TOKYO DENKI UNIVERSITY

Leading-Edge Education
Research and Development
for Science and Technology
Development of Human Resources
Who Contribute to Society
by Technology

<table>
<thead>
<tr>
<th>Founding Spirit</th>
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<td>Respect for Practical Study</td>
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Tokyo Denki University (TDU) was founded in 1907 by two young engineers who played active roles in the industrial world, Seiichi Hirota and Shinkichi Ogimoto, to concretize their sublime idea, “Promoting engineering education is indeed the foundation for the development of a nation.” Through its solid and diligent academic culture, TDU has been fostering students for more than a century with the mission, “Development of Human Resources Who Contribute to Society by Technology.” TDU also has been providing quality instruction based on the two educational maxims: “Respect for Practical Study” and “Students First.” TDU continues to cultivate excellent human resources to meet the needs of society, changing with the times to make significant contributions to the development of Japan’s science and technology.

| Fundamental Educational and Research Ideal |
| In the Technology Breathes its Creator |

This is the motto of Yasujiro Niwa, widely known as the inventor of phototelegraphic transmission facsimile (Fax machine) and one of the ten greatest inventors in Japan, as selected by Japan Patent Office. He was also the first president of TDU and its graduate schools. His phrase has been adopted as TDU’s fundamental educational and research ideal and guiding light. Niwa’s words mean that a comprehensive technology embodies the engineer’s character and ideas, and thus it is critical to cultivate engineers who can pursue the essence of technology and create new values with a broad vision.

Message from the President

Understand that Internet of Things (IoT) is now base of Society; make it as food for the mind to nourish the next 100 years

Since its founding more than a century ago, TDU has made significant contributions to society, especially in science and technology. Our mission is to continue this good tradition of cultivating highly advanced and specialized engineers and researchers who exemplify our founding spirit, “Respect for Practical Study,” in action. In retrospect, the twentieth century was an era in which Monozukuri, that is, “craftsmanship in manufacturing”, enriched all our lives. Now, nearly two decades since the turn of the century, we must apply that same standard of excellence to producing not only materials but also minds – minds that are prepared to “Make knowledge become a reality” in a new way of contributing to society. This century’s most important factory floor will be in IoT, where goods, knowledge, and ideas are inseparable. Therefore, we need engineers and researchers who can ensure that people who live in the IoT remain safe and secure, and who can enrich people’s lives by building wisdom and sensibility into everything produced, fostering Monozukuri within both “head and heart.”

The educators who guide our graduates recognize this trend, and know they are responsible for nurturing the young people who study at TDU. They also should emphasize how important respect of people who have different cultural backgrounds is, since the world will become more borderless and, therefore, multicultural interaction will become much more frequent and inevitable in this movement. They understand that what should be learned, what goals and dreams should be realized, and what we should contribute to society must harmonize with cyberspace. In this century, TDU will go through rapid and profound changes. To make our next 100 years shine, it is important that “all those who come to TDU regard the change and harmony as food for the mind, and keep contributing to society.” To that end, TDU continues to position itself for the future, and is ready to launch you toward the next 100 years.
A “School for Engineers” – Established by Young Engineers

TDU established in 1907 as Denki School in the Kanda district of Tokyo, began an evening vocational school with the founding mission of preparing for industrial expansion. Although superior technologies and up-to-date machines had been imported with rapidity, influenced by westernization, there were only a few engineers who could take advantage of these technologies and machines. The co-founders, two young engineers, Seiichi Hirsta and Shinkichi Ogimoto, understood that this was a huge obstacle that would inhibit Japan’s development, and knew that engineering education was needed to form a solid foundation for national development. To meet this need, they established the School and opened their doors to those eager to study engineering. Although the School began with just fourteen students, its value, driven by the founders’ passion and educational ideals, were recognized immediately: “There is no education that is as innovative, creative, and motivated as Denki School.” For the next century, the school’s enrollment grew rapidly and students embraced TDU’s spirit and good traditions. In 2007, TDU marked its 100th anniversary, and continues to advance toward the next one hundred years.

110+ Years of History since 1907

1907 • Denki School founded in Kanda, Tokyo, as an evening vocational school (predecessor of TDU).
• “Expect for Practical Study” become main education policy.
1908 • The first 14 students graduated from Denki School.
• Professor Hisashige Nakamichi (now TDU) was of great benefit in his subsequent R&D projects.
1914 • Ottobe (now known as a publisher of scientific and engineering books) founded by Seiichi Hirsta, a co-founder of Denki School.
1924 • Experimental radio broadcasts started at Denki School. This was ahead of Japan’s national broadcasting agency, NHK, which began its experimental broadcasts the following year. NHK started its regular broadcasts to the public about one year after that.
1928 • Japan’s first public demonstration of television, an Kenjie Takeyama, the “Father of Televisions,” conducts Japan’s first experimental television transmission in front of a crowd in Denki School’s Laboratory. TDU earned the honor of being selected as the venue by being the only institution in Japan to have technical facilities with the advanced capabilities required.
• “Respect for Practical Study” becomes the University’s motto and guiding principle.
1949 • Denki School became Tokyo Denki University with the establishment of the School of Engineering at Kanda Campus.
• Yasujirō Naka becomes the first president of TDU.
• “To the Technology Breathes Its Creator” becomes the University’s motto and guiding light.
1958 • TDU’s Graduate School was founded (Japan’s first evening graduate school).
1973 • School of Science and Engineering founded (Science and Technology for Future Life was founded).
1990 • Chiwa New Town Campus founded.
2000 • TDU awarded Technology Licensing Organization (TLO) accreditation; first TLO accreditation was granted as a science and technology university.
• School of Information Environment founded at Chiwa New Town Campus.
2007 • 100th anniversary of TDU.
• School of Science and Technology for Future Life was founded.
2012 • Tokyo Senju Campus opened near the east exit of Kita-senju Station.
• Tokyo Senju Campus No. 5 Building was built.

1926
1924
1914
1908
1907

History

Distinctive Graduates

There are over 210,000 TDU graduates. TDU has brought essence of science and technology to the world and has made multiple effects on actual social activities such as R&D, dissemination of frontier technology and corporation management. TDU graduates have been making great achievements in not only in Japan but also in the whole world.

“Have a grand dream, and make it real!”
Advanced Step in Innovative Mobility (ASIMO)

Satoshi Shigemi, Head of Robot Development at Honda R&D Co. Ltd.

TDU graduate Satoshi Shigemi has been directing the development of the Honda’s humanoid robot, ASIMO, as the company’s supervisor of robot development. Honda R&D Co., Ltd. started its humanoid robot research and development in 1986, and Shigemi has been engaged in the project since its inception. The project’s goal is to develop a robot that interacts with people, serves their needs, and gains their favor. The project began with research of “human movement,” when the team tackled the challenges developing a robot that could easily walk, run, and grab – actions people do unconsciously. Their persistent efforts finally have borne fruit; the original ASIMO was born in 2000. The 2011 evolution of ASIMO has the world’s first autonomous behavior control technology. Shigemi says he developed his interest in technological fields in TDU’s free atmosphere; since then he has broadened his view of the engineering world with ASIMO’s development. “The greatest pleasure of this project is discovering so much about how great human beings are, though a lot remains to be accomplished.” ASIMO will keep evolving until the dream of “helping people and enriching their lives” comes true.

A “technology is not an adventure. With strong confidence I can make it.”
Toshio Kashio, Inventor, Co-founder of CASIO COMPUTER CO., LTD. Honorary Doctorate of TDU

Kashio was touched by Edison’s biography and aimed to be an inventor. He recalled that his studies at Denki School (now TDU) were of great benefit in his subsequent R&D projects. Always an original thinker interested in pursuing the nature of things, Kashio spent seven years commercializing a compact all-electric calculator, and then did the same for watches and electronic musical instruments based on what he’d learned from the calculator’s technologies. He developed the first world’s automatic calendar wristwatch, CASIOTRON, in 1974. The G-SHOCK, a shock-resistant wristwatch evolved from CASIOTRON in 1983. This evolution established a new concept of wristwatches – and made the brand CASIO a worldwide name. “I invent things we need but that nobody in the world has yet noticed we need.” Kashio famously said, “Don’t let your dream be just a dream; make it real. Reach for the sky.”

