

Top Global University Project (Type A) Tokyo Institute of Technology

1. Outline

【 Name of project 】

Enhancing Tokyo Tech Education and Research Quality through Administrative Reforms for Internationalization

【 Future vision of the university planned in TGU project 】

Tokyo Institute of Technology (Tokyo Tech) aims to establish itself as a global hub of knowledge and talent in science and technology by sharing Tokyo Tech Quality, the result of lasting hands-on education based on advanced research, and is committed to further enhancing this Quality by revamping its governance system and increasing its organizational strengths.



【 Summary of Project 】

Tokyo Tech has three core reforms for establishing itself as a global hub of knowledge and talent in science and technology.

1. Administrative reforms for internationalization:

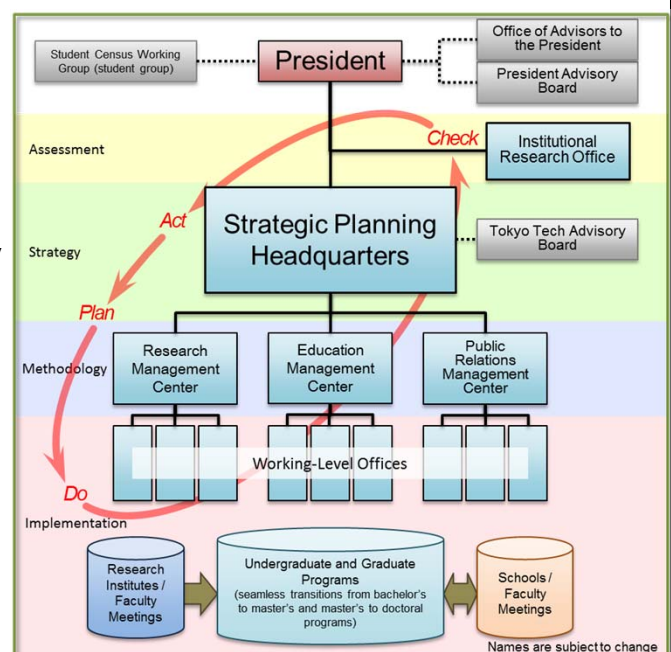
Enhance personnel, infrastructure, and finance management systems based on a strategy that effectively supports global education and research activities.

2. Innovations for globalized education:

Provide students with the flexibility to design their own studies and therefore maximize their potential on the global stage. Learning outcomes will be tuned with the world's top universities for greater student mobility.

3. Innovations for globalized research:

Enhance leadership and mobility for researchers to further promote international collaborative research and provide graduate education at an advanced research hub for nurturing global perspectives in students.



【Summary of the 10-year plan】

Fiscal Year	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
(1) Administrative Reforms		← Collaborative Organization for International Education and Research								
					← Strategic Planning Headquarters (TBD)					
				← Tokyo Tech Advisory Board (TBD)						
		← Professional development of faculty								
		← Staff training programs								
(2) Innovations for globalized education		← Planning	Start	← New education system						
		← Planning			← Unit Dispatch System (TBD)					
					← Development of student exchange programs					
					← Implementation					
					← Implementation					
						← Preparation for preliminary review	Review	← Preparation for final review		Review
(3) Innovations for globalized research					← Planning and preparation					
					← Implementation					
					← Planning and preparation					
					← Implementation					

【Featured initiatives (Internationalization, university reform, education reform)】

(1) Administrative reforms

- Collaborative Organization for International Education and Research (COIER), the first step towards a centralized governance system, was established in 2014. Strategic Planning Headquarters (tentative), commencing in 2018, will take over all planning. The President will continue to oversee all operations, including Education, Research, and Public Relations Management Centers.
- To ensure centralized management, effective analysis, and efficient use of information, the Institutional Research Office (tentative) was established in April 2015. An automated information collection system is planned for 2018.
- Tokyo Tech Advisory Board (tentative), a group of renowned educators from around the world to be formulated in 2015, will meet regularly to provide advice on Tokyo Tech's globalization efforts, strategies in advancing research and international exchange, and policies and evaluation.
- A new system dispatching staff abroad for practical training will be launched in 2016 to improve global awareness.

