cements and concretes	
Assoc Prof. Dr.Eng	OKUYAMA Yui	Electrical and Electronic Enginnering	$\label{eq:sector} \begin{array}{l} \mbox{Electromagnetics I} \cdot \mathbb{I}, \mbox{ Electronics Measurement, Advanced Course of Electronics, Outline of Medical Engineering, Electrical and Electronic Creative Laboratory \\ \end{array}$	Research on discharge plasmas	
Assoc Prof.	OSHIMA Kazuhiro	Applied Chemistry and Biochemistry	Chemistry $I \cdot \mathbb{I}$ , Organic Chemistry Exercise	Synthesis of new polysaccharide derivatives via "Click Chemistry"	
Assist Prof.	SAKAI Yuuma	Civil Engineering	Environmental Engineering I , AI and Data Science $I\cdot 1\!$	Mathematical biology, Ecological modeling	
Assoc Prof. Dr.Eng.	SASAKI Koji	Electrical and Electronic Enginnering	Transmission Line Theory, High Frequency Circuits, Transmission Line Theory, Creative Engineering III, Advanced Course of Electrical Engineering	Speech Signal Processing	
Prof.	SASAKI Sai	Humanities and Social Sciences	$\ensuremath{Public\mathbb{I}}$ , Modern and Contemporary History, Law	International Family Law, International Property Law	
Assoc Prof.	SATO Nanae	Humanities and Social Sciences	English	Interculturalism, PBL, Shakaijin-Kiso- Ryoku (Fundamental Competencies for Working Persons)	
Prof. Dr.Eng.	SATO Shin	Applied Chemistry and Biochemistry	eq:creative engineering I, Chemical Engineering I, Computer Science I, Quality Control, Chemical Engineering Exercise , Process Engineering, Chemistry Laboratory I	Development of new Taylor vortex mixer	
Assoc Prof. Dr.Eng.	SAZAWA Masaki	Electrical and Electronic Enginnering	Electrical Machinery and Apparatus I , Creative Engineering II , Advanced Course of Electrical Engineering, Applied Measurement Engineering, Power Electronics	High speed positroning control Multi degrees of freedom control	
Prof. Dr.Eng.	SHITAMURA Mitsuhiro	Civil Engineering	Urban Planning, Infrastructure Planning, Landscape Engineering, Introduction to Civil Engineering, Transportation and Traffic Engineering, Practice on Surveying $\rm I\!I$	Characteristics of journey-to-work travel behavior	

## Faculty Member

Position	In alphabetical order	Division	The main subjects in its duty	The main research themes
Assoc Prof. Dr.Eng.	SUGIMOTO Masashi	Computer Science and Engineering	Creative Engineering I $\cdot I\!\!I$ , Computer Science and Engineering Laboratory I , Exercise of Software Design $I\!I$	Soft Computing, Robotics, Internet of Things, LPWA, Communication Network
Assoc Prof.	SUZUKI Shuhey	Humanities and Social Sciences	English	Teaching English as a Foreign Language, Applied Linguistics
Prof.	TADA Mitsuhiro	Humanities and Social Sciences	Public I · II	Ethics of Schopenhauer, Bioethics
Assoc Prof.	TAGA Ken	Natural and Physical Sciences	Health, Physical Education	Sports motion analysis, Sports coaching
Prof. Dr.Sci	TAKAHASHI Rohta	Natural and Physical Sciences	Applied Mathematics I , mathematics, Mathematical Science, Al and Data Science I $\cdot  \mathbb{I}$	Astrophysics, Astronomy
Assoc Prof. Dr.Eng.	TAKAZAWA Kohji	Mechanical Engineering	Engineering Materials $I\cdot II$ , Machine Design and Drawing $I$ , Mechanical Engineering Practice $I$	Welding of dissimilar materials, Powder metallurgy
Assist Prof.	TANIGUCHI Yoko	Civil Engineering	Practice on Surving II, River and Water Resource Engineering, Creative Engineering I $\cdot I\!\!I$	Estimating the amount of water resources for future climate change
Assoc Prof. Litt.D.	TOKITA Saori	Humanities and Social Sciences	Japanese	The study of Woman's literature of the Edo period of Japan
Prof. Dr.Eng.	TOMA Eiji	Mechanical Engineering	Production Engineering, Engineering Quality System, Dynamics of Machinery, Engineering Mechanics I · II , Thermal Engineering I	Optimization study on design and development by "Taguchi method"
Assoc Prof. Ph.D	TORITA Hiroyuki	Civil Engineering	Disaster prevention engineering , Field Work ${\rm I\hspace{-0.5mm}I}$	Natural hazards
Assist Prof. Dr.Sci	UEBA Inori	Natural and Physical Sciences	Physics	Elementary particle theory
Assoc Prof. Dr.Sci. & Eng.	UTSUNO Kuniharu	Applied Chemistry and Biochemistry	Biology, Biochemistry I, Molecular Biology, Molecular Cell Biology, Introduction to Biolo- gy & Microbiology, Bioengineering Laboratory	The study of DNA higher order structure
Prof. Dr.Eng.	YAMADA Akihiro	Electrical and Electronic Enginnering	Electronic Device, Electrical and Electronic Engineering Materials, Creative Engineering I	Electric and magnetic properties of electrodeposited thin films
Prof. Ph.D. (Humanities)	YAMAGIWA Akitoshi	Humanities and Social Sciences	Japanese, Chinese	New Confucianism on the Song dynasty
Assoc Prof. Ph.D Information	YAMAMOTO Ryota	Computer Science and Engineering	System Software, Operating System, Fundamentals of Embedded Sys- tem, Computer Science and Engineering Laboratory I · II, Creative En- gineering I, System Software, Exercise of Real Time Operating System	Embedded Systems, Software Engineering
Assoc Prof. Dr.Eng.	WATANABE Akio	Civil Engineering	Civil Engineering Laboratory I · II , Reinforced Concrete I · II , Fieldwork I ,Creative Engi- neering II , Maintenance Engineering	Material Science
Assoc Prof. Dr.Eng.	WATANABE Satoshi	Applied Chemistry and Biochemistry	Creative Engineering I , Chemistry Laboratory I · II	Development of soft material devices and wet process technologies