Companies at which TDU graduates serve as CEOs, presidents, or board chairpersons

13 TDU graduates represent listed companies (ranked 36th in Japanese universities) and 73 alumni and alumnae work for listed companies as board members (ranked 54th in Japanese universities).

<table>
<thead>
<tr>
<th>Company Name</th>
<th>Stated Capital (in ¥)</th>
<th>Number of Employees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alpine Electronics, Inc.</td>
<td>25,000</td>
<td>11,343</td>
</tr>
<tr>
<td>Central Japan Railway Company</td>
<td>11,000</td>
<td>26,341</td>
</tr>
<tr>
<td>Doshisha Corporation</td>
<td>3,000</td>
<td>1,927</td>
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<tr>
<td>Fuegi Co., Ltd.</td>
<td>641</td>
<td>260</td>
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<tr>
<td>Fujitsu Services, Inc.</td>
<td>27,000</td>
<td>10,494</td>
</tr>
<tr>
<td>Fujitsu Co., Ltd.</td>
<td>31,000</td>
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<tr>
<td>Funai Electric Co., Ltd.</td>
<td>2,300</td>
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<tr>
<td>Kanao Co., Ltd.</td>
<td>2,100</td>
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<tr>
<td>Kameya Seikakyo Co., Ltd.</td>
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<td>Kanematsu Maco Co., Ltd.</td>
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<tr>
<td>Konica Minolta, Inc.</td>
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<td>3,043</td>
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<tr>
<td>Macnica Fuji Electronics Holdings, Inc.</td>
<td>10,000</td>
<td>2,360</td>
</tr>
<tr>
<td>Mynk Engineering Corp.</td>
<td>90</td>
<td>879</td>
</tr>
<tr>
<td>Nihon Kogyo Holdings Corporation</td>
<td>1,800</td>
<td>602</td>
</tr>
<tr>
<td>Satco Electric Co., Ltd.</td>
<td>29,700</td>
<td>3,373</td>
</tr>
<tr>
<td>Seikin Engineering Co., Ltd.</td>
<td>3,000</td>
<td>320</td>
</tr>
<tr>
<td>Sekiyu Kogyo Co., Ltd.</td>
<td>333</td>
<td>490</td>
</tr>
<tr>
<td>Taiyo America, Inc.</td>
<td>6,600</td>
<td>2,000</td>
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<tr>
<td>Tecbo Horizon Holdings Co., Ltd.</td>
<td>2,500</td>
<td>1,800</td>
</tr>
<tr>
<td>Toyo Engineering Co., Ltd.</td>
<td>5,400</td>
<td>1,554</td>
</tr>
<tr>
<td>Toyobank Corporation</td>
<td>11,000</td>
<td>4,146</td>
</tr>
<tr>
<td>Toyohashi Electric Co., Ltd.</td>
<td>1,600</td>
<td>525</td>
</tr>
<tr>
<td>Toray Electric Construction Co., Ltd.</td>
<td>100</td>
<td>100</td>
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*1: Consolidated sales

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<td>2,360</td>
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<td>90</td>
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Organization

Juridical Person, Tokyo Denki University
Foundation: September 11, 1907
Board of trustees, Chairperson: Yasutaro Kato
Auditor: Ernst & Young ShinNihon LLC
Faculty and staff size: 1,219 (Academic: 1,040, Nonacademic: 179)

- University
  - Tokyo Denki University
    - Graduate School of Advanced Science and Technology (Doctoral Program)
      - Tokyo Senju Campus
    - Graduate School of Science and Technology for Future Life (Master’s Program)
      - Tokyo Senju Campus
    - Graduate School of Engineering (Master’s Program)
      - Tokyo Senju Campus
    - Graduate School of Science and Technology for Future Life (Master’s Program)
      - Saitama Hatoyama Campus
    - Graduate School of Information Environment (Master’s Program)
      - Chiba New Town Campus
  - Graduate School of System Design and Technology
    - Tokyo Senju Campus
  - School of Science and Engineering
    - Tokyo Senju Campus
  - Graduate School of Science and Technology for Future Life
    - Saitama Hatoyama Campus

- Tokyo Denki University High School – Tokyo Koganei Campus
- Tokyo Denki University Junior High School – Tokyo Koganei Campus

- Center for Research and Collaboration
- Institutional Research Center
- University Press

Administrative Organizations (Administrative Bureaus)

University
- Office of the Educational Affairs, Junior High School
- Office of the Educational Affairs, High School
- Office of the Educational Affairs, Senior High School
- Multicultural Resource Center and Library
- Office of the Educational Affairs, University School of Information Environment
- Office of the Educational Affairs, School of Science and Engineering
- Office of the Educational Affairs, Department of Information and Communication Engineering
- Office of the Educational Affairs, Department of Applied Chemistry
- Office of the Educational Affairs, Department of Mechanical Engineering
- Office of the Educational Affairs, Department of Electrical and Electronic Engineering
- Office of the Educational Affairs, Department of Information System Engineering
- Office of the Educational Affairs, Department of Science
- Office of the Educational Affairs, Department of Life Science
- Office of the Educational Affairs, Department of Design Engineering and Technology
- Office of the Educational Affairs, Department of Information and Communication Engineering
- Office of the Educational Affairs, Department of Advanced Machinery Engineering
- Office of the Educational Affairs, Department of Architectural, Civil and Environmental Engineering
- Office of the Educational Affairs, Office of Educational Improvement Promotion Department
- President’s Office
- Department of Finance and Accounting
- Department of General Affairs
- Department of Facilities and Supply
- Division of Architectural, Civil and Environmental Engineering
- Division of Mechanical Engineering
- Division of Electronic Engineering
- Division of Life Science
- Division of Information Systems and Design
- Division of Mechanical Engineering
- Division of Electronic Engineering
- Division of Architectural, Civil and Environmental Engineering
- General Course

Graduate Schools
- Graduate School of Science and Technology for Future Life
- Graduate School of Engineering
- Graduate School of Information Environment

Undergraduate Schools
- School of Science and Engineering
  - Tokyo Senju Campus
  - Saitama Hatoyama Campus
  - Chiba New Town Campus
- Graduate School of Science and Technology for Future Life
  - Tokyo Senju Campus
  - Saitama Hatoyama Campus
  - Chiba New Town Campus
- Graduate School of Engineering
  - Tokyo Senju Campus
  - Saitama Hatoyama Campus
  - Tokyo Senju Campus
- Graduate School of Information Environment
  - Saitama Hatoyama Campus

Campus Locations

Tokyo Senju Campus
- Graduate Schools
  - School of System Design and Technology
  - Graduate School of Science and Technology for Future Life
  - Graduate School of Engineering
  - Graduate School of Information Environment

Chiba New Town Campus
- Graduate Schools
  - Graduate School of Advanced Science and Technology
  - Graduate School of Science and Technology for Future Life
  - Graduate School of Engineering

Saitama Hatoyama Campus
- Graduate Schools
  - Graduate School of Science and Technology for Future Life
  - Graduate School of Engineering

Tokyo Koganei Campus
- University Press

Tokyo Kanda Campus
- University Press

Tokyo Denki University Junior High School – Tokyo Koganei Campus
Tokyo Denki University High School – Tokyo Koganei Campus

*1 Excluding temporary organizations
*2 Excluding Research Institute for Science and Technology (RIST)

* The School of Information Environment stopped recruiting new students in AY2017.
School of System Design and Technology

**Aims for new value creation based on knowledge and skills of engineering and human science**

The School develops knowledge and skills necessary for system design and technology, cultivating in its students abilities that enable them to integrate technologies from various and different fields. Building on students’ advanced knowledge and programming skills regarding information system technologies, the School focuses on developing new information system technologies that will become the core network for collecting, accumulating, analyzing, and utilizing big data stably.

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**Department of Information System Engineering**
Bachelor of Engineering

Cultivates expertise and practical skills regarding advanced programming, computers, networks, and data science.

Graduates of this department are trained engineers with highly advanced computer and network knowledge, programming skills, and the ability to develop advanced information and communication systems for collecting, analyzing, and mining of data—experts in working with big data and cloud services that are required by today’s hi-tech society, where everything is connected online. In addition to teaching knowledge and skills, the Department also enhances engineers’ ethical values and abilities to adapt to globalization.

