# National Institute of Technology (KOSEN), Kisarazu College

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## Message from the President

The National Institute of Technology (KOSEN), Kisarazu College (Kisarazu KOSEN) is located in Kisarazu City, Chiba Prefecture, where highway networks to Tokyo and Haneda and Narita international airports provide us with convenient access to domestic and international cities. With a beautiful view of Tokyo Bay from our campus, KOSEN is host to 1,100 students majoring in science and engineering in five-year associate program and two-year advanced courses at the university level.

KOSEN's primary mission is to foster creative and practical engineers through vocational education that integrates general and professional education and practical training based on

theoretical backgrounds. Considering the globalization of Japanese higher-level education, our mission is to provide engineers with intellectual, refined, and broad perspectives; liberal and engineering-based spirits to face any challenge; and the ability to think globally. Our system is widely admired for its high-level vocational education and has been commended in both industrial and academic sectors because of our graduates' success as engineers, managers, and researchers for the past half century.

Our academic programs include five engineering diplomas (mechanical engineering, electrical and electronic engineering, control engineering, information and computer engineering, and civil engineering) and three advanced bachelor's courses (mechanical and electrical engineering, control and information engineering, and civil and environmental engineering). Every year, about half of our graduates find industrial employment as engineers, while the other half transfer to four-year universities from the diploma course and progress to master's programs from our advanced course.

In Kisarazu KOSEN, we accept international students in the third year of the five-year program, and we have recently also enhanced short-term student exchange programs with overseas and polytechnic universities.

In addition to their studies, we encourage students to participate in sports and cultural activities as character-building opportunities.

Among over 120 staff members at Kisarazu KOSEN, many educational and technical members are active researchers collaborating with industry and other social services. Compared to most Japanese universities, we have relatively satisfactory instruments and facilities in related fields of engineering. Through Kisarazu KOSEN's activities, we wish to contribute to Japanese society and develop partnerships with organizations worldwide.

## **Characteristics of KOSEN**

#### Regular Course (Associate Program)

- •A five-year technical education program starting at age 15.
- •Curriculum emphasizing scientific experiments, workshop training, and practical manufacturing skills.
- •Small classes, allowing teachers to pay close attention to students. Detailed teaching and assistance by dedicated teachers.
- •Student dormitories are available.
- •Inter-college competitions, such as the Robot Contest, Programming Contest, Design Competition, and more.
- •International activities, such as teacher and student exchanges (470 international students).
- •Accredited by JABEE as a qualified engineering education program.
- A wide variety of career courses are available after graduation, from employment to advancing to higher-level education programs.
- •A very good reputation both in industry and academia.

#### Advanced Course (Bachelor's Degree Program)

- •PBL (Project-Based Learning) on practical engineering tasks.
- •A long-term internship (over a month) and COOP (cooperative education).
- •Accredited by JABEE as a qualified engineering education program.

#### KOSEN System (College of Technology System)

Students are engaged in KOSEN's five-year engineering diploma program at the age of 15. After graduating, most students enter advanced universities or Advanced Courses of colleges, while the others find employment.





Organization	Department of Mechanical Engineering	
organization	Department of Electrical and Electronic Engineering	
	Department of Control Engineering	
President	Department of Information and Computer Engineering	
	Department of Civil Engineering	
	Division of Liberal Arts	
Vice President Dean of Academic Affairs	Division of Natural Science	Mechanical and Electrical Engineering
Vice President	Advanced Course	Control and Information Engineering
Dean of Student Affairs	Library	Civil and Environmental
Vice President Dean of Dormitory Affairs	Information Network Center	Lighteening
	Cooperative Technology Center	
Vice President Dean of Advanced Course	Practice Workshop	
Vice President	International Exchange Center	
Technology Center	Counseling Center	
Vice President General Affairs	Career-Support Office	
Vice President	Investor Relations Office	
Public Relations/Planning	Gender Equality Promotion Office	General Affairs Division
	Administration Department	
	Education and Research	- Student Affairs Division

## Number of Staff Members

Number of Statt Members	number of people
President	1
Professor	34
Associate Professor	33
Lecturer	4
Assistant Professor	2
Subtotal	74
Administrative Personnel	44
Total	118

#### Income & Expenditures \*Excluding facility maintenance subsidies

Support Center



## Program accreditation by JABEE

Since 2005, JABEE (the Japan Accreditation Board for Engineering Education)has been a member of the Washington Accord, an agreement that provides a mechanism for mutual recognition between signatory bodies of engineering education accreditation processes.