08



#### **Division of Mechanical Engineering**

- 3D CAD design software Solid Works (Dassault Systèmes)
- ▼3D printer (STRATASYS Dimension Elite)
- Precision material-testing machine (Shimadzu AG-10kNX)
- ▼Universal material-testing machine (Shimadzu UH-500kNI)
- High speed camera (nac Image Technology)
- Hydraulic experiment equipment (JSPMI)
- Small circulating wind tunnel experiment equipment (Hiyama Iron Works)
- Centrifugal pump module (Megachem)
- Laser processing machines (Universal Laser Systems V-460, ILS9.150D)
- CNC Lathe (Takisawa TCN-2000CML3,
- TCN-2000L3)
- (Makino N2-5XA)
- Machining center (Makino KE-55)



▲3D-CAD design software



5-axis machining center

- Wire cut electrical discharge machining equipment (FANUC Robocut α-OiA)
- ▼NC milling machine (Makino KE-55)
- FA control learning system (Synthemec)
- Low-temperature wind tunnel experiment equipment (Tajiri Machine Manufacturing) ※
- Evaluation system for fuel cells (NF As-510)
- Spark plasma sintering machine (SinterLand LABOX-125)
- Energy system optimization facility (test house)
- \*Located in Community Cooperative Research Center



▲3D printer



FA control learning system

#### **Division of Civil Engineering**

- Hydraulics experiment system (Maruto Testing Machine)
- Viscoelasticity measuring device for asphalt (Intesco Model 800)
- Multifunction triaxial test equipment (Sokkisha)
- Multipoint strain digital measurement system (Tokyo Sokki TDS-256DC)
- Universal testing machine (1000KN), Compression & bending testing machine (2000KN) (Mayekawa MFG)
- Shaking test system
   (seismic wave device)
   (IMV-CVL-1000-5)
- 2D wave flume system (Maruto Testing Machine)
- Outdoors flow velocity measurement system (Laser-doppler velocimeter, Total station)
- (Dantec, Topcon)
- Programmable precision thermostatic chambers (Intesco)
- Gyratory compactor system (Pine) ※



Building Materials Lab



Hydraulics Lab

- Multifunction dynamic load test thermostatic chambers (Intesco) ※
- Temperature/humidity supply device and test room (ESPEC ASE-200)
- Electric muffle furnace
- Shaftless mixer ZCROSS (Kitagawa)
- Concrete specimen grinding machine (Marui)
- Bench saw for stone slicing
- \*Located in Community Cooperative Research Center



Surveying Workshop



Compression Strength Test

## 09

## Equipments for main experiment and practical training

#### **Division of Applied Chemistry and Biochemistry**

- ▼Nuclear magnetic resonance spectrometer (BRUKER AV III 500 with solid probe)
- ICP-MS spectrometer (Agilent 7700X)
- Atomic absorption spectrometer (Agilent 240FS, 240Z)
- ▼UV-VIS-NIR spectrophotometer (Varian CARY 5E)
- ▼X-ray diffractometer (BRUKER AXS D8 ADVANCE)
- Field emission scanning electron microscope (JEOL JSM-7500F) \*
- Energy dispersive x-ray spectrometer (JEOL ED-2300) ※
- Energy dispersive x-ray fluorescence spectrometer (PANalytical) ※
- Thermal analysis instrument (Rigaku TG8120)
- ▼Surface area and porosity analyzer (Shimadzu TriStar II 3020)





Surface Area and Porosity Analyzer

- Dynamic viscoelasticity measuring device (Anton Paar MCR 301)
- AUTOGRAPH Precision Universal Tester (Shimadzu AG-X500NplusSC)
- ▼Laser Microscope (Keyence VK-X200)
- Freeze drying equipment (EYELA FD5-N, FDU-2000, DRC-1000)
- High-speed atomic force microscope (Research Institute of Biomolecule Metrology MS-NEX)
  - \*Located in Community Cooperative Research Center