- **Fields of Study**
  - Computer Networks
  - Software Development (Programming)
  - Data Science

**Department of Design Engineering and Technology**
Bachelor of Engineering

Fosters engineers who understand essential human nature and have sophisticated design aptitude.

In a multi-faceted contemporary world, excellence in design requires the ability to observe “products, services, and space” from a user’s viewpoints and to turn the ideas into reality. The Department cultivates students who can not only design a technical process from the planning to the user’s review but also design the whole process sensitively with engineering knowledge and skills based on an understanding of human values and behaviors. This policy leads to fostering students who can work actively on a global stage.

- **Fields of Study**
  - Design Engineering
  - Engineering and Human Sciences
  - Design Evaluation

Develops engineers who can create rich “future life spaces” through the integration of different fields

The School of Science and Technology for Future Life is aimed at preparing engineers to envision and design life spaces for our future society. The School promotes unique education and research systems concerning “living space” (architectural), “intelligent space” (information systems and multimedia design), and “dynamic space” (robotics and mechatronics). Through learning curricula that integrate these three fields, we foster engineers who can understand technologies and ideas in different fields, engage in diverse ways of thinking, and maintain a broad, comprehensive view for creating future life spaces.

To ensure that students master the fundamentals as well as an advanced specialty, the School offers consistent learning curricula from undergraduate to graduate school.

**Department of Architecture**
Bachelor of Engineering

http://www.a.dendai.ac.jp/en/department.html

Trains designers and engineers who combine a well-rounded education with practical skills in architecture.

It is the role of architecture to create peaceful and enriching spaces, and to support a safe and comfortable lifestyle. To build this future for architecture, the Department equips designers, engineers, and researchers with the practical skills to work on the international stage.

- **Fields of Study**
  - Art of Information, Analysis, and Expression
  - Architecture and Design Skills
  - Building Environment/Interior
  - Architecture/Procurement
  - Design/Devices
  - History/City
  - Environment/Arts

**Department of Robotics and Mechatronics**
Bachelor of Engineering

Provides expertise applicable in a wide range of fields by training in four core engineering areas: mechanical, electric and electronics, information, and control.

Advancing students’ expertise in mechanical engineering, electric and electronics engineering, information engineering, and control engineering, the Department develops trained engineers with a good command of mathematical modeling skills and the design skills necessary to learn advanced mechatronics technologies.

- **Fields of Study**
  - Mechanism and Control
  - Electricity/Electronics and Control
  - Information and Control

**Department of Information Systems and Multimedia Design**
Bachelor of Engineering

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- **Fields of Study**
  - Mechanism and Control
  - Electricity/Electronics and Control
  - Information and Control
Develops engineering experts who have international vision and competence

There is currently a need to develop unique and innovative technologies that contribute to the world. Those who assume this mission are the engineers and researchers who promote the development of cutting-edge technologies. The School of Engineering aims to develop high-level engineers required in the science and technology fields that will be the backbone of modern society – professionals who will continue to be in demand in the future.

The School of Engineering emphasizes education that encourages students to learn the engineering fundamentals and that elicits spontaneous ideas from students. The first year features workshops in which students can experience the joy of design and manufacturing.

*The School of Engineering (Evening Division) – This school is for students who work during day but who wish to use their evening hours to further their education.

**Department of Electrical and Electronic Engineering**
Bachelor of Engineering

Presents electrical and electronic engineering from a new viewpoint and teaches highly advanced technologies systematically.

The Department provides students with the appropriate knowledge and skills with respect to power and electrical instruments, electrical information systems, and electrical devices so that they can play important roles as engineers in a wide range of industries. The Department emphasizes the cultivation of students who can keep themselves informed and who consider the well-being and welfare of humanity.

**Fields of Study**
- Electrical/Electronic Knowledge and Skills
- Electronic Information Systems
- Electronic Devices

**Department of Applied Chemistry**
Bachelor of Engineering

Prepares students for four environmentally conscious fields, with a focus on researching new technologies for “sustainable buildout”.

The field of eco-friendly materials is expanding as we seek to break the vicious and unsustainable cycle of large-scale production and consumption. Students of this department will add to the roster of materials that are eco- and user-friendly, industrious, and cost-effective for environmental preservation. The Department cultivates students who can actively conduct research in the field of applied science to contribute to building a safe, comfortable, and sustainable society without reducing our standard of living.

**Fields of Study**
- Organic Chemistry
- Inorganic/Analytical Chemistry
- Physical Chemistry
- Chemical Engineering

**Department of Department of Advanced Machinery Engineering**
Bachelor of Engineering

Teaches manufacturing from the fundamentals to advanced technologies in machinery engineering.

Manufacturing products for our future society requires a solid base of basic knowledge and skills upon which to build. The Department conducts research and education regarding not only basic machinery engineering but also advanced machinery engineering, such as information, computer, optical sciences, and medical engineering. Students gain the basic and advanced technology knowledge of machinery, measurement, control, and precision machining that will enable them to work in a wide range of industries.

**Fields of Study**
- Production/Advanced Manufacturing
- Medical/High-Performance Instruments
- Advanced Machineries

**Department of Electronic Engineering**
Bachelor of Engineering

UNDERSTANDS THE BASIC AND THE BIG PICTURE OF ELECTRONICS, OPTICS, AND INFORMATICS.

The Department trains engineers in a wide range of knowledge and skills, from the fundamentals to the advanced, with respect to the electronics, optics, and information technologies that serve as platforms for such common-electronic products as smartphones, personal computers, LED lights, and Blu-ray recorders. The Department also enhances students’ research abilities and global employability as engineers/researchers.

**Fields of Study**
- High-functionality Home Electric Devices and Appliances
- High-functionality Materials/Optical Devices
- Electronic Information/Optical Transmission Systems
- Manufacturing/Control Technologies

**Department of Electronic Engineering**
Bachelor of Engineering

Delivers basic knowledge and practical skills to mechanical engineers.

The Department emphasizes the fundamentals to foster excellent generalists with applied skills with respect to understanding the main areas of mechanical engineering, materials, fluid, and heat. The Department also trains mechanical engineers to apply their skills and intellect toward playing significant roles in rapid innovation and growth in contemporary society.

**Fields of Study**
- Heat
- Design/Processing
- Fluid
- Deformation/Control
- Materials

**Department of Department of Mechanical Engineering**
Bachelor of Engineering

Delivers basic knowledge and practical skills to mechanical engineers.

The Department emphasizes the fundamentals to foster excellent generalists with applied skills with respect to understanding the main areas of mechanical engineering, materials, fluid, and heat. The Department also trains mechanical engineers to apply their skills and intellect toward playing significant roles in rapid innovation and growth in contemporary society.

**Fields of Study**
- Heat
- Design/Processing
- Fluid
- Deformation/Control
- Materials

**Department of Information and Communication Engineering**
Bachelor of Engineering

Focuses on developing global networks through broad-based study and exchanges with the industrial world.

The Department trains human resources in the social skills necessary to work independently as engineers, providing them with applied skills and insights along with a strong education in information and communication engineering, including information technologies centered on computers and communication technologies. To help develop their professional character, the Department provides students with opportunities to interact with industry and offers a wide variety of programs, from computer and communication systems to signal processing technologies and acoustic imagery. The students become versatile information and communication engineers who can understand hardware and write computer programs.

**Fields of Study**
- Communication Technology/Communication Network
- Multimedia
- Computer Systems
- Information Processing
- Mobile Devices

**Department of Electronic Engineering**
Bachelor of Engineering

Prepares students for four environmentally conscious fields, with a focus on researching new technologies for “sustainable buildout”.

The field of eco-friendly materials is expanding as we seek to break the vicious and unsustainable cycle of large-scale production and consumption. Students of this department will add to the roster of materials that are eco- and user-friendly, industrious, and cost-effective for environmental preservation. The Department cultivates students who can actively conduct research in the field of applied science to contribute to building a safe, comfortable, and sustainable society without reducing our standard of living.