KOSEN has been eager to obtain JABEE accreditation in order to gain internationally recognized quality assurance.

KOSEN's accredited programs correspond to the level of undergraduate engineering program at universities.

\*Our educational program obtained JABEE accreditation in 2006 as the program title of "General Engineering".

Advanced Course 2nd year
Advanced Course 1st year
5th year
4th year
3rd year
2nd year
1st year

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# Regular Course (Associate Program)

## **Department of Mechanical Engineering**

The application field of mechanical engineering has spread to not only conventional factory production but also to various fields, such as information technology, automatic control, and electronics dependent on the technical innovation of an advanced information society.

In our mechanical engineering department, students learn the foundations of designing and manufacturing mechanical hardware. In addition, the curriculum of this department introduces applications to computers and electronics.

In this way, our department aims to train the students to become creative engineers in more fields than ever before, corresponding to the social demands of new technological development.

#### Subjects 》》

Machine Design, Kinematics of Machinery, Thermodynamics, Measurement and Instrumentation, Strength of Material, Computational Fluid Dynamics, etc.



Experiment on an Internal Combustion Engine

## **Department of Electrical and Electronic Engineering**

This department is developing as a comprehensive department that covers all fields of modern electrical and electronic engineering, which offers a wide variety of subjects, including electrical and electronic, control, communications, materials, computers, measurements, and energy engineering, as well as optional subjects.

In order to ensure that all students acquire the skills to play a leading role in the industrial society of the next generation, the curriculum is practically and theoretically structured learning from basic to advanced technology.

#### Subjects »»

Electric Circuits, Electronic Circuits, Electromagnetics, Semiconductor Engineering, High Voltage and High Current Engineering, Power Electronics, etc.



Experiment with a Three-Phase Induction Motor

## **Department of Control Engineering**

This department aims to equip students with comprehensive knowledge and skills to construct control systems that support the industrialized world.

Because of the interdisciplinary nature of control technology, students in this department study various subjects from the fundamental level to applications, such as electric and electronic engineering, mechanical engineering and computer engineering.

The research themes of the department's faculty cover many fields including plastic forming, intelligent robots, electronic devices, communication engineering, instrumentation and measurement, vibration control, embedded systems and so on.

#### Subjects »»

Control Engineering, Electronic Circuits, Mechanics of Materials, Computer Technology, Electronics, Actuator Technology, Robotics, etc.



Robot arm control based on electromyogram

# **Department of Information and Computer Engineering**

This department provides education in both computer hardware and software, including artificial intelligence, systematic programming, design and analysis of data structures, computer architecture, and information communication networks.

The curriculum focuses on practice, experiment, and research to train future engineers to be able to solve problems creatively and independently.



#### Subjects »»

Programming Language, Intelligent Systems, Computer Network, Signal Processing, Operating Systems, Computer Interfaces, Programming Training, Computer Architecture, etc.

## **Department of Civil Engineering**

The curriculum of this department covers issues concerning urbanization and environmental problems, as well as traditional civil engineering.

Civil engineering contributes to industrial development, for example in the construction of bridges, roads, and parks, and to the enrichment of public facilities, which are the basis of civil life.

As the field develops, however, more attention is now focused on urban and environmental problems.

In response to this demand, the department aims to train engineers who seriously consider the safety and maintenance of the landscape and environment in constructing public facilities.

#### Subjects »»

Surveying, Structural Mechanics, Hydraulics, Soil Mechanics, Urban Design, Remote Sensing, Bridge Structure, etc.



Number of Students

Dept. of	Capacity Statutory Total	
Mechanical Eng.	200	
Electrical and Electronic Eng.	200	
Control Eng.	200	
Information and Computer Eng.	200	
Civil Eng.	200	
Total	1,000	

## Graduate from the Regular Course



# Advanced Course (Bachelor's Degree Programs)

Established in 2001, Kisarazu KOSEN's Advanced Course provides two-year higher-level technology education, based on the five-year Regular Course education.