▲ICP-Mass Spectrometer



Clean Bench

250, ULVAC G I-GL2/CP-27)

Scientific Industrial PVS-M10-5F)

Workstation, Linux, ADVENTURE System)

VTR-150M/SRF)

PJ)

Vacuum deposition equipment (Shinku KIKO VPC-

High frequency sputtering equipment (ULVAC KIKO,

Vibrating sample magnetometer (VSM) (Toei

Clean bench (Panasonic Healthcare MCV-91BNS-

Experiment equipment for parallel computing (Xeon

#### **Division of Electrical and Electronic Engineering**

- Experimental equipment for electromechanical systems & power electronics (Todensha MG-DD-120PH, Seikosha MG-SD-220P, Showadengyosha KENTAC3306, etc.)
- Experimental equipment for power semiconductors (Showadengyosha KENTAC1011)
- Experimental equipment for wind & solar power generation (Zephyr AirX, Shell Solar SJJ20, Hitachi, double-sided panels)
- Power transmission system simulator (Kyonan Electric KF-3030PC)
- Experimental equipment for robot control systems (BYNAS BNK-1000F/2SD-SBY)
- High-speed vacuum deposition equipment (Arpac MUE-ECO-EB)
- High voltage generation equipment (Nissin Pulse Electronics)
- High vacuum chamber equipment (Seinan industries 2CF-305, Osaka Vacuum TF-160)



Experimental Equipment for Electromechanical Systems & Power Electronics



High frequency magnetron sputtering systems



The power Transmission Systems Simulator



High frequency magnetron sputtering systems

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Objectives of the College

## Equipments for main experiment and practical training

# Organization College Events Engineering for Curriculum Advanced Engineering Courses Faculty Member Equipments for main experiment and practical training Guide of facilities Students Employment Higher School Cooperation with the Community and the International Exchange

Facilities

Campus Map

#### **Division of Compter Science and Engineering**

- Windows Servers
- PC-UNIX Servers
- Computers for information processing workshops, labs, and Graduation Research
- Software for information processing workshops (multiple)
- Test computer guidebooks (Arduino Leonardo, Raspberry Pi, LEGO Mindstorms EV3, NVIDIA Jetson Xavier NX, RX62N Microcomputer Boards)



## Creative Engineering Workshop

- ▼TabletopNC (Original mind · KitMill RZ420)
- ▼Cutting device (struers\_secotom60)
- ▼3D printer (Japan3Dprinter Raise3D Pro3、Anycubic Photon M3 Max)
- Laser processing machine (Manufactured by ULS · VLS6.75 60W)
- 3D Modeling machine (Roland Deasy · MODELA MDX-50)

- Programmable logic devices
- Basic lab equipment (logic analyzers, digital storage oscilloscopes, function generators, etc.)
- ▼3D printer (Raise3D), 3D scanner (SHINING3D)
- Servers for AI experiments (NVIDIA DGX Station A100)



▲LEGO Mindstorms EV3



 Microcontroller board for embedded systems education (Technology Education Computer Laboratory)

- Digital microscope (Keyence)
- ▼3D scanner system (FALO premium150、Keyence)
- Robot + development environment (Temi)
- ▼Base processing machine (LPKF ProtoMat S104)
- ▼Oscilloscope (DLM5038)
- ▼Collaboration device (Mirai Touch)



▲3D scanner system



Digital microscope

#### Frontier Course Laboratory



## Academic Information Center

Academic Information Center aims to boost education at Tomakomai College by forming an organic connection between the functions of facilities and equipment like the library, the Information Processing Center, and the seminar room.

#### **Open Hours**

	School Year	Vacation Periods
Monday - Friday	8:30 - 20:00	8:30 - 17:00
Saturday	8:30 - 17:00	Closed
Sunday & Holidays	Clo	sed

\*Closed during special events (check the school website for news and updates) \*The seminar rooms, CAI Room 2, and exercise rooms are closed on Saturday.

#### Library

The Tomakomai College library is home to over 131,000 books and 1,300 academic journals and other periodicals. All library materials required for study, reports, and research are available to the general public (within limits that do not interfere with school education and research activities), with over 700 registered users.

The library is equipped with open rows of shelving, a reading room, and audiovisual booths, a Multipurpose Space in the hall for independent study and breaks, and a Learning Commons area featuring a wide space with movable tables that is ideal for group work and peer support.

#### User Statistics

2023 school year: Open 264 days, visited 14,139 times



Academic Information Center



Library (reading room)



#### Library Collection

Books										(as of 1	Apr 2024)
Category	General	Philosophy	History	Social Studies	Natural Science	Engineering	Industry	Art	Language	Literature	Total
Japanese	7,978	5,219	6,637	10,471	26,065	33,098	1,262	3,417	4,841	17,985	116,973
Foreign	269	483	87	140	5,034	2,744	129	89	3,908	871	13,754
Total	8,247	5,702	6,724	10,611	31,099	35,842	1,391	3,506	8,749	18,856	130,727
Journals/Magazines											

Foreign 311

## Information Processing Center

The Information Processing Center operates and manages the educational computer system, and the campus network system, as a joint facility to support education in computer-based information processing, and faculty educational research.

