Master technology, create technology
TOYOHASHI
UNIVERSITY OF TECHNOLOGY

MEXT MINISTRY OF EDUCATION, CULTURE, SPORTS, SCIENCE AND TECHNOLOGY-JAPAN

スーパーグローバル大学創成支援事業
The Top Global University Project

This is a digest version of project concept with a numerical target correction. Please refer to the brochures and websites for the actual ongoing project details.

Creative Campus for Nurturing Global Technology Architects

『グローバル技術科学アーキテクト』養成キャンパスの創成

Toyohashi University of Technology
国立大学法人 豊橋技術科学大学

Ver. 3.0 2018

国立大学法人
豊橋技術科学大学

Toyohashi Tech was selected as one of 37 Japanese universities to participate in MEXT's "Top Global University Project"

TOYOHASHI UNIVERSITY OF TECHNOLOGY

2014/09/26

http://www.tut.ac.jp/english/news/201410/4230.html

Toyohashi Tech has been actively endeavoring to respond to the various challenges for university reform being put forward by the Ministry of Education, Culture, Sports, Science and Technology (MEXT). Perhaps as a consequence of As a result of these efforts, it has been selected to participate in a number of innovative MEXT driven projects.

In 2012 it was selected for the National University Reform Enhancement Project, and in 2013 for the Leading Graduate School Program as well as the Program for Promoting the Enhancement of Research Universities.

By putting these programs into practice, Toyohashi Tech aims to raise its global profile to the point that it becomes recognized worldwide as a leading international university.

Thanks in part to its efforts in this regard, Toyohashi Tech applied for, and was selected to take part in, the Top Global University Project under the category of Global-Leading Type (type B).

In order to achieve the goals of this project, Toyohashi Tech will create a truly multicultural campus which will help foster high quality engineers with thoroughly international sensibilities.

These 'Global Technology Architects' will be able to apply their advanced technological skills and scientific training to global issues, and their leadership skills and vision to getting the job done in the real world of industry.

The following initiatives will be taken to realize this;

"Creative Campus for Nurturing Global Technology Architects"

- Global Technology Architects course
- Multicultural Boarding House
- Global capability upgrade of all students, faculty members and university staff

Comments by President Takashi Onishi on being selected for this Project

I am overjoyed to see that Toyohashi Tech has been selected for the Top Global University Project.

At Toyohashi Tech we have a long history of collaborative international research and actively accepting students from overseas, but with this opportunity I hope we can take another step towards becoming a university worthy of the name of a Multicultural Global Campus.

Toyohashi Tech specializes in providing higher education to graduates of Japan's technical colleges.

We also enthusiastically accept students from regular and technical high schools to join our mission to provide the core human resources to support Japan's industry.

Providing all of our students with the opportunities to become leading engineers and researchers on the wider global stage will enable them to further assist in the development of Japan's primary sectors.

Toyohashi Tech's Top Global University concept aims to create an environment where undergraduate and graduate students from inside and outside the university can further themselves through friendly rivalry, beyond the barriers of language and culture.

Through this, we aim to foster global technology architects: creative leaders in science and technology with a solid international grounding.

Toyohashi Tech is fortunate to be a facility with nearly 30% of its students living on campus.

We intend to augment this with shared-house style dormitories in our new Multicultural Boarding House.

Overall, through this new project, we aspire to truly become a campus both in name and fact worthy of being called a Top Global University.

We look forward to receiving your advice and support.

Takashi Onishi
President, Toyohashi University of Technology

Top Global University Project
Creative Campus for Nurturing Global Technology Architects

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日本学術振興会 JAPAN SOCIETY FOR THE PROMOTION OF SCIENCE

スーパーグローバル大学等事業
スーパーグローバル大学創成支援
（Top Global University Project）

TOYOHASHI UNIVERSITY OF TECHNOLOGY

Press Release MEXT MINISTRY OF EDUCATION, CULTURE, SPORTS, SCIENCE AND TECHNOLOGY-JAPAN

September 2014

Selection for the FY 2014
Top Global University Project

We hereby announce the selection of universities for the Top Global University Project.