Students can obtain bachelor's degrees by earning the required credits in the Advanced Course and passing the evaluation of learning outcomes by the National Institution for Academic Degrees and Quality Enhancement of Higher Education. If they pass this evaluation, graduates are qualified to go on to graduate school.

This course consists of three fields: the Mechanical and Electrical Course, the Control and Information Course, and the Civil and Environment Course.

# **Mechanical and Electrical Course**

This advanced course aims to cultivate creative and practical engineers with skills from both the mechanical and electrical fields, who thereby have the flexibility to research and develop new technologies.

#### Subjects »»

Production Engineering, Tribology, Systems Control, Microwave Circuit Engineering, Energy Engineering,etc.

# **Control and Information Course**

This advanced course aims to provide education in a wide variety of subjects including decision support,software, communication, and mechatronic and control technologies,on the basis of information processing engineering, and aims at training students to be core and leading engineers capable of dealing with creative and practical control systems.

#### Subjects 》》

Learning Control Engineering, Control System Engineering, Semiconductor Devices, Human Interface, Simulation and Modeling,etc.

# **Civil and Environmental Course**

This advanced course aims to train creative and imaginative engineers who can carry out research and development (R&D) and can flexibly cope with problems related to the environment and urbanization, which have become more serious and widely spread.

#### Subjects »»

Environmental Biotechnology, Applied Structural Engineering, Environmental Conservation Engineering, Applied Geotechnical Engineering, Applied Material Engineering,etc.

### Number of Students

Course	Capacity Statutory Total	
Mechanical and Electrical Course	16	
Control and Information Course	16	
Civil and Environment Course	8	
Total	40	

## Graduate from the Advanced Course



# **Facilities & Equipment**



9 Manufacturing Building/Practice Workshop

1 Administration Building General Research Building Science Laboratory Education Building



Education Building **5** Research Building No.1 6 Research Building No.2 **7** Research Building No.3 8 Cooperative Technology Center



Cooperative Technology Center 4 Gymnasium No.1

- (15) Gymnasium No.2
- 16 Martial Arts Gymnasium
- **17** Swimming Pool
- 18 Extra-Curricular Activity Facility





Manufacturing Building

- 10 Lecture Building A
- 1 Lecture Building B
- 12 Lecture Building C
- 13 Library & Information Technology Center



Library & Information Technology Center

#### 19 Students' Hall





Information Technology Center

- 20 Males' Dormitory (Yuho-Ryo) 2 Females' Dormitory
- (Nanohana-Ryo)
- 22 International Dormitory (Kokusai-Ryo)
- 23 Gatekeeper house

# **Program sample**

Three programs at Kisarazu KOSEN can be sampled: General Education in the Regular Course, the Department of Mechanical Engineering and the Advanced Course of Mechanical and Electrical Engineering.

#### **General Education**

	Subjects Offered	Credits
	Japanese I A	1
	Japanese I B	1
	Geography A	1
	Geography B	1
	Fine Arts	1
	English (LS) I A	1
	English (LS) I B	1
	English (RW) I A	1
	English (RW) I B	1
1 st	English (G) I A	1
130	English (G) I B	1
	Health and Physical Education I A	1
	Health and Physical Education I B	1
	Precalculus I	3
	Precalculus II	2
	Precalculus III	1
	Basic Science	1
	Physics I	1
	Fundamental Chemistry I A	1
	Fundamental Chemistry I B	1

	Subjects Offered	Credits
	Japanese II A	1
	Japanese II B	1
	History A	1
	History B	2
	English (LS) II A	1
	English (LS) II B	1
	English (RW) II A	1
	English (RW) II B	1
2nd	Health and Physical Education $\mathrm{I\!I}\mathrm{A}$	1
Liiu	Health and Physical Education II B	1
	Linear Algebra I A	1
	Linear Algebra I B	1
	Calculus I A	2
	Calculus I B	2
	Physics II A	1
	Physics II B	1
	Chemistry I A	1
	Chemistry I B	1