**Fields of Study**
- Organic Chemistry
- Inorganic/Analytical Chemistry
- Physical Chemistry
- Chemical Engineering

**Department of Department of Advanced Machinery Engineering**
Bachelor of Engineering

Teaches manufacturing from the fundamentals to advanced technologies in machinery engineering.

Manufacturing products for our future society requires a solid base of basic knowledge and skills upon which to build. The Department conducts research and education regarding not only basic machinery engineering but also advanced machinery engineering, such as information, computer, optical sciences, and medical engineering. Students gain the basic and advanced technology knowledge of machinery, measurement, control, and precision machining that will enable them to work in a wide range of industries.

**Fields of Study**
- Production/Advanced Manufacturing
- Medical/High-Performance Instruments
- Advanced Machineries

**Department of Electronic Engineering**
Bachelor of Engineering

UNDERSTANDS THE BASIC AND THE BIG PICTURE OF ELECTRONICS, OPTICS, AND INFORMATICS.

The Department trains engineers in a wide range of knowledge and skills, from the fundamentals to the advanced, with respect to the electronics, optics, and information technologies that serve as platforms for such common-electronic products as smartphones, personal computers, LED lights, and Blu-ray recorders. The Department also enhances students’ research abilities and global employability as engineers/researchers.

**Fields of Study**
- High-functionality Home Electric Devices and Appliances
- High-functionality Materials/Optical Devices
- Electronic Information/Optical Transmission Systems
- Manufacturing/Control Technologies

**Department of Electronic Engineering**
Bachelor of Engineering

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**Fields of Study**
- Heat
- Design/Processing
- Fluid
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**Department of Information and Communication Engineering**
Bachelor of Engineering

Focuses on developing global networks through broad-based study and exchanges with the industrial world.

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**Fields of Study**
- Communication Technology/Communication Network
- Multimedia
- Computer Systems
- Information Processing
- Mobile Devices
School of Science and Engineering

Develops engineers with problem-solving abilities who can cope with rapid progress and the diversification of technology

The School of Science and Engineering conducts education and research activities in a practical manner within a framework encompassing five fields – science, engineering, information, life science, and environment – with the aim of developing researchers and engineers who can adjust to the rapid progress of science and technology in a dynamic society and who can be in humanity as members of society. Its basic policies provide venues where students interact with advanced research and development activities beyond the bounds of their academic majors and departments, which enhance their abilities to identify and solve problems. Students in their second year select a main course and a sub-course from among sixteen offerings in six academic categories, making it possible for them to strengthen their specialties and expand the scope of their interests to broader fields.

Division of Science
Bachelor of Science
Focuses on a new age of science and technology where students acquire extensive knowledge and applied skills, beginning with the foundations of mathematics and the natural sciences
As well as forging an educational system capable of teaching a broad range of applied skills while still making the basics, the Division also equips human resources with the creativity and expertise to perceive the essence of problems and find resolutions.

Courses
- Mathematics
- Physics
- Chemistry
- Mathematical Informatics

Division of Information Systems and Design
Bachelor of Informatics
Produces engineers to be well-versed in information technology and social science, and explores the comprehensive informatics that are the foundation for computer technology
The Division provides informatics specialists with expert knowledge and practical skills as they learn about informatics, which comprises several different areas, including information, networks, computers, modern society, and creative expression.

Courses
- Computing and Software
- Information Systems
- Intelligent Information Design
- Human Information Design

Division of Electronic Engineering
Bachelor of Engineering
Fosters people-friendly engineers through learning about human needs and manufacturing
With the social needs on today’s world with skill and knowledge of systematic engineering to enhance the social environment based on the advanced electronics and information technology, the Division provides a well-balanced portfolio of electric, electronic, and biomedical engineering. This program emphasizes the education, research, and development of applied electronics interface with human and electronic equipment.

Courses
- Electronic Information Engineering
- Electronic Systems Engineering

Division of Life Science
Bachelor of Engineering
Aims to develop technologies that underpin healthy living such as regenerative medical techniques, novel agent and functional foods
Our division seeks to achieve green – and life-innovations for human healthcare, through the development of the social and technological skills of our students. The department presently teaches two courses, the Environmental Science and Technology course and the Bioscience course. The main focus of the former course is applied microbiology, food science, and ecology for a sustainable society, while those of the latter course are the chemistry and developmental biology related to regenerative and pharmaceutical medicines. We integrate our educational and research activities to enable our students to adapt to social and technological changes, through collaborations with both the commercial and public sectors.

Courses
- Molecular Bioscience
- Environmental Biotechnology

Division of Mechanical Engineering
Bachelor of Engineering
Educates engineers who can adapt highly specialized technologies and cutting-edge engineering
Aiming to train skills required for mechanical engineers, the course provides a basic curriculum of material mechanics, mechanical dynamics, fluid dynamics and thermodynamics. The emphasis of the education is placed to understand the fundamentals and advance expertise on analysis, design, manufacture and control of mechanical devices.

Courses
- Design and Analysis
- Manufacture and Control

Division of Architectural, Civil, and Environmental Engineering
Bachelor of Engineering
Develops engineers who can contribute to building a sustainable society of the future
This program trains engineers in architecture, civil engineering, and environmental and city planning, with an emphasis on developing engineers who can contribute to building a sustainable society. Students learn about construction technologies, acquire expertise in environmental protection and environmental forecasting, and learn about the information technologies that support an advanced information society.

Courses
- Architecture
- Civil and Environmental Engineering
Based on the philosophy of “Respect for Practical Study,” TDU provides the ideal environment and conditions for fostering outstanding engineers and researchers. By placing advanced technology and the results of research and development at the service of society, TDU has contributed to society’s evolution. Here, TDU introduces the research facilities that have characterized those contributions.

Research Institute for Science and Technology (RIST)

RIST was established in 1981 as a university-wide comprehensive research institute and has been positively supporting and unfurling research activities for TDU students and faculties. The Institute focuses on the university’s original mission – knowledge creation. – and contributes to society through by promoting project-based research, fostering junior scholars, and research funding review and allocation. RIST also boosts collaborative researches among regional enterprises and partner universities, and aims to uncover new knowledge.

Chiba Research Facility

The Facility owns biomedical instrumentation, mechanical apparatus, and devices that enable users to conduct researches into human thought processes and behaviors and in medical and welfare domains, especially functional magnetic resonance imaging (fMRI) which is widely used by not only faculty members but also graduates and undergraduates.

Saitama Research Facility

The Facility has analytical, bio-related, and prototype testing laboratories. Any registered user can conduct studies at the facility. RIST aims to stimulate the studies of users by providing an environment in which researchers with different backgrounds can exchange knowledge, skills, and experiences by sharing the same laboratories.
**Center for Research Collaboration:**

**Technology Licensing Organization (TLO) Accredited**

The Center for Research Collaboration promotes the development, management, and utilization of intellectual properties developed at TDU, while coordinating with public institutions such as the TLO within the University. In addition to promoting commissioned research and joint research projects, the Center holds lectures, seminars, and exhibitions related to fostering collaboration between industry and academia, as well as technology transfer. The Center also conducts technical exchange and on-campus technical tours, and introduces research details of work conducted by students and teachers and the patents held by the University. In addition, the Center disseminates information outside TDU regarding the seeds of technology and research results based on the University’s own research projects, as it actively seeks to return the fruits of its research activities to society.

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**TLI Featured Researches**

**Development of a Butterfly-Style Flapping Robot**

Assistant Professor Tsuru Fujikawa
Department of Mechanical Engineering
School of Science and Technology for Future Life

We have been developing a small flapping robot modeled after a butterfly’s flapping a low flapping frequency and a few degrees of freedom of the wings, as an observation system in narrow spaces. To realize practical flight of the robot, we employ the flight characteristics of a butterfly by performing experiments and using numerical simulations.

**Collective Movement Control Method for Swarm Robots Based on Thermodynamics Model**

Professor Takeshi Takeuchi
Department of Electronics and Electrical Engineering
School of Engineering

This research proposes a collective movement control method for a swarm robot system based on the internal energy and the phase transition in a thermodynamic model. This system can move around obstacles in an environment by flexibly changing the aggregation shape in response to virtual collectors and repulsion forces calculated by the model.