1. Summary of the Project

The Top Global University Project is a funding project that aims to enhance the international compatibility and competitiveness of higher education in Japan. It provides prioritized support for the world-class and innovative universities that lead the internationalization of Japanese universities. Selected universities are expected to press forward with comprehensive internationalization and university reform.

○Type A (Top Type)
The Top Type is for world-class universities that have the potential to be ranked in the top 100 in world university rankings.
○Type B (Global Traction Type)
The Global Traction Type is for innovative universities that lead the internationalization of Japanese society, based on continuous improvement of their current efforts.

2. Summary of the Selection

A notification of an open call was sent to the presidents of all national, public and private universities on April 15, 2014, with the deadline of the call on May 30. After receiving 109 applications from 104 universities, the Selection Committee for Top Global University Project (Chair: Tsutomu Kimura, chairman of the Tokyo Metropolitan Government's Board of Education) conducted screenings of the applications, and 37 projects (37 universities) were selected as attached.

Top Global University Project (2014~)

Summary

✓ Fully mobilizing systems and budget
✓ Achieve structural change to form globally competitive universities in the world
✓ Stimulate cooperation with world top universities

Top Type
Global Traction Type
Top Global University Project
Go Global Japan

Target (7.7 billion, 10 consecutive years)
○ Top Type (10 universities)
 Universities for world rankings top 100
○ Global Type (20 universities)
 Universities to lead the internationalization

(**Example of system reforms**)
・Joint Degree
・Management, etc.

(**Common conditions for both type**)
・Improving ratio of foreign faculty and students
・Increasing lectures in English, etc.

MEXT MINISTRY OF EDUCATION, CULTURE, SPORTS, SCIENCE AND TECHNOLOGY-JAPAN

Source: http://www.mext.go.jp/b_menu/houdou/26/09/__icsFiles/afieldfile/2014/10/07/1352218_02.pdf

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スーパーグローバル大学創成支援
（Top Global University Project）

TOYOHASHI UNIVERSITY OF TECHNOLOGY

◎ Type A: Top Type
Top Type is for world-class universities that have the potential to be ranked in the top 100 in world university rankings.

● Type B: Global Traction Type
Global Traction Type is for innovative universities that lead the internationalization of Japanese society, based on continuous improvement of their current efforts.
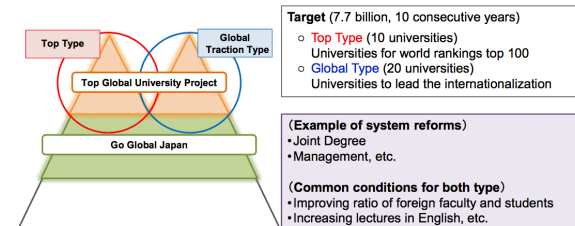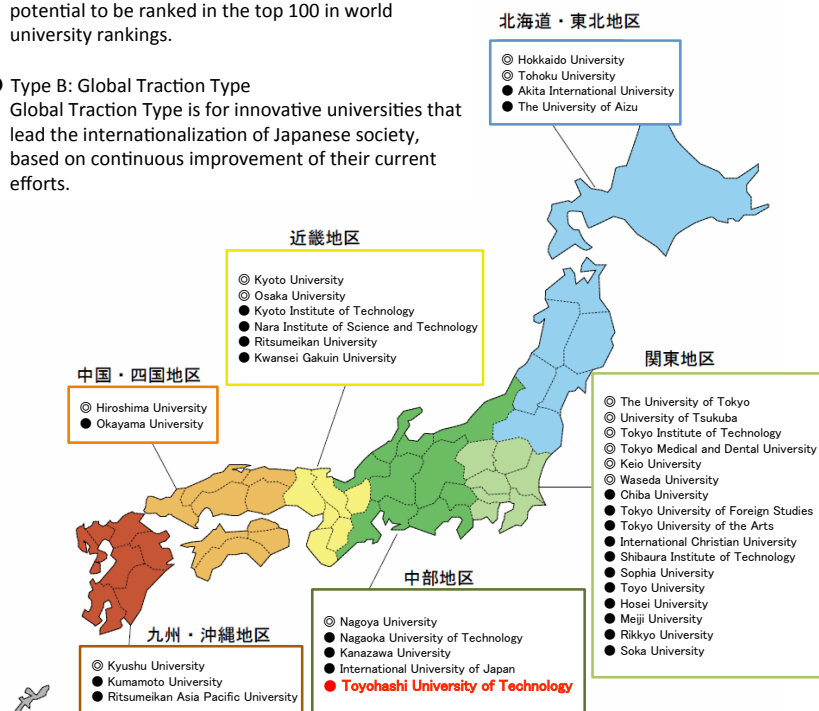
北海道・東北地区
◎ Hokkaido University
◎ Tohoku University
● Akita International University
● The University of Aizu