(2) Innovations for globalized education

- The new education system, commencing in April 2016, will include classes in English and professional development of faculty to facilitate active learning, all in an environment on par with global standards. By 2019, most graduate courses will be conducted completely in English.
- Education and research units composed not only of faculty members but of administrative staff and students will be sent overseas. In addition to boosting regional and institutional collaboration, this system will increase student mobility and improve professional development and global awareness of staff members.
- To improve compatibility of educational content with that of overseas universities, an international accreditation review is planned for 2018. Based on the results, attainment of international accreditation is expected in 2023.

(3) Innovations for globalized research

- To meet the needs of the global community, a research framework to attract and better accommodate the world's top researchers will be established in 2018. This will increase the number of incoming graduate students, improve global awareness, and encourage international collaborative research.
- The Tokyo Tech Doctoral Researcher System, to be set up in 2018, will activate exchange between young researchers at institutions around the world.



【Measures for the promotion of collaboration with foreign universities】

- Collaboration with universities carefully selected according to region (Europe, the US, Asia, etc.), language (English, non-English), specialty (science and technology, other specialties) that can further strengthen Tokyo Tech. Based on this strategy, collaboration with the world's best science and technology universities will be increased through the conclusion of agreements, and creation of international university consortiums and double/joint degree programs.
- Based on visits to and information shared with partner universities, a) a variety of exchange programs corresponding to student levels, b) inbound exchange programs matching the needs of overseas partner universities, and c) student exchanges that fully utilize overseas offices will be developed.

2. FY2014 Progress

■ Common indicators and targets

Internationalization

Development of student exchange programs

Various student exchange programs have been developed based on visits to overseas universities. Short-term programs in Europe (Germany, Austria, Sweden) and overseas English training programs for science and technology students in Australia will begin in the summer of 2015.



Sweden short-term study aboard program



English website for visiting international researchers

Comfortable atmosphere for overseas faculty, researchers, and students

Building signs on Tokyo Tech campuses, internal accounting guidelines, automated telephone systems, and online guides for international Tokyo Tech community members are available in English, making life easier for overseas faculty, researchers, and students.

University reform

Organizational structure in charge of centralized administrative reforms

Collaborative Organization for International Education and Research was established. This will eventually merge into the Strategic Planning Headquarters (tentative) which, under the leadership of the President, will be in charge of institution-wide strategy. To strengthen organizational management, the Institutional Research Office was established in April 2015 for efficient information management and analysis.

Education reform

CITL launched, professional development and training of faculty enhanced

The Center for Innovative Teaching and Learning (CITL) was launched to promote faculty development and ensure education quality. Some examples of professional development include training sessions on teaching methods in English, workshops on the execution of the new curriculum, and discussions about liberal arts at Tokyo Tech.



Faculty training on teaching in English



Lecture and workshop on the future of liberal arts at Tokyo Tech



Tokyo Tech Lecture Theatre

Tokyo Tech Lecture Theatre

This venue has been completely refurbished to facilitate lectures with open experiments for large audiences and foster active exchange of ideas. Aimed at 1st-year students.

Active learning environment

Lecture rooms that encourage active learning have been set up. These have already been eagerly utilized by students and faculty.

Workshop on TA system

Tokyo Tech held a two-day workshop consisting of a lecture by a professor from UC Berkeley, case studies by Tokyo Tech professors, and group work and discussions between students and faculty members in preparation for the new dynamic Teaching Assistant system.



Lecture room with active learning environment

■ University's own indicators and targets

University-wide human resource management

According to a new system established in April 2015, the president, advised by a human resources committee, has increased discretionary authority on personnel affairs of faculty. In line with the president's vision and Institute's operating policy, deans and directors are now selected by the president from a pool of appropriate candidates.

Diversification and internationalization of administrative staff

In addition to overseas language studies, administrative staff members were provided with on-the-job training opportunities in conjunction with overseas university visits. Discussion, presentations, and negotiations during the visits improved their global competency skills. Tokyo Tech also hosted staff members from overseas partners for the same effect.