	Subjects Offered	Credits
	Japanese IIIA	1
	Japanese IIIB	1
	Public	2
	Engineering Ethics	2
	Comprehensive English A	1
	Comprehensive English B	1
	Physical Education I A	1
	Physical Education I B	1
	Linear Algebra II	1
	Calculus II	2
3rd	CalculusⅢ	2
Jiu	Life Science/Earth Science	1
	PhysicsⅢ	1
	PhysicsIV	1
	Chemistry II	1
	General Education Seminar	1
	Advanced Liberal Arts	1
	Mathematical Science Seminar	1
	Japanese I A	1
	Japanese I B	1
	Japanese Cultual Studies I A	1
	Japanese Cultual Studies I B	1

	Subjects Offered	Credits
	Communication Design A	2
	Communication Design B	2
	Physical Education II A	1
	Physical Education II B	1
	English Seminar I A	1
	English Communication I A	1
	Proficiency Test(EIKEN: Grade Pre 2)	1
	Proficiency Test(Technical Writing: Prelimentary)	1
lth	English Seminar I B	1
	English Communication I B	1
	Proficiency Test(EIKEN: Grade Pre 2)	1
	Proficiency Test(Technical Writing: Prelimentary)	1
	Philosophy	2
	Economics	2
	Sociology	2
	Japanese II A	1
	Japanese II B	1

	Subjects Offered	Credits
	English Seminar II	1
	English Communication II	1
	Proficiency Test (TOEIC L&R: Elementary)	1
	Culture and Expression	1
5th	Advanced Humanities and Social Science	1
	Intercultural Communication I A	1
	Intercultural Communication I B	1
	Intercultural Communication IIA	1
	Intercultural Communication II B	1
	Japanese IIIA	1
	Japanese IIIB	1





Experiment of neutralization titration in Fundamental Chemistry IB



General Education Seminar



Physics IIA

## Department of Mechanical Engineering

	Subjects Offered	Credits	
	Information Processing I	1	
	Information Processing II	1	
	Engineering Drawing I	1	
	Engineering Drawing II	1	
1st	Literacy for Engineer I	1	
	Literacy for Engineer II	1	
	Mechanical Engineering Laboratory IA	1	
	Mechanical Engineering Laboratory IB	1	
	Practice of Information Security	1	
	Subjects Offered	Credits	
	Information Processing III	1	
	Kinematics I	1	
	Engineering Mechanics I	1	
	Engineering Mechanics II	1	
2nd	Machine Design and Drawing I	1	
	Electric Circuit	1	
	Mechanical Engineering Laboratory IIA	1	
	Mechanical Engineering Laboratory IIB	1	
	Manufacture in Mechanical Workshop I	2	
	Subjects Offered	Credits	
	1/2 /2 II	2	

	Kinematics II	2
	Strength of Materials I	1
	Materials Technology I	1
	Materials Technology II	2
	Manufacturing Processes I	2
	Machine Design and Drawing II	1
	Machine Design and Drawing III	1
	Measurement and Instrumentation I	1
3rd	Measurement and Instrumentation II	2
Join	Mechanical Engineering Laboratory IIIA	1
	Mechanical Engineering Laboratory IIIB	1
	Manufacture in Mechanical Workshop II	2
	Project Experience I	1
	Project Experience II	1
	Career Design	1
	Japanese Cultual Studies IIA	1
	Japanese Cultual Studies IIB	1
	Japanese Cultual Studies III	1

	Subjects Offered	Credits
	Applied Mathematics I	2
	Applied Mathematics II	2
	Statistics	2
	Applied Physics Experiments	1
	Dynamics of Machinery I	2
	Strength of Materials II	2
	Strength of Materials III	2
	Materials Technology III	2
	Thermodynamics I	2
	Thermodynamics II	2
	Fluid Dynamics I	1
	Fluid Dynamics II	2
4th	Manufacturing Processes II	2
	Machine Design I	1
	Machine Design and Drawing IV	1
	Microcomputer Control	1
	Practice of Electrical Engineering	1
	Control Engineering I	2
	Mechanical Engineering Laboratory IVA	1
	Mechanical Engineering Laboratory IVB	1
	Manufacture in Mechanical Workshop III	1
	Manufacture in Mechanical Workshop IV	1
	Engineering Seminar	1
	Internship	2
	Semiconductor Device Engineering	1
	Subjects Offered	Credits