近畿地区
◎ Kyoto University
◎ Osaka University
● Kyoto Institute of Technology
● Nara Institute of Science and Technology
● Ritsumeikan University
● Kwansei Gakuin University

中国・四国地区
◎ Hiroshima University
● Okayama University

関東地区
◎ The University of Tokyo
◎ University of Tsukuba
◎ Tokyo Institute of Technology
◎ Tokyo Medical and Dental University
◎ Keio University
◎ Waseda University
● Chiba University
● Tokyo University of Foreign Studies
● Tokyo University of the Arts
● International Christian University
● Shibaura Institute of Technology
● Sophia University
● Toyo University
● Hosei University
● Meiji University
● Rikkyo University
● Soka University

中部地区
◎ Nagoya University
● Nagaoka University of Technology
● Kanazawa University
● International University of Japan
● Toyohashi University of Technology

九州・沖縄地区
◎ Kyushu University
● Kumamoto University
● Ritsumeikan Asia Pacific University

■ **The Process** (2014)

April 15   Call for applications
May 30   Submission of the applications
August 29   Presentation and interview
September 26 Announcement of the results

■ **Selection results**

○ Type A: Top Type
 Applications from 16 universities;
 13 selected

○ Type B: Global Traction Type
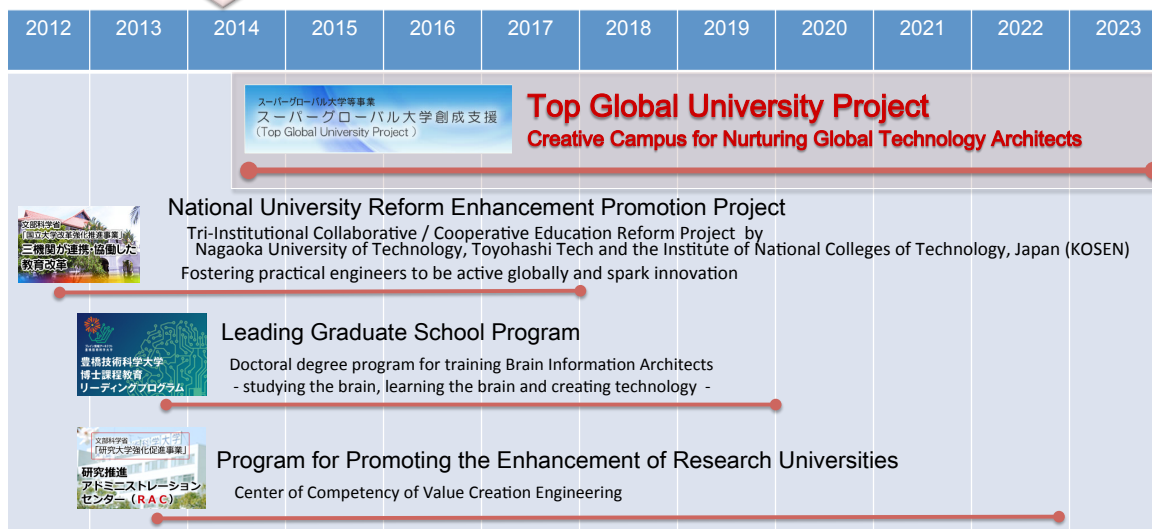 Applications from 93 universities;
 24 selected