**A Study of Social Graph Analysis for Preschool Education Using Face Authentication**

Professor Makoto Hasegawa
Department of Information and Communication Engineering, School of Engineering

Social graph analysis for preschool education is being discussed. The social graph depicts the relations between preschool children and teachers. This study aimed to grasp the face recognition and authorship systems that perform an identification for children and the preschool teacher from videos capturing

**Synthesis and Evaluation of Stain-Responsive Color-Changeable Functional Polymer Complexes**

Professor Takeshi Takeuchi
Department of Mechanical Engineering
School of Engineering

We have been studying functional polymer complexes, which draw color change reversibly in response to changes in physiological conditions such as pH, temperature, and oxygen.

**Advanced Machining Processes in Autonomous Manufacturing Systems**

Professor Takashi Matsumura
Department of Mechanical Engineering
School of Engineering

We have developed an autonomous manufacturing system, which can perform advanced manufacturing processes without human intervention.

**Development of Novel Solar Cells Using Functional Silicon Nanowires**

Professor Koichi Hiraoka
and Associate Professor Kazuo Sato
Department of Electrical and Electronic Engineering
School of Engineering

We have developed a new solar cell device using functional silicon nanowires.

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**Role of TLO**

**Creation**

**Activation of Research**

**Protection**

**Utilization**

**Commercialization of Research Results**

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**Graduate School Overview**

Trains the highly advanced and specialized engineers desired by society.

“Development of Graduates Who Contribute to Society by Technology” is TDU School Graduate’s educational ideal.

Our esteemed graduate schools cultivate the highly skilled and specialized engineers desired by society.

**TDU Graduate Schools’ Organizational Chart**

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**Enhancement of Research Activities through Collaborative Graduate School Strategy**

TDU established the Collaborative Graduate School Strategy to diversify research fields, enrich research contents, and promote dynamic educational activities. Under this strategy, graduate schools give students research guidance and instruction in cooperation with external public research institutions. Partners in this strategy are leading research institutes offering the latest equipment and facilities. Leading scientists and researchers in each respective field are invited as guest professors.

**Research Institutes with Cooperation Agreements with TDU’s Graduate Schools**

- Institute of Physical and Chemical Research (RIKEN)
- The Japan Aerospace Exploration Agency (JAXA)
- Central Research Institute of Electric Power Industry (CRIEPI)
- National Institute of Information and Communications Technology (NICT)
- NHK Science & Technology Research Laboratories (STRL)
- The National Institute of Advanced Industrial Science and Technology (AIST)
- National Institutes for Materials Science (NIMS)
- The National Institute of Occupational Safety and Health (JNIOSH)
- National Maritime Research Institute (NMRI)
- NTT Basic Research Laboratories (BRL)
Graduate School of Science and Technology for Future Life

Fosters engineers who can propose, design and realize comfortable, beautiful, safe and secure life space to enable intellectual activities in the future society

The School teaches students three basic majors – architecture, information systems and multimedia design, and robotics and mechatronics – and integrates them as a multidisciplinary major to foster engineers who can understand and incorporate these different areas of technologies.

Architecture and Building Engineering

Master of Engineering

Trains creative and individualistic experts who combine professional skills with a well-rounded education

The Program trains designers, engineers, and researchers to apply their professional skills and inclusive education in a manner that explicates enjoyment of the natural world and continued coexistence with the finite ecosystem on the planet.

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<td>- Spatial Design</td>
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<td>- Engineering Design</td>
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Robotics and Mechatronics

Master of Engineering

Trains graduates who can synergistically consolidate basic technologies to address new challenges

This program combines studies on basic technologies that are conventionally studied separately; namely, computer and information engineering, electrical and electronic engineering, mechanical engineering, and control engineering to encourage students to find synergies and build new academic disciplines with more advanced capacities.

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<td>- Information Driven Systems</td>
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<td>- Mechatronics</td>
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<td>- Robotics Design</td>
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Information Systems and Multimedia Design

Master of Engineering

Presents media studies as engineering with the aim of expanding the research area for information and media, and developing interdisciplinary and sophisticated research

The Program trains experts with foresight and imagination to undertake research with an overarching perspective of fields related to communication technology, network configurations, and computer use.

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<td>- Multimedia</td>
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<td>- Information</td>
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Graduate School of Engineering

Trains engineers and researchers who can develop cutting-edge technologies with creativity and originality

The Graduate School of Engineering has introduced sophisticated educational and research systems to expand research areas and promote interdisciplinary approaches. By taking advantage of the Collaborative Graduate School Strategy, which involves cooperation with external research institutions, students can obtain guidance and instruction at public research institutions that have the latest equipment and capabilities. To contribute to global development through the technologies held by TDU, the School also accepts many researchers and students from around the world.

Electrical and Electronic Engineering

Electrical and Electronic Engineering

Electrical and Electronic Engineering

Electrical and Electronic Engineering

Expands research and education, from basic to advanced level, with a global perspective

This program cultivates students with the ability to play a significant role in the area where electrical engineering, electronic engineering, and information engineering converge organically. If fostered students with strong skills can approach research with a broad area and expertise, and learn how to contribute to the society worldwide as global engineers with diplomacy and linguistic skills.

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<tr>
<td>- Power Systems/Electric Instruments</td>
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<td>- Electrical Systems</td>
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<td>- Electric Devices</td>
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Materials Science and Engineering

Master of Engineering

Trains engineers to drive technological development based on social needs by creating and applying new eco-friendly materials and technologies

Many of the highly advanced technologies that support the development of modern society have been achieved by developing new materials. This program takes a broad interdisciplinary approach to education and research based on comprehensive academic systems, from basic physical and chemical theories about new materials to applied technologies.

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<td>- Solid State Physics</td>
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<td>- Molecular Physics</td>
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<td>- Organic Materials</td>
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<td>- Material Chemistry</td>
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<td>- Applied Physical and Chemical Properties</td>
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<td>- Appraisal and Assessment of Microstructures</td>
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Mechanical Engineering

Mechanical Engineering

Precision Machinery Engineering Course

Teaches engineers to apply knowledge and skills from a variety of technological fields in innovative ways

In this program, engineers draw on their knowledge and skills in such varied technological fields as electronic engineering, electrical engineering, and information sciences to explore innovative approaches to the challenges in fields from the traditional materials, processing, measurement, and control to the cutting-edge (optical application technology, medical, welfare, and robotics), without imposing the conventional framework of mechanical engineering.

Every industry needs superior engineers in mechanical engineering. Therefore, graduates of this program are extremely employable, with a wide variety of positions available to them. The program cultivates engineers who can merge basic knowledge in various academic fields, keep current with rapid scientific progress, and actively tackle the technical issues global society is facing with intellect, foresight, and creativity.

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<td>- Material Science/Processing Systems</td>
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<td>- Optical Application Systems</td>
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<td>- Medical/Welfare Systems</td>
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Information and Communication Engineering

Master of Engineering

Aims to train and send out graduates equipped with advance expertise and creative power

The evolving information society is supported by graduates who have acquired a solid basic knowledge of ICT and can apply advanced technologies to addressing the needs of different sectors of society. This program equips graduates with applied skills and creativity, underpinned by proven basic knowledge and advanced expertise.
Graduate School of Science and Engineering

Offers students various opportunities to expand their abilities to identify and solve the problems by providing cutting-edge research and development beyond their majors and departments.

The Graduate School of Science and Engineering conducts and promotes joint research with public research institutions to strengthen relations with society and local communities. Through such activities, the School develops researchers and engineers who take a broad perspective with deep knowledge and insight.

Science

Master of Science
Trains professional specialists who can provide the basic skills for a nation based on creative science and technology in the 21st century. Graduates of this program have a high degree of expertise in the natural sciences, and as professional specialists with system design and construction skills, a good command of mathematics, the ability to think logically, and the ability and experience to clarify material properties by analyzing experimental data.

Sections
- Mathematical Science
- Material Science

Informatics

Master of Informatics
Trains sophisticated leading researchers and engineers with extensive knowledge, problem-solving skills, and the ability to make multifaceted and comprehensive judgments. Through interdisciplinary and diversified education and research in informatics, this program trains graduates to prepare the ground for developing the information industry, which is a key industry for the 21st century. We aim to create a new academic discipline related to informatics.