Japanese 1,017

#### **Educational Computer System**

The educational computer system features a core high-performance academic server and file sever for client computers, and includes over 100 computers in CAI Room 1, CAI Room 2, and the exercise rooms, with internet access.

#### Campus Network System

The campus network system connects every computer in faculty offices and the main office using a Layer 3 switch network with main lines and branch lines fiberoptic cables throughout the school. It is also connected by a dedicated line to the Ministry of Education Science Information Network (SINET) to enable communication by email and the internet throughout Japan and the world.

#### Seminar Room

The seminar room is equipped with audio-visual equipment including a projector, large screen, and speakers, and is used for classes and events.



▲CAI Room 2

Total 1,328



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Facilities

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## Community Cooperative Research Center

The Community Cooperative Research Center (CCRC) was established to enrich research activities and lifelong learning environments through exchange and cooperation between Tomakomai College and the local community including local industry, with an aim to utilize the achievements of such projects to support engineering education.

CCRC is home to equipment such as multifunction dynamic load test chambers used to test the strength and durability of materials in low temperatures, and field emission scanning electron microscopes which allow for observation at magnification of over 100,000 times. This equipment is used for joint research and technical consultation for private businesses by performing materials testing, analysis, and other work.

In addition, CCRC engages with the local community through a variety of projects including guest lessons at elementary schools and middle schools, public workshops, and other events.



Community Cooperative Research Center

# Fuest Lessons

#### **Collaborative Research Activities**

#### **Collaborative Research**

Conducted in collaboration with school faculty using staff and financing from private businesses

#### Contract Research

Conducted by school faculty at the request of private businesses

#### Materials Testing, etc.

Materials testing, analysis, and other work conducted using school equipment and technology at the request of private businesses

#### **Technical Consultation**

CCRC also offers technical consultation at the Tomakomai College Satellite Office (C-base) regarding joint research, contract research, materials testing, and external funding for research. Please feel free to contact us.

[Contact] TEL +81-144-61-1102

Email: c-base@tomakomai-ct.ac.jp

#### Public Workshops

Tomakomai College offers public workshops for elementary school and middle school students in and around Tomakomai City.



Public Workshop "2023 Summer Vacation Workshop: Stone Charms and Handmade Paper"



Public Workshop "Cool Electronic Crafts"

## **Career Education Center**

The Career Education Center supports students in individual "career design", which is the concrete planning of designing, planning, and forging their career paths.

In addition to job placement and academic guidance, career education at Tomakomai College offers and organized and systematic programs to promote career education starting in the lower grades.

Since 2018, the Tarumae Association (alumni association) has kept its office on the school campus. This association invites alumni with active careers to visit Tomakomai College as guest lecturers, and will continue to build collaborative relationships with alumni.

#### Services

- Providing standard career counseling
- · Finding and using strategies to build career awareness
- · Planning and hosting career education programs including career design talks and lectures
- · Supporting employment and admission into higher schools

## **Technical Education Support Center**

The main role of the Technical Education Support Center is to provide technical education for experiments and workshops, and technical support for senior projects. It also arranges public workshops and guest lessons as part of activities to connect with the local community. We also support staff in improving their tech skills through participation in technical training and seminars.

#### Technical Education Support and Facilities Maintenance

- Experiments and workshops
- · Research support
- Academic Information Center and Workshop Studio Maintenance
- Experimental Equipment Maintenance

#### **Community Connections**

 Public Workshops and Guest Lessons

Let's make a bouncy balls Let's make an LED paper lantern Let's make a mini hovercraft Let's make a perpetual calendar Let's make a jigsaw puzzle Let's make stone charms



▲Workshop Studio



Welding



Bouncy ball workshop



Public Workshops

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## Student Welfare Center

#### Houshou Hall

Houshou Hall was established to support the welfare of students and faculty, and to support extracurricular activities. This building hosts the student health center and counseling room, the cafeteria, a convenience store, a Japanese-style room and other common rooms for student clubs to serve as a resting place for students and faculty.



▲Welfare Facilities (Houshou Hall)



Cafeteria



Student Health Center



Convenience Store

#### **Dormitories**

Tomakomai College campus includes dormitories with separate buildings for male and female students (Soumei-Ryo and Fuka-Ryo).

Soumei-Ryo has four buildings that currently house 225 male students (including 3 international students). Renovations began during the 2023 school year to improve and enhance the living environment. Construction is scheduled to continue for a few years, and two renovated buildings will be ready for use this year.