Administrative staff giving presentation in Germany on programs in Japan

■ Initiatives for the enhancement of international reputation

Organizational reforms to meet international standards

The integration of Tokyo Tech's 3 undergraduate schools and 6 graduate schools into 6 new Schools in April 2016 will form an education system that better matches international standards. The Institute for Liberal Arts, launched at the same time, will ensure education in the humanities throughout both undergraduate- and graduate-level programs.

Online education system

Together with MIT and Harvard, Tokyo Tech is also part of the edX Consortium and is preparing to launch its first MOOC in September 2015, a course by Professor Kei Hirose of the Earth-Life Science Institute (ELSI), a government-designated World Premier International Research Center.



Education reforms website

【 Results for the promotion of collaboration with foreign universities 】

- Joint Symposium for International Industry-Academia Collaboration was held at Tokyo Tech with RWTH Aachen University in March 2015. Participants discussed cooperation between Japan and Germany on both university and industrial levels. Concrete projects are currently being planned. The next symposium will be held in the summer of 2015 in Aachen.
- Tokyo Tech-MIT International University-Industry Collaboration Workshop was held in January 2015. Faculty from both universities gave lectures on international collaborative research. Activities also included discussion and planning of a world-class research project that meets industrial needs.
- Uppsala University-Tokyo Tech Joint Symposium was held in Sweden in September 2014. Collaborative ties between the universities were strengthened. The next symposium will be at Tokyo Tech in 2015.
- Tokyo Tech members visited University of California, Santa Barbara in December 2014. Plans to hold a joint workshop in the summer of 2015 progressed. Another tie with one of the world's top universities was strengthened, and active research and student exchange is expected through the upcoming workshop.
- Tokyo Tech members visited Skolkovo Institute of Science and Technology and Singapore University of Technology and Design, both recently founded. Discussions on cooperative relationships progressed.

■ Free description

Top Global University Project Kick-off Symposium

The top global university project kick-off symposium was held at Tokyo Tech on January 27, 2015. Guests from Nanyang Technological University and UC Berkeley gave lectures on administrative reforms and the online education environment, and shared ideas regarding Tokyo Tech's strengths and the challenges posed by the current reforms. The symposium was an important milestone in the Institute's globalization efforts, and showed the unity of all those involved in changing what was a Japanese university to a truly global Tokyo Tech.



Panel discussion at symposium

Symposium speech by Tokyo Tech President Mishima

3. FY2015 Progress

Common indicators and targets

Internationalization

New short-term inbound exchange program

The newly created Tokyo Tech Summer Program, a short-term inbound exchange program commencing in 2016, will function as the basis for further promotion of student exchanges with the world's top universities.

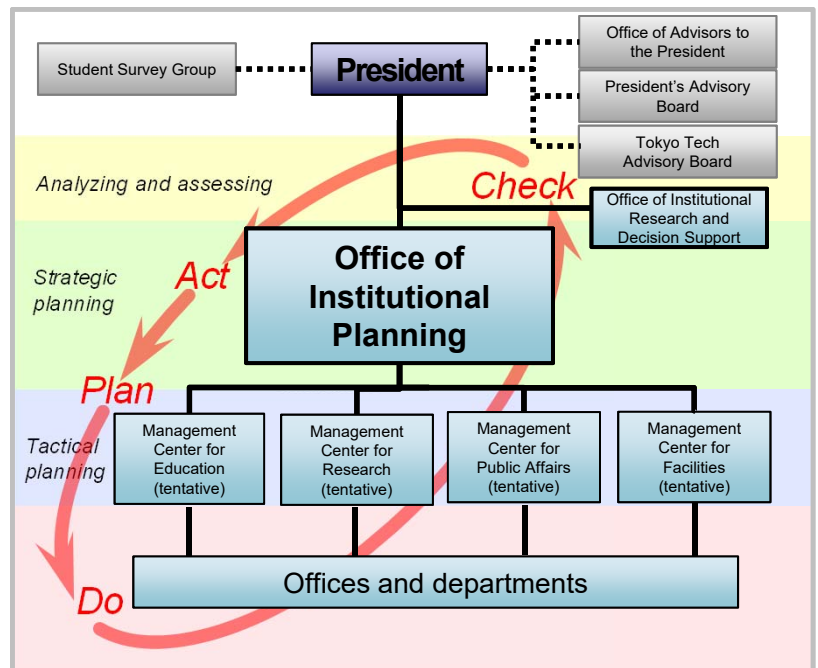
Increased student exchanges

A total of eight new student exchange programs (Sweden, Germany/Austria, India, Thailand (two programs), Australia-winter and summer, and the Philippines), including those utilizing Tokyo Tech's overseas offices, were launched in FY2015. This greatly exceeded the two new programs originally planned. Through these programs, the number of students studying abroad increased to 250 from 170 in the previous year.