Sections
- Information Systems
- Information Design

Architectural, Civil and Environmental Engineering

Master of Engineering
Teaching a broad range of construction technologies such as architecture, urban, environmental and civil engineering, trains the engineers who will build the required urban, architectural and social infrastructure This program trains graduates to work in a wide range of industries, including the architects who design urban spaces and residential buildings, the consultants whose collective expertise supports administrations and citizens in urban and environmental development, and the civil servants in charge of the administration of regional and urban planning.

Sections
- Architectural, Civil and Environmental Engineering

Life Sciences and Engineering

Master of Engineering
Trains researchers and engineers to resolve the range of issues confronting humankind and the mysteries of life science phenomena. Supported by the two pillars of life as well as environmental science, and biomedical engineering, this program trains researchers and engineers to develop foodstuffs and biological resources, to safely produce important substances through the use of biological functions, and to work with technologies that support human life, such as gene therapies, artificial organs, medical devices, and assistive devices.

Sections
- BioScience
- Biological Environment

Electronic and Mechanical Engineering

Master of Engineering
Trains advanced engineers and researchers who can design and develop electronic and mechanical systems based on expertise in electrical and electronic engineering, mechanical engineering, and biomedical engineering. Graduates of this program should be able to stretch the imagination with open-mindedness to observe the industry and propose advanced solutions to the social demands to ride over the rapidly evolving information society. This Program will enhance the students' capability to precisely organize and publish the available results with system engineering skill. The graduates should be capable of proposing solutions to improve the wellbeing of the society based on the broad knowledge in electronic and mechanical system technologies and the practical experience in observing the interaction between human and environment, which are mastered through the course.

Sections
- Applied Electronic Engineering
- Mechanical System

Graduate School of Information Environment

Develops engineers who play an active role in the 21st century, keeping an eye on the progress of information-related science and trends that shape the future society.

The basic education policy of the Graduate School of Information Environment is to foster capabilities and cultivate international engineers who demonstrate research skills, originality, creativity, and an entrepreneurial spirit. The School encourages graduates to acquire expertise pertaining to sophisticated information technology and to develop their academic research capabilities concerning the information environment.

Information Environment Technology

Master of Information Environment
Trains graduates to flexibly adapt to and advance the rapidly progressing information environment. The 21st century has seen rapidly changing technological innovation in the information environment. This program trains graduates to become leaders in innovative research, innovative development, and application of the latest technologies responding to the needs of industry. It also gives them broad, up-to-date technical expertise in survey and planning skills.

Sections
- Educational System Technology
- Information Network Engineering
- Intelligent Information Engineering
- Multimedia Engineering
- Medical and Welfare Engineering
- Spatial Design
- Communication Engineering
- Information Science
Develops engineers who possess broad vision, international perspectives, and strong research and knowledge-creation capabilities

The Graduate School of Advanced Science and Technology encourages students to acquire sufficient abilities to independently conduct research activities with a broad vision in an internationally competitive research environment. The School develops engineers with highly creative research and development capabilities, as well as university-level teachers who possess skills in both teaching and research, who are qualified to support research institutions in every sector of industry, academia, and government.

Moreover, the Graduate School has proven itself capable of responding quickly to the mergers, collaborations, and combinations of research activities necessary for the advancement of research in both interdisciplinary and merging fields, and for the advancement of the international joint research that will be increasingly required in the future and for the development of new research fields. To promote communications with the world beyond the campus, the School also actively recommends participation in activities of academic societies and international conferences, and offers financial assistance for such participation. The School provides an environment for teachers and students to focus on their research activities.

Mathematical Sciences
Doctor of Science

Trains creative graduates in the field of mathematics while researching and teaching across the disciplines of mathematics, chemical physics, and systems science. An interdisciplinary approach in mathematics and chemical physics, the pillars of basic science, adds a mathematical perspective to researching and teaching complex and large-scale engineering, system thechniques obtained by modeling human society, and concrete calculation methods.

[Sections]
- Mathematics
- Chemical Physics
- Systems Science
- Seminars and Conference Courses

Information, Communication, and Media Design Engineering
Doctor of Engineering

Educates creative researchers and engineers to contribute to the world by improving self-initiative and providing both a high level of expertise and a broad knowledge. This program promotes basic and advanced academic research in fields related to information communication and media engineering, and trains graduates with an international outlook and a sense of self-initiative for research in a wide range of fields.

[Sections]
- Information and Communication Engineering
- Information Systems and Multimedia Design
- Information Environment

Architecture, Civil, and Environmental Engineering
Doctor of Engineering

Trains engineers to resolve complex social and urban issues through a new paradigm that integrates architecture, civil engineering, and the environment. This is not a conventional course that researches architecture, civil-engineering, and the environment separately; this program aims to train engineers in new interdisciplinary paradigm and to train graduates with the problem-solving abilities required in a complex and diversified society.

[Sections]
- Architectural Safety and Computing
- Architectural Planning and Design; Team Planning
- Environmental Engineering and Building Equipment
- Disaster Prevention; Environmental Engineering and Planning

Advanced Multidisciplinary Engineering
Doctor of Engineering or Doctor of Science

Develops existing technologies and creates next-generation technologies to provide scientific and technical support for human activities. This program trains graduates with the leadership qualities and international outlook necessary to create the next generation of technologies and to develop existing advanced science and engineering-related technologies, as well as encouraging innovative support in the areas of human production, lifestyle, medical care, social welfare, disaster prevention, and other fields.

[Sections]
- Human-Adaptive Mechanics
- Medical Electronics
- Urban Disaster Mitigation Engineering

Electrical and Electronic System Engineering
Doctor of Engineering

Promotes research and education with a global and international outlook in areas where electrical and electronic engineering integrate with information processing. This program conducts basic and advanced research and training in electrical and electronic engineering and information processing, as well as interdisciplinary areas, training researchers and top-level engineers to acquire creativity, foresight, and flexible thinking.

[Sections]
- Electronic Machinery
- Electronic Power Systems
- Measurements and Systems Control
- Physics of Electronic Materials and Electronic Devices
- Electronics and Information Processing

Mechanical System Engineering
Doctor of Engineering

Promotes fundamental, practical, and critical research relating to the mechanical systems found in almost all industrial technologies. This program focuses on fundamental research in the field of mechanical engineering and related systems, aiming for results with practical applications. The Program also trains graduates to contribute solutions for the technological problems confronting modern society.

[Sections]
- Material Mechanics and Processing
- Design and Production Systems
- Energy and Environment Systems
- Heat and Fluid Systems
- Metrology and Control System
- Opto-Mechanics Systems
- Man-Machine Systems

Materials and Life Sciences
Doctor of Engineering or Doctor of Science

Combining material sciences, life sciences, and environmental studies, this program develops a new academic discipline that takes in the whole of humanity, industry, and society. To cultivate engineers and scientists who can deal with the problems facing society, this Program integrates the traditional disciplines of materials science, life science, and environmental studies. Research and training of this program aims at building an academic discipline capable of taking on the whole of humanity, industry, and society.

[Sections]
- Life Engineering
- Life Science
- Organic Materials
- Materials Science and Engineering

Informatics
Doctor of Informatics

Researches information science and media science from a variety of perspectives, including the physical sciences, engineering, and information sociology, with the aim of developing an information society. Aiming for research and education in information science, this foundation for an advanced information society, and media informatics, which puts information to use in society, this program equips people with the advanced research and development skills requisite for an IT-based society.

[Sections]
- Computer Science
- Media Informatics
Here, TDU introduces the practical aspects of its research laboratories. The knowledge-based society. Our research laboratories have supported the training of many outstanding technical experts. TDU has been developing highly intelligent professionals with advanced specializations to provide wide-ranging support to stakeholders. For instance, we designed a facility for elderly people and a playroom for children to utilize AI for the detection of and the protection against cyber-attacks, while attackers are beginning to apply AI for their own purpose. In the near future, the confrontation between cyber-attacks and defenses will be that among AI-enabled systems. We are building a simulation system to analyze such situations.