Built in 2002, Fuka-Ryo is one building that currently houses 69 female students (including 2 international students). In 2020, the 3rd floor of the 4th male dormitory was connected to the 3rd floor of the female dormitory so it could be used as an expanded female dormitory to accommodate more female students from far away towns.







Fuka-Ryo



Women's Dormitory 4th floor rooms

As of April 8,2024

#### **Dormitory Residents**

	Department of Engineering for Innovation																	
Class		Class 1			Class 2	2		Class 3	3		Class 4	ļ		Class 5	5		Total	
Grade	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
1	15	10	5	12	9	3	14	11	3	15	12	3	10	8	2	66	50	16
2	14	13	1	2	0	2	17	9	8	11	11	0	19	14	5	63	47	16
3	20	17	3	6	4	2	(1) 13	6	(1) 7	8	7	1	(1) 17	13	(1) 5	(2) 64	47	(2) 18
4	11	9	2	10	8	2	12	10	2	6	5	1	(1) 11	(1) 10	1	(1) 50	(1) 42	8
5	10	9	1	16	9	7	8	6	2	(1) 2	(1) 2	0	13	12	1	(1) 49	(1) 38	11
Total	70	58	12	46	30	16	(1) 64	42	(1) 22	(1) 42	(1) 37	5	(2) 71	(1) 57	(1) 14	(4) 293	(2) 224	(2) 69
	Mecha	nical Engi	ineering	Civi	I Engine	ering	Applied Ch	emistry and E	Biochemistry	Electronics	and Informatior	n Engineering		Total				
Advanced Engineering	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female			
Courses	0	0	0	0	0	0	(1) 1	0	(1) 1	0	0	0	(1) 1	0	(1) 1			

\* ( ) indicates international students

## Students

As of 1 Apr 2024

## **Student Population**

#### Department of Engineering for Innovation

Department	Admission Capacity	1	2	3	4	5	Total
Mechanical Engineering Class 1		40 (29,11)	43 (34,9)	45 (40,5)	42 (39,3)	41 (34,7)	
Civil Engineering Class 2		41 (30,11)	32 (26,6)	42 (34,8)	43 (34,9)	42 (33,9)	
Applied Chemistry and Biochemistry Class 3	200	41 (30,11)	42 (20,22)	45 (25,20) ①	36 (24,12)	41 (32,9)	994 (778,216) ④
Electrical and Electronic Engineering Class 4		41 (30,11)	44 (37,7)	44 (37,7)	30 (26,4)	23 (21,2) ①	
Computer Science and Engineering Class 5		40 (29,11)	43 (35,8)	38 (30,8) ①	38 (35,3) ①	37 (34,3)	

#### **Advanced Engineering Courses**

Courses	Admission Capacity	1st year	2nd year	Total
Engineering for Innovattion	20	27 (23,4) ①	32 (27,5)	59 (50,9) ①

#### Hometown Classification of Students

lburi	Hidaka	Ishikari	Sorachi	Shiribeshi	Oshima	Hiyama
398	41	448	34	32	0	0
Kamikawa	Rumoi	Souya	Okhotsk	Tokachi	Kushiro	Nemuro
5 1		2	0	14	3	0

Inside Hokkaido 978

Overseas

Total

Outside Hokkaido 11 (Aomori (1), Tokyo (1), Gunma (1), Ibaraki (4), Fukui (1), Toyama (2), Osaka (1))

 $5~(\mbox{Mongolia}~(2)$  , Laos (1) , Thailand (1) , Singapore (1)) 994





#### Applicants

	Engineering for Innovattion
2019	411
2020	384
2021	345
2022	365
2023	348
2024	363

#### Scholarship Students \*Including Advanced Engineering Course students

	Japan Student Services Organization	Other Scholarship Students	Percentage of Scholarship Students
2019	64	60	12.1%
2020	107	57	13.8%
2021	106	73	17.2%
2022	113	62	16.3%
2023	87	59	11.2%

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NIT (KOSEN), Tomakomai College 29