University reforms

Office of Institutional Planning expedited

The establishment of the Office of Institutional Planning, the core of a university-wide governance system that supports the president's leadership, was expedited to April 1, 2016 from the originally planned 2018. With the President at its head, the office will take over and drastically reform strategic planning previously carried out by the Planning Office and other offices, forming a centralized system and eliminating sectional barriers.



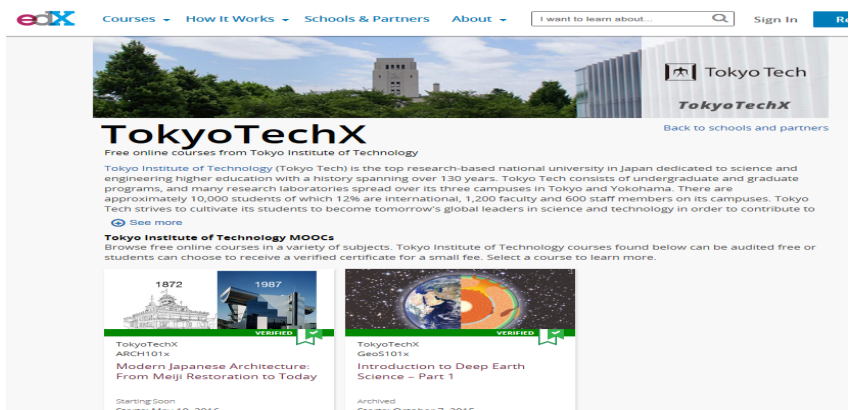
Education reforms

Establishment of new Schools

As part of its education reforms, Tokyo Tech will be the first university in Japan to combine its undergraduate and graduate schools into six new Schools in April 2016. Preparatory committees of each of the Schools and the Institute for Liberal Arts (ILA) held meetings throughout the year. A new working group in the Education Planning Office focusing on the implementation of education reforms worked closely with these preparatory committees to create new curricula for the Schools and ILA. To promote independent study with a new internationally compatible curricula, preparations continued regarding the improvement and Japanese and English publication of syllabi, the adoption of a numbering system to indicate level of study, the introduction of a quarter system to further facilitate study abroad and internships, and the teaching of classes in English.

International initiatives at Center for Innovative Teaching and Learning

With educational assessment, professional development of faculty, and improvement of the learning environment as its three pillars, the Center for Innovative Teaching and Learning (CITL) was established in April 2015 with two professors at its helm. Since then, CITL has carried out training sessions on teaching methods in English, published MOOCs on the edX platform, and held symposiums with prominent international researchers.



TokyoTechX page on edX platform

■ University's own indicators and targets

Administrative reforms

With a focus on creating a system that supports the president's leadership, administrative reforms also progressed. The president, advised by a human resources committee, was granted increased discretionary authority over faculty personnel affairs. A personnel advisory committee, the Office of Institutional Research and Decision Support, and the Tokyo Tech Advisory Board were established to advise the president, who now selects deans and directors from a pool of appropriate candidates to ensure more centralized human resource management. The creation of a stronger system will promote other reforms such as the introduction of an annual salary system and a cross-appointment system. Quantitative and qualitative performance indicators and targets are being achieved as planned.

■ Initiatives for the enhancement of international reputation

Tokyo Tech Advisory Board

The Tokyo Tech Advisory Board, a group of renowned leaders from universities and other organizations around the world, was created in December 2015 to provide Tokyo Tech advice on its globalization efforts, strategies in advancing research and international exchange, and policies and evaluation. As a result of the first Board meeting held in February 2016, Tokyo Tech continues to strive towards university management with a more international perspective.

Lectures by government officials and symposiums with top university management

Symposiums involving executives from top overseas universities and lectures by US government officials were held several times, providing faculty and students with an international perspective.