TDU Power of Research 2

TDU has been developing highly intelligent professionals with advanced specializations to provide wide-ranging support to the knowledge-based society. Our research laboratories have supported the training of many outstanding technical experts. Here, TDU introduces the practical aspects of its research laboratories.

Laboratory for Information Security and Safety
Towards the realization of a secure and user-friendly information environment
Professor Hirofumi Yamaki
Department of Information Systems Engineering
School of System Design and Technology
We aim to realize a secure and user-friendly information environment based on computer networks and artificial intelligence. The advancement of computers and networks has enabled fast and rich communication among people. On the other hand, cyber-attacks and cyber-crimes have become major threats to human lives over the same period. Cyber security technologies are remedies for such situations, but, at the same time, they tend to limit the usefulness of information and communication technology. We believe artificial intelligence (AI) can be a solution to resolve such trade-offs. We develop a smart authentication mechanism which is mainly meant for public WiFi access services, where new standards such as IEEE 802.11u or FIDO are utilized for providing easy and secure internet access and smart software agents help users in secure and easy access to such systems. We also work on AI-enabled cyber security. Recent cyber security solutions have begun to utilize AI for the detection of and the protection against cyber-attacks, while attackers are beginning to apply AI for their own purpose. In the near future, the confrontation between cyber-attacks and defenses will be that among AI-enabled systems. We are building a simulation system to analyze such situations.

Energy and Environmental Systems Laboratory
Pursues the study of green power impact assessments and the most effective way of supplying regional power
Professor Masakazu Kato
Department of Electrical and Electronic Engineering
School of Engineering
The main research themes in the Energy and Environmental System Laboratory are planning, operating, controlling energy systems, and environmental assessments. Our program especially addresses the assessment of recyclable energy and how to take countermeasures against the negative effects when they are detected. We objectively conduct research regarding what will happen to our society when photovoltaics and wind electricity become more prevalent, and how we can promote such green power technologies if they have caused any concerns. Another important research topic is “smart communities,” a theme we cover in a cross-disciplinary manner within TDU, conducting research to promote regional optimal design for not only electricity generation but also thermal energy and transportation infrastructure. The purpose is to establish efficient energy systems that are also cost-effective, such as the use of waste-driven electricity systems for power generation. We seek opportunities to provide electricity to local communities from waste disposal centers, during the aftermath of huge natural disasters that interrupt ordinary electricity supplies.

Research Laboratories
The most distinctive feature of the Japanese engineering education
As the integrated institution for science and technology, TDU comprises a wide range of academic disciplines and cutting-edge research and development. These research activities are supported by 225 research laboratories for science, engineering, and social and human sciences. Our teaching staff, graduate students, and fourth-year undergraduate students working on their graduation projects make up the research laboratories, pursuing their own specialty areas under shared research topics. The research laboratories are places where students can deepen their own studies while encountering a variety of opinions and thoughts.

Architectural Planning Laboratory
Drives research that regards “architectural planning” and “environmental behavior” as two sides of the same coin
Associate Professor Asuka Yamada
Department of Architecture
School of Science and Technology for Future Life
Our laboratory, which specializes in architectural planning and environmental behavior research, has been studying educational, medical, and welfare facilities. Our goal is to support people who are easily affected by their environment, and to accommodate their independent lives by improving their surroundings. In Architectural Planning, our team studies prior phases of execution design, such as identifying a building’s target users and uses, usability, security, and comfort, and then provide recommendations to the property owners, or our clients, based on our research. In Environmental Behavior, on the other hand, we focus on the relationship between humans and the environment itself, and study human psychology and behavior under certain settings. Conducting research that integrates both architectural planning and environmental behavior studies provides a broader perspective for the future needs of society and helps us predict what kinds of buildings we may need to construct beyond the current paradigm (for example, school facilities should be planned with considerations beyond a construction framework and should take into account the population and purpose of those schools). As a result, we can provide fruitful recommendations to prospective stakeholders. For instance, we designed a facility for elderly people and a playroom for children in a medical facility in conjunction with the concerned parties.

Cellular Biochemical Laboratory
Conducts research regarding cellular life cycles, making contribution to the medical sector, such as cancer management
Professor Yukitoshi Nagahara
Division of Life Science and Engineering
School of Science and Engineering
We are focusing on the cellular function during cellular life – from birth, growth, differentiation, and finally, death. Programmed cell death, or so-called apoptosis, occurs to eliminate unnecessary cells (teaching the life expectancy or suffering injury and cannot function normally) for the body. The dying cell is eaten by the phagocytes and extinguishes itself. Once these cellular suicide mechanisms are collapsed, abnormal cells, unwanted by the body, multiply and various diseases like cancer occur. Therefore, cell death mechanism is well preserved among species and strictly regulated. Unraveling cell death pathways leads to artificially provoking cell death to particular cells, such as cancer cells, aiding the discovery of anti-cancer agents. We are currently researching the cellular function of several cancer cell specific apoptosis-inducing chemicals to elucidate how these chemicals induce cell death to specific cancer cells in the cellular level using both a molecular and chemical biology approaches.
Global Communication

International Exchange
Promotes active people-to-people exchange and collaborative researches with universities abroad

Given the rapid progress of globalization, it is essential for the young engineers who will bear the next generation to be internationally competitive to survive in a borderless world. TDU expects and supports them to have a broader vision, to respect cultural differences and diversification, and to work in harmony under their own leadership. Global academic study activities are imperative today and engineers are required to be able to publish and present at academic conferences and to implement studies in collaboration with researchers around the world.

TDU actively undertakes international exchanges with 23 universities and research institutes in 13 countries and regions. TDU is currently home to approximately 200 foreign students from more than 12 countries (China, Mongolia, Korea, Singapore, Malaysia, Indonesia, Thailand, Myanmar, Vietnam, Saudi Arabia, France, Italy, etc.), including transfer students from École Nationale Supérieure de Mécanique et des Microtechniques (France) and the Malaysia Twinning Program (Malaysia).

Support for International Students
TDU provides assistance services to help international students with their academic and personal lives. International Center and the on-campus Lounges offer various supports and host many events that encourage interaction between international and Japanese students. TDU also furnishes learning and career support to international students. In addition, scholarships and financial support for them are also available.

As a result of the considerate and generous assistance, TDU has been named by the Association for the Promotion of Japan Language Education as one of the best Japanese study-abroad destinations for international science and technology students.

Guidance and Orientation
Guidance and Orientation are offered upon enrollment to support overall campus life such as course registration, health insurance, immigration, and housing to ensure a smooth first step to TDU life.

Japanese Language Program
TDU offers after-class Japanese skill enhancement programs to keep up with specialized engineering and technology lectures and practices that are taught in Japanese. We provide Japanese language courses together with seminars on Japanese culture. Also, there are Japanese Clinics, through which international students can have individual support and tutorials.

Study Support
Study Support Center provides support to develop basic abilities for university education such as group study, mini lectures, supplementary lessons, and tutorial classes.

TDU offers after-class Japanese skill enhancement programs to keep up with specialized engineering and technology lectures and practices that are taught in Japanese. We provide Japanese language courses together with seminars on Japanese culture. Also, there are Japanese Clinics, through which international students can have individual support and tutorials.

Student Events
The International Center organizes get-together meetings, cultural exchange events, school festivals, sports festivals, field trips, and activities that provide opportunities to foster intercultural friendships and to learn about Japanese culture.

Japanese Chat Club
The International Center periodically offers cross-cultural communication gathering opportunities, named “Japanese Chat Club”. International students have many chances to discuss various topics in Japanese with students, teachers, and local residents.

Career Support
The Career Support Center provides international students various supports to find career opportunities in Japan. The Center offers personal counseling services, job and internship information, conducts job fairs and seminars.

Scholarships and Financial Support for International Students
TDU has its own scholarship programs. Also there are scholarship programs offered by public and private organizations or educational foundations. TDU also offers graduate students wage-earning opportunities to work as a teaching or research assistant.