## Employment

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March 2024 Graduates

#### List of Employment (2023-24 school year)

2021

2022

2020

0

2019

	Companies
Mechanical Engineering	JA Shizunai, Asahi Breweries, Ltd., Amazon Japan, Suntory Products, Ltd., Seiko Epson Corporation, Panasonic Entertainment & Communications, Panasonic Corporation, ATMS Corporation(2), Fanuc Corporation, Fujitec Corporation (2), Ray's Next Corporation, JAL Engineering Co, Ltd., Nichijo Corporation, Isuzu Hokkaido Proving Ground, Dynax Corporation, Nara Machinery Corporation, Hitachi Building Systems, Hamamatsu Photonics K.K., Idemitsu Kosan, Chiyoda Kosho, Tokyo Gas, East Nippon Expressway, Nitto Denko, The Japan Steel Works, Ltd., Fukui Murata Manufacturing
Civil Engineering	NTT InfraNet, Itogumi Construction, Ltd., Iwakura Construction, Ltd., Kansai Electric Power Co., Inc., Kita Gas Z-Plex, Johnson Controls, Tokyo Gas, Tokyo Water(2), Toda Corporation, Hirose & Co., Ltd., Hokuden Integrated Consulting Service Co., Ltd., Maeda Road Construction, Maruiso Construction, Mitsui Sumitomo Construction, Meiji Consultant Co., Ltd., Ariyasu Planning Consultants, A-Tic, Obayashi Corporation, Civitec Co., Ltd., Jacos, Tanakagumi, Narasaki Seisakusho, NEXCO Maintenance Hokkaido, Frontier Giken, Yokogawa Bridge Holdings, Sugawaragumi, Hokkaido Doro Engineering Co., Ltd., City of Sapporo, Town of Mukawa
Applied Chemistry and Biochemistry	Japan Blood Products Organization, DIC Corporation, Asahi Kasei Corporation, Osaka Sealing Printing Co., Ltd.(2), Calbee Co., Ltd. Hokkaido Factory, Kirin Beer Hokkaido Chitose Factory, Suntory Group, Suntory Products Co., Ltd., Daiichi Sankyo Chemical Pharma, Daikin Industries, Ltd., Dainichiseika Color & Chemicals Mfg. Co.,Ltd., Tomakomai Gas, Nissan Motor Corporation, NIPRO, Minebea Mitsumi, Mebius Packaging Co.,Ltd., Megmilk Snow Brand Co., Ltd., Adeka Corporation, Nara Machinery Corporation, Kisho Co., Ltd.(2), Resonac Goi Plant, Hokkaido LIXIL Plant, Chugai Pharma Manufacturing Co., Ltd., Hokkaido Sumiden Prescision Co., Ltd., Hokkaido Government Office
Electrical and Electronic Engineering	NTT East Japan Group Companies, Icom Inc., Air Water Hokkaido Industrial Gas, Oji Materia Co., Ltd., Canon Marketing Japan, Suntory Products Co., Ltd., J-Power Group, TMEIC, NAA Fueling Facilities Corporation, Nippon Beet Sugar Mfg. Co., Ltd., Hamamatsu Photonics K.K., Fukui Murata Manufacturing, Hokkai Electrical Construction, Hokkaido Electric Power Company(2), Hokkaido Furukawa Electric, Mitsubishi Electric Building Solutions, Mitsubishi Electric Plant Engineering Corporation, Ninebea Mitsumi, Megmilk Snow Brand Co., Ltd., Rengo Group, Infiniteloop Co., Ltd., Oval Corporation, Tamagawa Electronics Co., Ltd., Tsuken Co., Ltd., Venetex Corporation
Computer Science and Engineering	NTT East Japan Hokkaido, Kyocera Communication Systems Co., Ltd., Takeda Design and Manufacturing Co., Ltd., Nisshin Software Engineering, Fuller Inc., HARP Co., Ltd.(2), Access Net, Inc, Atec Inc., Scudetto Software, TechnoPro, Inc., Techno Labo Co., Ltd., FOR-A, Hokkaido JR System Development, Members Co., Ltd.
Advanced Course of Engineering for Innovation	Eneos Corporation, Iris Ohyama Inc., Accenture, Nichireki Co, Ltd., Hasegawa Sports Facilities Co., Ltd., Hamari Chemicals, Ltd., Nichijo Corporation, Kaneka Corporation, Ciz:Labo, Tanaka Consultant Co., Ltd., Hitachi High-Tech Fielding, Hitachi Power Solutions, Nippon Light Metal Holdings Company, Ltd., Hokuto System Co., Ltd., Yazaki Corporation

2,856

#### **Career Paths After Graduation**

Facilities

Campus Map

## Admission into Higher Schools

#### Transfer to University

Universities	2020	2021	2022	2023	2024	Total
Hokkaido University	1	4	2	2	2	164
Hokkaido University of Education						12
Muroran Institute of Technology	5	9	7	4	3	308
Otaru University of Commerce						3
Obihiro University of Agriculture and Veterinary Medicine		1				18
Kitami Institute of Technology		3	2	1	2	75
Hirosaki University		1	1	1	1	12
Iwate University						36
Tohoku University	1					13
Akita University						11
Yamagata University						5
Ibaraki University	1				1	15
University of Tsukuba		1			1	14
Gunma University				1		5
Chiba University		2	1		1	32
University of Tokyo						6
Tokyo University of Agriculture and Technology						16
Tokyo Institute of Technology	1	2	1		1	22
National University of Electro-Communications	1					12
Niigata University						16
Nagaoka University of Technology	10	5	4	10	11	278
Kanazawa University			2		1	15
Shinshu University						24
Gifu University		2	2	1		12
Shizuoka University	1					5
Toyohashi University of Technology	9	4	13	7	6	203
Mie University					1	3
Kyoto University						3
Osaka University						1
Kobe University						4
Other public universities (Sapporo City University, etc.)	1	1	1	2		18
Other private universities		6		2	2	47
Other universities Utsuromiya University, Saitama University, Tokyo University of Foreign Studies, Tokyo Polytechnic University, Tokyo City University, Yokohama National University, University of Fukui, University of Yamanashi, Nagoya University, Kyoto Institute of Technology, Okayama University, Hiroshima University, Yamaguchi University, Kagawa University, Kyushu University, Kyushu Institute of Technology, Saga University, Kumamoto University, University of the Ryukyus	3	4	3	4	2	79
Advanced Engineering Courses of Tomakomai College	15	30	21	33	26	538
Advanced Engineering Courses of other College						23
Total	49	75	60	68	61	2,048