Results for the promotion of collaboration with foreign universities (Type A only)

The Tokyo Tech-UC Santa Barbara Joint Symposium held at Tokyo Tech in August 2015 further strengthened the university-wide agreement between the institutions. Visitors from UCSB included the chancellor, faculty from various fields, and students. The 3-day event included university overviews, research presentations by Tokyo Tech and UCSB faculty, field meetings, and a student workshop.



Joint symposium with University of California, Santa Barbara



2nd Uppsala University-Tokyo Tech Joint Symposium

The 2nd Uppsala University-Tokyo Tech Joint Symposium was held at Tokyo Tech in November 2015. Under the theme Emerging Technologies and Systems for a Sustainable Society, participants shared findings and exchanged views on next generation solar cells, industry-academia collaboration, and the establishment of startups.

The NTU-Tokyo Tech Joint Workshop, held in Singapore in February 2016, gave Tokyo Tech researchers a chance to exchange views on collaborative research with counterparts at Nanyang Technological University.



Joint workshop with Nanyang Technological University

■ Free description

Departments within the Office of Institutional Planning

With the decision to establish the Office of Institutional Planning in April 2016, two departments under this office will also be set up — a Top Global University Project planning and management department, and a planning department for the program for promoting the enhancement of research universities. These departments will hold joint meetings to share information on the planning of Tokyo Tech's education and research activities, and will work together to develop and enhance Tokyo Tech's international strategy.

4. FY2016 Progress

【Tokyo Institute of Technology】

■ Common indicators and targets

Internationalization

Expansion of exchange programs

- In addition to the traditional summer programs, new winter programs brought in more international students from leading universities in Asia, North America, Europe, and Oceania.
- Tokyo Tech implemented short-term study abroad programs in 10 countries for outbound exchange students. A new leadership training program was implemented in collaboration with Georgia Institute of Technology. A credit transfer and scholarship system was developed for outbound exchange students participating in partner university summer and language programs.
- The Global Scientists and Engineers Course was implemented for bachelor-level students, and adjustments were made to expand the course to facilitate graduate-level students' participation from AY2017 onwards.



Leadership training program with Georgia Institute of Technology



Internal HR support website in English

Improved international environment

To supplement Tokyo Tech's bilingual website and personalized email and information support systems, an internal English-language human resources website was launched to support English-speaking faculty and staff with administrative and other work-related issues.

University reform

Office of Institutional Planning (Strategic Management Council) established

The Office of Institutional Planning, a central decision-making body to rapidly and accurately handle issues regarding education, research, international activities, human resources, and finances was established in April 2016, two years ahead of schedule. To more clearly indicate its central role in strategic decisions, this body was renamed the Strategic Management Council in April 2017.

Education reform

New education system

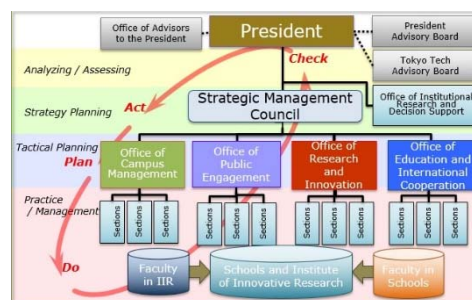
With the aim of providing all students with a world-class education, Tokyo Tech launched its new education system in April 2016, beginning with the joining of its 3 schools and 6 graduate schools in the previous system to form 6 new Schools that make up the new model.



Symposium on education reform

Continued professional development

- Various forms of professional development continued in 2016. Many faculty members joined training in English instruction provided by the University of Queensland.
- With the aim of sharing and learning current overseas and future trends in professional development, Tokyo Tech hosted a symposium on education reform on Nov. 1, 2016. With a University of California, Berkeley expert on teaching and learning providing one of the keynote speeches, the event attracted approximately 100 educators from both within and outside Tokyo Tech.