■ **Universities selected in the Tokai region**
 ◎ Nagoya University (Type A)
 ● Toyohashi Tech (Type B)
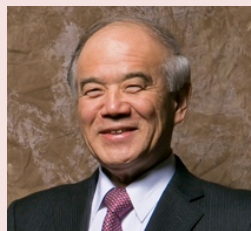
Onishi's Vision: The Five Challenges of Toyohashi Tech

1. **Realizing a Multicultural Global Campus**
2. Fostering Engineers and Researchers innovating in Technological Science
3. Enhancing Research Capabilities centered on Interdisciplinary Research
4. Creating Knowledge and Technology to enhance the Safety and Security of Society
5. Fostering Researchers who can thrive in a Borderless World

2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023

スーパーグローバル大学等事業
スーパーグローバル大学創成支援
（Top Global University Project）

Top Global University Project
Creative Campus for Nurturing Global Technology Architects

文部科学省
「国立大学改革強化推進事業」
三機関が連携・協働した教育改革

National University Reform Enhancement Promotion Project
Tri-Institutional Collaborative / Cooperative Education Reform Project by Nagaoka University of Technology, Toyohashi Tech and the Institute of National Colleges of Technology, Japan (KOSEN)
Fostering practical engineers to be active globally and spark innovation

豊橋技術科学大学
博士課程教育
リーディングプログラム

Leading Graduate School Program
Doctoral degree program for training Brain Information Architects
- studying the brain, learning the brain and creating technology -

文部科学省
「研究大学強化促進事業」
研究推進
アドミニストレーションセンター（RAC）

Program for Promoting the Enhancement of Research Universities
Center of Competency of Value Creation Engineering

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Meeting the Need for Technologically Proficient Human Resources in Today's Borderless World

	Global 1.0 Industrial Revolution 1970s	Global 2.0 Information Technology 2008	Global 3.0 IT / Business Revolutions
Engineering industry	*Oil crisis*	*Financial crisis*	
	Exporting products. Product development-oriented. Led by the developed countries.	Localization of manufacturing. Customer-oriented. Global expansion of corporations. Vertically integrated / autonomous.	Consolidation and integration beyond borders. Proposing new value / solving social issues. Wavering of developed countries, rise of the emerging nations / individuals. Horizontally integrated / open innovation.
Corporations (e.g. IBM)	International Company	Multi-National Company	Globally Integrated Enterprise
	Develop & sell in other countries Centralized functions in headquarters. Process efficiency.	Delegating authority to other countries. Highly independent subsidiaries. Ability to respond to the market.	One company globally. Optimization of business resources worldwide. Movement / sharing / utilization of knowledge.

The World Is Flat
A BRIEF HISTORY OF THE TWENTY-FIRST CENTURY
Thomas L. Friedman

Toyohashi Tech's Mission to Foster Human Resources

- Fostering engineers and researchers to drive industry forward through a combined undergraduate - graduate school program aimed at graduates of technical colleges.
- Education based on a spiral approach of repeated learning of fundamentals, specifics and applications, and a distinctive type of technical education with practical training and exercises.
- Sending our own students overseas, including to our educational site in Malaysia, and accepting students from other countries, while promoting international joint research and researcher exchanges.