#### Admission into Higher Schools by Department

Department	2020	2021	2022	2023	2024
Division of Mechanical Engineering	9	16	13	14	19
Division of Civil Engineering	14	16	14	19	11
Division of Applied Chemistry and Biochemistry	10	19	13	16	8
Division of Electrical and Electronic Engineering	11	10	12	11	9
Division of Computer Science and Engineering	5	14	8	8	14
Total	49	75	60	68	61

#### Admission into Graduate School

Universities	2020	2021	2022	2023	2024	Total
Hokkaido University	3	8	3	6	6	67
Muroran Institute of Technology		2				8
Tohoku University						1
Nagaoka University of Technology	1					15
University of Tokyo						2
Tokyo Medical and Dental University						1
National University of Electro-Communications						1
Other universities	1	2	3	1		24
Tokyo Institute of Technology, Yokohama National University, University of Yamanashi, Shinshu University, Nagoya Institute of Technology, Kobe University, Hiroshima University, Japan Advanced Institute of Science and Technology, Nara Institute of Science and Technology, Keio University, and others						
Total	5	12	6	7	6	119

#### Admission into Graduate School by Department

Courses	2020	2021	2022	Courses	2023	2024
Advanced Course of Electronics and Production Systems Engineering	5	6	3	Advanced Course		
Advanced Course of Environmental Systems Engineering	0	6	3	of Engineering for	7	6
Total	5	12	6	Innovation		

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Campus Map

In order to fulfill our role as an institution of higher education open to the community, Tomakomai College offers its facilities, equipment, and faculty to provide opportunities for lifelong education. We are engaged in a variety of projects including guest lessons, public workshops, and other events.

In addition, local industries and other community organizations are approaching us with more requests for professional cooperation in problem-solving. To address this growing need, the Community Cooperative Research Center is expanding its services for technical consultation at the Tomakomai College Satellite Office (C-base).

## The Association for Tomakomai College

The Community Cooperative Research Center (CCRC) was established to enrich research activities and lifelong learning environments through exchange and cooperation between Tomakomai College and the local community including local industry, with an aim to utilize the achievements of such projects to support engineering education. First established in April 1993, the Association for Tomakomai College currently has 247 member companies (as of March 2024), and continues to grow.

We are engaged in a variety of projects as described below.

#### 1. Education and Research Collaboration

ODonating books to the library OFunding for research

OJOB Talk guest lecturers (lessons for 1st and 3rd year students)

OJoint education (for 1st year students in the Advanced Engineering Course and 5th year students in the undergraduate Frontier Course)

OJoint research projects with member companies OSupport hosting of robotics competitions, etc.

#### 2. Cooperation with Local Industry and Industry-Academia-Government Collaboration

OTomakomai College Satellite Office (C-base) operations OHosting the Tomakomai College Community Collaboration Symposium

#### 3. Other

OInternship and employment support for Mongolia KOSEN OSupport participation in rural relocation programs

## **Technical Business Consultation Center (C-base)**

In October 2018, the Tomakomai College Satellite Office (C-base) was established inside the Tomakomai City Commerce Center Building, and has provided services at the Technical Business Consultation Center for over 5 years. In April 2021, the consultation space was relocated to an office four times the size on the same floor of the building, and we are expanding services to support entrepreneurship (including pre-incubation facilities). Tomakomai City, the Tomakomai Chamber of Commerce, and agencies to support small and medium enterprises (Southcentral Hokkaido Industry Promotion Foundation and financial institutions) have formed a team of experts to help companies find solutions to their problems. C-base will serve as a base of operations to address the rapidly changing future.





## International Exchange

#### International Partner Institutions (Inter-University Exchange Agreement) (Data as of April 1, 2024)

Country/Region	Counterpart	Concluded
New Zealand	Eastern Institute of Technology,Hawke's Bay	2013.4.16
China	Technological and Higher Education Institute of Hong Kong	2013.12.18
Mongolia	Institute of Engineering and Technology	2015.8.31
Thailand	Kasetsart University	2017.12.14
Mongolia	Mongolian National Association of Colleges of Technology	2019.10.7
Thailand	KOSEN-KMITL WOA for 3rd year transfer	2023.3.31