Centralized governance with Strategic Management Council

■ University's own indicators and targets

Institute-wide management of resources

- Faculty posts are centrally managed, and new posts filled in 2016 were made into president's discretionary posts. As a result, the number of such posts increased from 94 in the previous academic year to 160, making up 15% of all posts.
- In line with the promotion of university reforms, the Institute-wide budget was reviewed, a new budget policy was decided on, and funding at the president's discretion was increased from 4.0% in the previous year to 4.25%.
- Based on the education and research reforms in effect from AY2016, space being used by newly established research hubs was designated as "president's discretionary space." As a result, this space increased from 866 Units at the close of FY2015 to 1,326.5 units in March 2017.



President's discretionary space

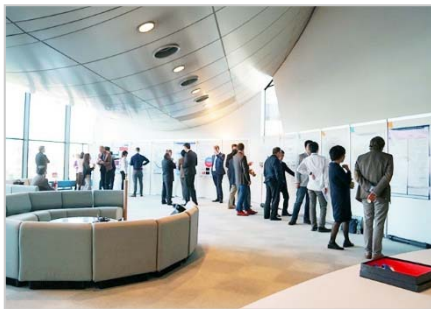
■ Initiatives for the enhancement of international reputation

International accreditation working group launched

- The international accreditation working group was established under the Educational Planning Office, with members consisting of faculty members from each of the Institute's six Schools, the Institute for Liberal Arts, and the Center for Innovative Teaching and Learning.
- Five faculty members also participated in the 9th International Engineer Education Workshop jointly hosted by JABEE and the Japanese Society for Engineering Education.

Results for the promotion of collaboration with foreign universities

- The Imperial College London – Tokyo Tech Joint Workshop on Bioscience and its Interface with Technology was held on November 4, 2016 at Tokyo Tech. Faculty members, researchers, and students in the fields of bioscience, gene network engineering, brain science, cognitive neuroscience, and data science participated in the workshop.
- Tokyo Tech hosted a second joint workshop with Nanyang Technological University, Singapore (NTU Singapore) on November 17 and 18, 2016. The workshop included 29 faculty members from Tokyo Tech along with a delegation of 21 faculty members from NTU. Representatives from the Japanese robotics industry also participated.



Poster presentations at Imperial College London – Tokyo Tech joint workshop



2nd Joint Workshop between Nanyang Technological University and Tokyo Tech

■ Free description

Tokyo Tech 2030 workshop

In order to visualize the Tokyo Tech of the future, and to create an action plan to realize this image, the students, faculty, staff, and management of the Institute held several workshops over the academic year to brainstorm Tokyo Tech's unique strengths and societal impact. As a result, the Tokyo Tech 2030 statement was formulated.



Tokyo Tech 2030 workshop

5. FY2017 Progress

【Tokyo Institute of Technology】

■ Common indicators and targets

Internationalization

New doctoral student exchange program

In an effort to continuously diversify its overseas exchange programs, Tokyo Tech implemented the 1st Imperial-Tokyo Tech Global Fellows Programme, the inaugural doctoral student exchange program between the two institutions. Through group discussions, special lectures by experts, poster presentations, field trips, and other joint activities focusing on eradicating poverty, the initiative aimed to build a collaborative network between young researchers while developing their leadership and communication skills. Of the 39 participants (19 from Tokyo Tech, 20 from Imperial College London), 95 percent believed their ability to collaborate in diverse groups had improved upon completion of the program, while 97 percent said they would recommend the program to other students.



Self introductions through poster session



Symposium report on Tokyo Tech Website

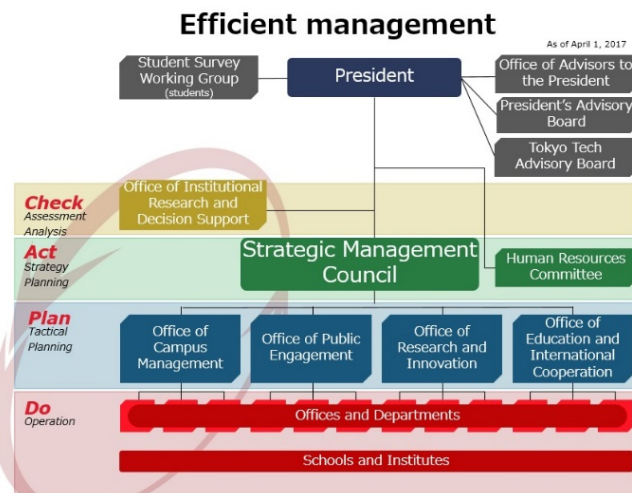
Molecular Frontiers Symposium

The Molecular Frontiers Symposium, initiated by the Royal Swedish Academy of Sciences in 2006, was held at Tokyo Tech to connect Japanese high school students with internationally acclaimed scientists. Through lectures by Nobel laureates and other pioneers from both Tokyo Tech and abroad, group work mentored by Tokyo Tech students, and hands-on experiments, the event raised public appreciation of molecular science and engaged the youth who will lead the breakthroughs of tomorrow.