	Subjects Offered	Credits
	Dynamics of Machinery II	2
	Heat Transfer Engineering	1
	Fluid Dynamics III	2
	Machine Design II	1
	Logic Circuits	2
	Control Engineering II	2
5th	Practice in Subjects of Mechanical Engineering I	1
	Practice in Subjects of Mechanical Engineering II	1
	Practice in Subjects of Mechanical Engineering III	1
	Study for Graduation (Graduation Research)	8
	Applied Physics	1
	Writing Technique for Engineers	1
	Applied Mathematics III	2

## Advanced Course of Mechanical and Electrical Engineering

	Subjects Offered	Credits
	General English	2
	Humanity and Culture in Japan	2
	German Seminar I	1
	German Seminar II	1
	Technical English I	2
	Elasticity and Plasticity	2
	Computer Science	2
	Problem Solving	1
	Advanced Applied Mathematics	2
	Advanced Applied Physics	2
	Advanced Applied Chemistry	2
st	Fundamentals of Environmental Engineering	2
	Circuit Engineering	2
	Materials	2
	Internship	2
	Advanced Research I	6
	Advanced Laboratory	2
	Advanced Seminars and Exercises I	2
	Production Engineering	2
	Tribology	2
	Microwave Circuit Engineering	2
	Electromagnetic Waves	2
	Energy Engineering	2

	Subjects Offered	Credits
	Modern Civilization	2
	Engineering Ethics	2
	Technical English II	2
	Disaster Prevention Engineering	2
	Advanced Environmental Chemistry	2
	Creative Design Engineering	2
	Magnetic Materials	2
2nd	Theory of Technology	1
	Advanced Research II	8
	Advanced Seminars and Exercises II	2
	Systems Control	2
	Visual Information Processing	2
	Optomechatronics	2
	Semiconductor Physics	2
	Energy Conversion Engineering	2



An experiment of fluid visualization using a wind tunnel



An experiment to measure the elongation of metals using a universal testing machine

# **International Exchanges**

In our institute, there is an International Exchange Center to promote education through collaborations with educational institutions worldwide. The center organizes a variety of activities to offer diverse opportunities for international exchange.

Our students have participated in short-term training programs in Thailand, Singapore, Malaysia, and the United Kingdom. During these programs, which typically last from one to several weeks, participants engage in cross-cultural exchanges, attend classes, and take part in research and project assignments.

We have received short-term international students from Singapore, Taiwan, Thailand, Malaysia, and the United Kingdom.

During their training period, which ranges from one week to five months depending on the program, these students attend classes, conduct research, and complete project assignments under the guidance of our faculty members.



International workshop(IWEEE)

Presentation by international students at IWEEE

International Dormitory activities

# International dormitory

There are three student dormitories, a females' dormitory, males' dormitory, and international dormitory. The International Dormitory was opened in April 2022 for strengthening international exchange. International students, their tutors and advanced degree students are eligible to stay in this dormitory. International and Japanese students are expected to cooperate naturally, with each other to ensure the better dormitory experience.

The dormitory has security cameras system and an electronic gate at the entrance hall of the dormitory.

Students are expected to prepare their own meals. There is a service unit on the first floor dedicated to Halal meals. The kitchen in each unit is equipped with an induction heater, microwave oven, and refrigerator.

Dormitory Name		Kokusai-Ryo	
	Capacity	34 male students 34 female students	
	Unit System	There are 10 service units shared by some rooms, which consist of a kitchen, bathroom, laundry, and lounge.	
	Amenities	Living quarters, Shared kitchen, Shower, Toilet, Landry rooms, Shared space, etc.	
	Monthly room charge	¥800	
	Monthly service charge	about ¥15,000	



International dormitory

# List of Partnership Agreements

We proactively pursue cooperation with domestic and foreign universities, academic organizations, and non-academic organizations such as local governments, with the aim of regional development and nurturing personnel for an international market.