- Founded 1976
- Reorganization of faculties / graduate schools in 2010
- Redefinition of our mission in 2013

Toyohashi Tech

Master Technology, Create Technology

Fostering practical / creative / leading engineers
Development of advanced and innovative technology

Candidates for senior / high-level engineers

Human resources needed in the Global 3.0 era

Global Technology Architects
✓Global communication skills
✓Problem solving skills under diverse value sets
✓Interpersonal skills applicable globally

- Founded in 1962

Technical College

Producing over 10,000 practical engineers each year

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■ Toyohashi Tech's 10 year Vision ■

A glimpse at how TUT will look on completion of the program in 2023:

A university of technology with a focus on graduate studies which recruits technical college students and outstanding talent from around the world, which is forging a new era in science and technology, and fostering high-level engineers active on the global stage.

A campus where a global perspective shared across the university creates a welcoming environment for international students, teachers and staff. A barrier free environment in terms of language and culture permeates the entire university.

Pioneering science and technology worldwide
Course for Global Technology Architects

University staff

Students

Faculty members

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TOYOHASHI

Global communi-cation capability

Problem solving skills under diverse value sets

Interpersonal skills applicable globally

Multicultural Global Campus

Global Technology Architects Course

Multicultural Boarding House for students from across the globe

Global Capability Upgrade of all students, faculties members and university staff

Global Technology Architects: Engineers and Researchers with the capability of applying advanced technological skills and scientific training to tackle global issues, and the leadership skills and vision to getting the job done in the real world of industry

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1. Global Technology Architects Course

Architecture and Civil Engineering

Environmental and Life Sciences

Computer Science and Engineering

Electrical and Electronic Information Engineering

Department of Mechanical Engineering

Standard course

Global Technology Architects Course

- Set courses in all Departments.
- Comprehensive undergraduate-graduate school program
- Residential boarding house program
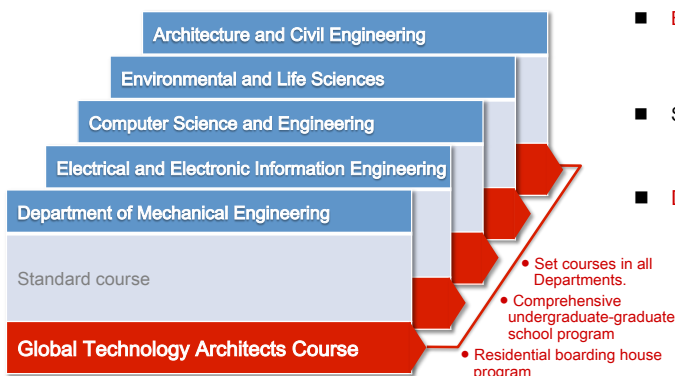
■ **Bilingual** (English and Japanese) lectures
- Teaching materials / blackboard notes = English
  Lectures / Q&A / tests = English and Japanese
- Expanding to standard courses, goal to make all courses bilingual in ten years' time
- English syllabus, numbering, GPA Internationalization of the educational system

■ Strengthening language skills in both English and Japanese
- Tutoring under mentors, use of TA, putting into practice independent learning
- Ensuring minimum 250 hours of learning time per year
- TOEIC 730+, Japanese Language Proficiency Test N1

■ **Diversification** of the student body
- Total number of places = 290 (Japanese: 140 / International students: 150), 15% of the total student body
- Increasing the total percentage of international students to 23% or more
- Residential program in on-campus boarding houses

Establishing the new global-barrier free course as a model for comprehensive university reform.

■ Course design

| Undergraduate 1-2 years | Undergraduate 3-4 years | Master's Program |

1st year matriculation total
15 international students primarily from ASEAN

Late specialization from 3rd year 1-2 year joint course

Admission Office entrance test, test prior to coming to Japan

International students primarily from ASEAN → Gradually expanding to Europe / USA

3rd year transfers total
Technical college graduates
Japanese: 35
Technical college graduates
international: 15

Courses by programs

Global Technology Architects Course

Global Technology Architects

Problem solving Global Internship Program
Various international programs Coordination with the course

Learning skills for identifying/ solving problems in a global context

Connection to related programs, such as the Leading Graduate School Program, the Program for Promoting the Enhancement of Research Universities, and others.