#### Number of Faculty Members Sent Abroad

FΥ	Number
2023	21
2022	13
2021	0
2020	0
2019	16

## Number of Outgoing Exchange Students

FΥ	Number
2023	30
2022	1
2021	0
2020	0
2019	20

#### Number of Visiting Foreign Researchers

FΥ	Number
2023	63
2022	2
2021	0
2020	0
2019	6

#### Number of Incoming Students from Partner Institutions

FΥ	Number
2023	9
2022	0
2021	0
2020	0
2019	20

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Site

Total Area	Detail			
	College Buildings and Dormitory	127,758m <sup>2</sup>		
133,251 m <sup>2</sup>	Faculty Residence	5,493m		
	Total	133,251 m <sup>2</sup>		

#### **Buildings**

Classification		Name	Structure	Floor Space	Total Floor Space
		Building A (Classroom Building)	R-3	970	2,868
		Building B (Administration Building)	R-3	704	1,261
		Building C (Electrical Building)	R-3	792	1,856
		Building D (Mechanical Building)	R-3	556	1.668
		Building E (Machine Practical Workshop)	S-1	702	702
	College	Building E (Science and Engineering for Materials Building)	B-3	532	1 596
	Buildings	Building C (Civil Building)	R-3	805	2 367
	facilities	Building H (Computer Science and Engineering Building)	R-4	584	2,007
		Building L (Science and Engineering for Materials Laboratory)		256	510
		Building I (Science and Engineering for Materials Laboratory)	п-3 П 4	200	1 071
		Buildingj (Advanced Engineering Courses)	R-4	310	1,271
		Rainfall Simulator	5-1	49	49
		Subtotal	<u> </u>	6,266	16,361
		Administrative Storehouse	S-1	79	79
		Mechanical Engineering Storehouse	B-1	20	20
		Chemical and Pharmaceutical Storehouse	B-1	30	20
		Chemical and Pharmaceutical Storehouse	B-1	20	30
	Equipment of	Garage	R-1	101	101
	lacinties	Bus Garage	H-1	78	//
College		Boiler and Machine Room	R-1,B-1	324	339
Buildings		Receiving tank Installation Room	S-1	38	37
		Others		25	25
			D O	/15	1.000
	Education	Library	R-2	1,224	1,600
	research	Community Cooperative Research Conter	н-і ро	300	300
	facilities	Subtetel	R-2	1 744	- 410
		1 of Cumposium	S1D1	1,744	2,310
			S-1,n-1	990	990
		ludo & Kendo Hall	S-1 B-1	902 277	277
			5-1,0-1	211	20
			B-1	14	44
	Sports facilities		B-1	1 9/7	1 9/7
		Ice Hockey Rink Storebouse	S-1	26	26
		Ice Hockey Rink Locker Boom	B-1	63	63
		Archery Range	B-1	43	43
		Subtotal		4.338	4.312
	Welfare Facilities	Welfare Facilities	R-2	467	903
		Facilities for Club Activities	B-1.S-1	242	242
		Subtotal		709	1,145
	Domitories	Dormitory Administrative Building	R-1	1,324	1,324
		1 st Dormitory	R-3	368	1,104
		2nd Dormitory	R-4	448	1,792
Domitories		3rd Dormitory	R-3	393	1,179
		4th Dormitory	R-3	339	999
		Women's Dormitory	R-3	490	1,132
		Self-study Building	S-1	117	117
		Connecting Corridor	B-1,R-1,R-3	180	180
		Subtotal		3,659	7,827
		total		17,431	32,689

## Campus Map



- Building A (Classroom Building)
- 2 Building B (Administration Building)
- Building C (Electrical Building)
- Building D (Mechanical Building)
- Building E (Machine Practical Workshop)
- 6 Building F (Science and Engineering for Materials Building)
- Building G (Applied Chemistry and Biochemistry Building)
- Building H (Computer Science and Engineering Building)
- 9 Building I (Science and Engineering for Materials Laboratory)
- 10 Building J (Advanced Engineering Courses)
- Boiler Room and Machine Room
- 12 Library and Information Center (Library)
- (B) Library and Information Center (Information Processing Section)
- Community Cooperative Research Center
- (15) Career Education Center
- **16** Support Center (for Engineering and Education)
- 17 Rain Fall Simulator
- 18 Facilities extracurricular activities

- 1st Gymnasium
- 20 2nd Gymnasium
- 2 Judo & Kendo Hall
- 22 Club Room
- 23 Club Room
- 20 Ice Hockey Rink
- 25 Archery Court
- 26 Welfare Facilities
- 27 Garage
- 28 Bus Garage
- 29 Dormitory Administrative Building
- 30 Dormitory Kitchen and Cafeteria
- 3 1st Dormitory
- 3 2nd Dormitory
- 3rd Dormitory
- 4th Dormitory
- 35 Women's Dormitory

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#### **Transportation**

By Bus : Take the Nishikioka line bus (No.17) from JR Tomakomai Station (Bus Station) and get off at Kougyoukousen-mae. (about 40 min.)
By Taxi : Take a taxi from JR Tomakomai Station It takes about 20 min. (about 2,500yen)
By Car : It takes about 3 min from Tomakomai-Nishi Interchange

## National Institute of Technology (KOSEN), Tomakomai College

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