<table>
<thead>
<tr>
<th>Scholarship Name</th>
<th>Eligible Students</th>
<th>Description</th>
<th>Stipend</th>
</tr>
</thead>
<tbody>
<tr>
<td>TDU Tuition Support Scholarships for International Students</td>
<td>Degree students</td>
<td>Those scholarships are for undergraduate and post graduate students with good academic standing and performance who face financial difficulties</td>
<td>One-third of annual tuition</td>
</tr>
<tr>
<td>TDU Benefactors’ Scholarships for International Students</td>
<td>Undergraduate and graduate</td>
<td></td>
<td>Depends on the scholarship</td>
</tr>
</tbody>
</table>
### Data

#### Gross area
- All campuses and grounds: 699,147.11 m²
- Tokyo Senju Campus: 28,231.38 m²
- Tokyo Kanda Campus: 481.76 m²
- Tatehara Hosoza Campus: 346,498.88 m²
- Chiba New Town Campus: 205,058.00 m²
- Tokyo Kenpaku Campus: 22,823.46 m²
- Tokyo Senju Campus Sports Ground: 7,818.46 m²
- Hirakawa Multi-purpose Ground: 88,974.00 m²

#### Number of books, journals, and magazines held
- Total: approx. 308,215
  - For students: 217,935 books
  - For research: 2,280 volumes
  - Journals and magazines: 1,280 titles
  - Electronic books: 8,700

#### Number of laptops and desktops owned
- approx. 8,700

#### Placement ratio by industry

<table>
<thead>
<tr>
<th>Industry</th>
<th>Placement Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bank/Insurance</td>
<td>14.3%</td>
</tr>
<tr>
<td>Real estate/Rental service</td>
<td>14.3%</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>33.7%</td>
</tr>
<tr>
<td>Information/Communication</td>
<td>25.9%</td>
</tr>
<tr>
<td>Construction</td>
<td>18.3%</td>
</tr>
</tbody>
</table>

#### Number of job offers to TDU students
- 13,446

#### Number of job offers received from top 3 choice companies
- Ratio of job offers to job seekers per student: approx. 8.2
- Ratio of job offers received from top 3 choice companies: 92.8%

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### Number of students

- **University:** 10,068
  - Graduates: 5,779
  - Undergraduate Schools: 4,289
  - Graduate Schools: 99

#### Employment rate
- 97.2%

#### Ratio of students who wish to work after graduation
- 95.7%

#### Number of students who have received job offers
- 1,513

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### Number of faculty members
- Full-time: 916
- Part-time: 533

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### Number of alumni
- 214,110

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#### Top 26 companies from which TDU graduates received job offers over the past five years (as of March 2016)

<table>
<thead>
<tr>
<th>Rank</th>
<th>Company Name</th>
<th>Number of students</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Mitsubishi Electric Corporation</td>
<td>23</td>
</tr>
<tr>
<td>2</td>
<td>East Japan Railway Company</td>
<td>14</td>
</tr>
<tr>
<td>3</td>
<td>NEC Corporation</td>
<td>12</td>
</tr>
<tr>
<td>4</td>
<td>Hitachi</td>
<td>12</td>
</tr>
<tr>
<td>5</td>
<td>Central Japan Railway Company</td>
<td>12</td>
</tr>
<tr>
<td>6</td>
<td>Suzuki-Motor Corporation</td>
<td>11</td>
</tr>
<tr>
<td>7</td>
<td>Ando Denki Co., Ltd.</td>
<td>11</td>
</tr>
<tr>
<td>8</td>
<td>Fujitsu Printing Co., Ltd.</td>
<td>9</td>
</tr>
<tr>
<td>9</td>
<td>Toshiba Corporation</td>
<td>9</td>
</tr>
<tr>
<td>10</td>
<td>Toyoda Electric Co., Ltd.</td>
<td>8</td>
</tr>
<tr>
<td>11</td>
<td>Toyota Motor Corporation</td>
<td>7</td>
</tr>
<tr>
<td>12</td>
<td>Osheda Electric Industry Co., Ltd.</td>
<td>7</td>
</tr>
<tr>
<td>13</td>
<td>Shionogi Denki Co., Ltd.</td>
<td>7</td>
</tr>
<tr>
<td>14</td>
<td>NEC Daimon Co., Ltd.</td>
<td>7</td>
</tr>
<tr>
<td>15</td>
<td>Toshiba Denki Co., Ltd.</td>
<td>7</td>
</tr>
<tr>
<td>16</td>
<td>Tokyo Community Co.</td>
<td>7</td>
</tr>
<tr>
<td>17</td>
<td>Panasonic</td>
<td>7</td>
</tr>
<tr>
<td>18</td>
<td>NID Co., Ltd.</td>
<td>7</td>
</tr>
<tr>
<td>19</td>
<td>Komatsu Corporation</td>
<td>7</td>
</tr>
<tr>
<td>20</td>
<td>Hitachi Denki Co., Ltd.</td>
<td>7</td>
</tr>
<tr>
<td>21</td>
<td>Mitsushita Co., Ltd.</td>
<td>7</td>
</tr>
<tr>
<td>22</td>
<td>Toshiba Electric Manufacturing Co., Ltd.</td>
<td>7</td>
</tr>
<tr>
<td>23</td>
<td>Toshiba Electric Power Company Holding, Inc.</td>
<td>7</td>
</tr>
<tr>
<td>24</td>
<td>Mitsubishi Electric Building Technology Co., Ltd.</td>
<td>7</td>
</tr>
</tbody>
</table>

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### Message from the Chairperson, Board of Trustees

TDU was established in 1907 as a vocational school for young engineers, Denki School, pursuing the ideal of industrial education, and marks its 110th anniversary in 2017. TDU has been underpinning Japan’s modernization for more than a century, and has been steadily building up its history and tradition with Japan’s science and technology development. TDU has evolved into an educational and research institution operating in the field of science and technology. We incorporate 5 graduate schools, 6 undergraduate schools, a research facility, a junior and a senior high school, and a university press. We embrace a total student population of 11,300 and have sent over 210,000 talented graduates out into all walks of life.

Our founders, Seiichi Horiya and Shinkichi Ogimoto, held as the founding spirit of the University the desire to "promote and disseminate industrial education in Japan and strive to become a headquarters for science of the future through education that emphasizes practical study." This spirit still burns as the foundation for building not only TDU, but also Japan, which aims to transform itself into a science - and technology-intensive nation.

Our mission is to lead world society by educating people under our founding spirit, creating academic value, and contributing widely to the global community. We consider this to be the role of a university that is the focal point for building and passing down intelligence, wisdom, and knowledge to future generations.

TDU has always contributed to the development of communities, while holding high our founding ideals of fostering the growth of scientists and engineers truly useful to society. We are, however, not content to rest on our laurels. As we continue for another one hundred years, we shall create “our own new educational and research base,” work harder toward fostering the growth of engineers filled with vitality, and further fulfill our responsibility to contribute to society around the world.

The first president of TDU, Yasujiro Niwa, believed that, “In the Technology Breathes its Creator.” We will continue our educational principles that strive to create graduates possessing a proper sense of ethics, reflecting this motto as our guiding light, cherishing and carrying on the 110-year-old founding spirit of our institution that we inherited. We shall fulfill our mission to help turn Japan into a science – and technology-intensive country, and forge ahead with unwavering integrity. By accomplishing this mission, we will contribute to the global community.

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[Image of Yasutaro Kato, Chairperson, Board of Trustees, Tokyo Denki University]
Location and Directions

Tokyo Senju Campus

Nearest station:
Kita-senju Station (JR Joban Line, JR Ueno-Tokyo Line, Tokyo Metro Hibiya Line, Tokyo Metro Chiyoda Line, Tobu Skytree Line and Tsukuba Express Line)

Ten-minute walk from the station

Address:
5 Senju Asahi-cho, Adachi-ku, Tokyo 120-8551

Saitama Hatoyama Campus

Nearest stations:
Takasaka Station and Kita-sakado Station (Tobu Tojo Line)

Ten-minute school bus ride from both stations

Address:
Ishizaka, Hatoyama-machi, Hiki-gun, Saitama 350-0394

Chiba New Town Campus

Nearest station:
Chiba New Town Chuo Station (Hokuso Line, Keikyu Airport Line, and Narita Sky Access Line)

Ten-minute walk from the station

Address:
2-1205 Muzai Gakuendai, Inzai-shi, Chiba 270-1382

Public Transportation

http://www.dendai.ac.jp/access/