Domestic Partner	Agreement date (renewal date)	Agreement contents
Yamagata University,Faculty of Engineering	March 4th,2009	Agreement regarding education and research exchange
Chiba University	February 16th,2010	Comprehensive agreement regarding education, research, and contributions to society
Japan Advanced Institute of Science and Technology	December 8th,2014	Agreement regarding admission by recommendation, concluded in 2005
Kisarazu City	February 6th,2015	Agreement regarding comprehensive cooperation
Chiba Institute of Technology	February 24th,2015	Agreement regarding comprehensive cooperation
Chiba University Graduate School & Faculty of Engineering	March 24th,2015	Agreement regarding education and reserch exchange
Kisarazu City Education Department	July 6th,2015	Agreement regarding comprehensive cooperation
The Chiba Bank,Ltd	October 27th,2015	Agreement regarding comprehensive cooperation
Keio University Graduate School of Media Design	November 10th,2015	Agreement regarding comprehensive cooperation
Institute of Information Security	March 10th,2016	Agreement regarding comprehensive cooperation
	August 1st,2016	Memorandum regarding admission by recommendation
Chiba Prefecture Police • SME Support Organization • Academic Organization	July 28th,2016	Mutual cooperation agreement regarding cybersecurity
Seiwa University and Seiwa Junior College	July 7th,2017	Agreement regarding comprehensive cooperation
Chiba City Foundation for the Promotion of Industry, Public Interest Incorporated Foundation	September 12th,2017	Industry-academia collabolation agreement
Kisarazu High School	December 13th,2017	Agreement regarding comprehensive cooperation and education exchange
Waseda University Graduate School of Information, Production and Systems	January 17th,2020	Memorandum regarding admission by recommendation, concluded in 2005
Chiba University Graduate School of Science and Engineering	January 31th,2019	Memorandum regarding admission by recommendation
Keio University Graduate School of System Design and Management	October 7th,2019	Agreement regarding comprehensive cooperation Memorandum regarding admission by recommendation
Kisarazu City	July 5th,2022	Cooperation agreement regarding programming learning
Nippon Telegraph and Telephone East Corporation	July 11th,2023	Agreement regarding comprehensive cooperation
Institute of Science Tokyo	February 27th,2024	Agreement on Comprehensive Cooperation,concluded in2018 Memorandum on Recommendation Admission,concluded in 2018
International Partner	Agreement date	A groomont contents
The National United University	(renewal date)	
(Taiwan)	December 15th,2000	
(Malaysia) Heinrich-Hertz-Berufskolleg	September 1/th,2014	Cooperative Exchange Agreement
(Germany)	September 28th,2015	Partnership agreement
(Serbia)	December 13th,2016	Cooperative Exchange Agreement
(Nepal)	March 17th,2017	Cooperative Exchange Agreement
Central Taiwan University of Science and Technology (Taiwan)	April 17th,2017	Cooperative Exchange Agreement
National Chin-Yi University of Technology (Taiwan)	April 17th,2017	Cooperative Exchange Agreement
Inje University,Department of Design Engineering (Korea)	March 20th,2018	Cooperative Exchange Agreement
ldeaz Institute (Austria)	March 29th,2018	Cooperative Exchange Agreement
Nanyang Polytechnic (Singapore)	August 1st,2018	Cooperative Exchange Agreement, concluded in 2015
Mandaley Technological University (Myanmar)	March 19th,2019	Cooperative Exchange Agreement
Institute of Engineering and Technology, Mongol Kosen College of Technology (Mongolia)	December 6th,2019	Cooperative Exchange Agreement
Mongolian University of Science and Technology Kosen College of Technology (Mongolia)	December 6th,2019	Cooperative Exchange Agreement
New Mongol College of Technology of New Mongol Academy (Mongolia)	December 6th,2019	Cooperative Exchange Agreement
Chonburi Technical College (Thailand)	August 23rd,2023	Memorandum of Understanding on Academic Exchange and Cooperation
Suranari Technical College (Thailand)	August 23rd,2023	Memorandum of Understanding on Academic Exchange and Cooperation
Republic Polytechnic (Singapore)	January 31st,2024	Cooperative Exchange Agreement, concluded in 2016
Cardiff and Vale College	February 29th,2024	Cooperative Exchange Agreement

# A member of the CDIO

Date of joining

Content of activity

June 30th,2016

The CDIO INITIATIVE is an innovative educational framework for producing the next generation of engineers.

## ACCESS 15 minutes from Kisarazu Station by bus



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

Address : Kiyomidai-Higashi 2-11-1, Kisarazu, Chiba, 292-0041 Japan TEL : +81-438-30-4000 FAX : +81-438-98-5717

https://www.kisarazu.ac.jp/