Enhanced governance

Strategic Management Council

The former Office of Institutional Planning, Tokyo Tech's central decision-making body, was renamed the Strategic Management Council in April 2017. In addition to strategic planning, its functions were enhanced to ensure more rapid, accurate handling of Institute-wide issues. The previous 18 Planning and Management Offices were streamlined into four new Offices—the Office of Campus Management, the Office of Public Engagement, the Office of Research and Innovation, the Office of Education and International Cooperation—directly under the Strategic Management Council, which now includes the heads of administrative departments (in addition to the traditional directors of Offices, School deans, and Institute directors) to ensure a more inclusive, efficient Institute management system.



Education reforms

Guidance on securing employment in Japan for international students

In November 2017, the Student Career Support Section at Tokyo Tech's Student Support Center held a Guidance Seminar on Job Hunting for International Students. The event, held in English by Tokyo Tech career advisors and representatives from Japan's International Students Support Network, aimed to assist and encourage international students to seek employment in Japan by outlining the basics of the local job hunting process and the support system offered by Tokyo Tech. Feedback from the 120 participants at Ookayama Campus and 70 students at Suzukakedai Campus was positive, with many expressing hope that similar sessions be held on a regular basis.

■ University's own indicators and targets

President's discretionary funds

During the formulation of Tokyo Tech's annual budget policy, and after review of the results from the previous fiscal year, the President's discretionary funds were increased from 4.25% in FY2016 to 4.5% in FY2017.

Ratio of female faculty/staff in managerial positions

In FY2017, the ratio of female faculty and staff members in managerial positions increased to 20.4% from 14.3% in the previous fiscal year.

■ Initiatives for the enhancement of international reputation

International accreditation

Tokyo Tech's Vice President for Education, members of the international accreditation working group, and several administrative staff members visited The University of Melbourne, which has been recognized as an outstanding institution by EUR-ACE and other international accreditation bodies, to exchange opinions with specialists. In March 2018, Tokyo Tech applied for a preliminary review by the Japan Accreditation Board for Engineering Education.

【Results for the promotion of collaboration with foreign universities (Type A only)】

Tokyo Tech held its 3rd Joint Workshop with Singapore's Nanyang Technological University on September 11 and 12, 2017. Participants included the executive vice president for research, vice president for education, vice president for research development, and nine outstanding Tokyo Tech researchers specializing in new molecular chemistry, hydrogen energy, recycling of materials and separation of elements or nuclides, and engineering technologies for combating infectious diseases. Faculty members and students of the Education Academy of Computational Life Sciences were also present.

■ Free description

Tradition meets innovation—Tokyo Tech visuals

In its efforts to boost its global presence, Tokyo Tech created *ukiyo-e*-esque illustrations that represent the synergy of tradition and innovation at the Institute. These creations are now used to represent Tokyo Tech in various media including pamphlets targeting international students, QS World University rankings, etc.



Workshops to envision the future of Tokyo Tech

Tokyo Tech held a series of workshops to brainstorm and share the future image and identity of the Institute. While working as a unified team, a total of 207 executives, faculty, staff, and students also considered how they can contribute individually to the realization of a better future society through their efforts at Tokyo Tech.



Workshops attracted a total of 207 participants

This is the world we envision as we stand at the chasm of potential, on the path to well-being for all humankind.

Out of reach, beyond belief, unimaginable, unknown.

We relish the thousand failures that push us through the darkness in search of that elusive solution. The dream we share knows no boundaries. We advance together.

Our unflinching minds resist the stereotype, refute the pre-established, and embrace the unconventional.

for we see an alternate future.

Tokyo Tech

An alternate future