Strategic utilization of the Penang Campus
Promoting credit transfer, Joint degree / double degrees with partner schools worldwide

Linguistic requirements for Graduation
TOEIC 730+
Japanese Language Proficiency Test N1

Taking specialized courses in English

Taking specialized courses from the regular departments with bilingual lectures

Reinforcement of Japanese language

Reinforcing language skills in Japanese and English

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2. Multicultural Boarding House for students from across the globe

New communal style boarding house

Existing student apartment

Existing student apartment

Illustration of the Multicultural Boarding House upon completion

Room 1

Bath Toilet

Room 2

Room 3

Dining room Kitchen

Room 4

Room layout

Lifestyle image
(Residence Hall at Queens College of the City University of New York)

36%* of all students living, eating and studying in an international environment on campus.
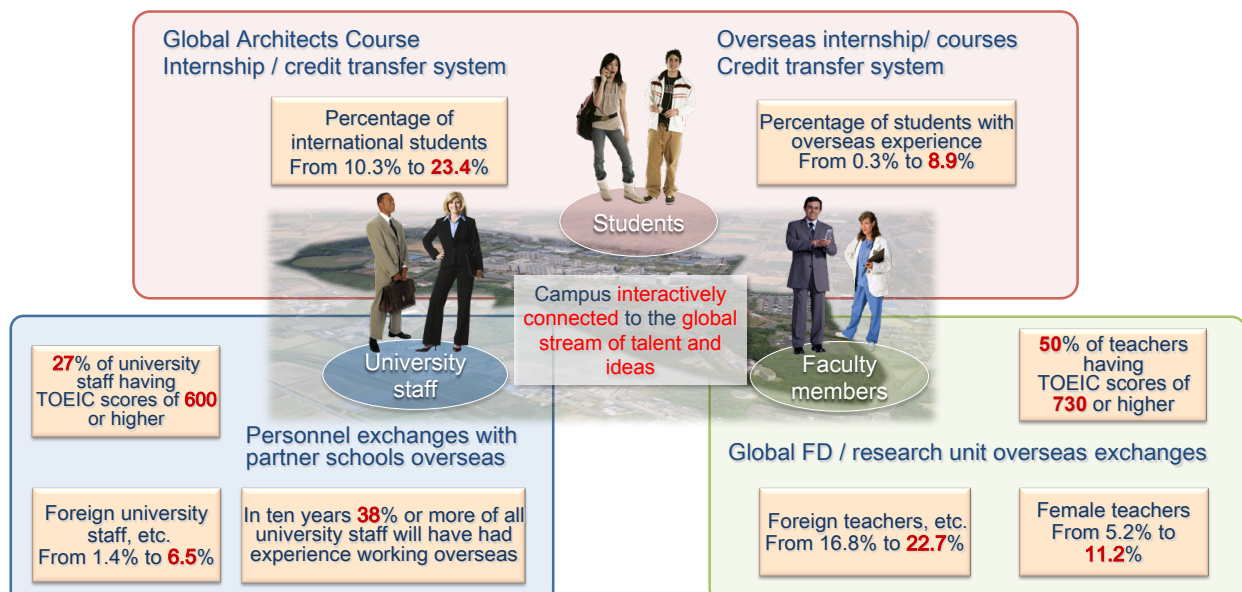**(One quarter are international students)**

*inclusive of existing student apartments

- **Fully residential boarding house** where the course's students will live
- English as the standard language
- **Shared-house style** with five students to a room (newly built with outside capital, having 180 rooms in six buildings)
- Permanently stationed house masters / residents' assistants
- The student-run **Boarding House Association** plans learning support programs and various events
- Also used for residence by an international mix of short / medium-term internship students from partner universities worldwide and up to 200 students from Japanese technical colleges.

- **Creating a multicultural environment on campus to spur university-wide globalization**
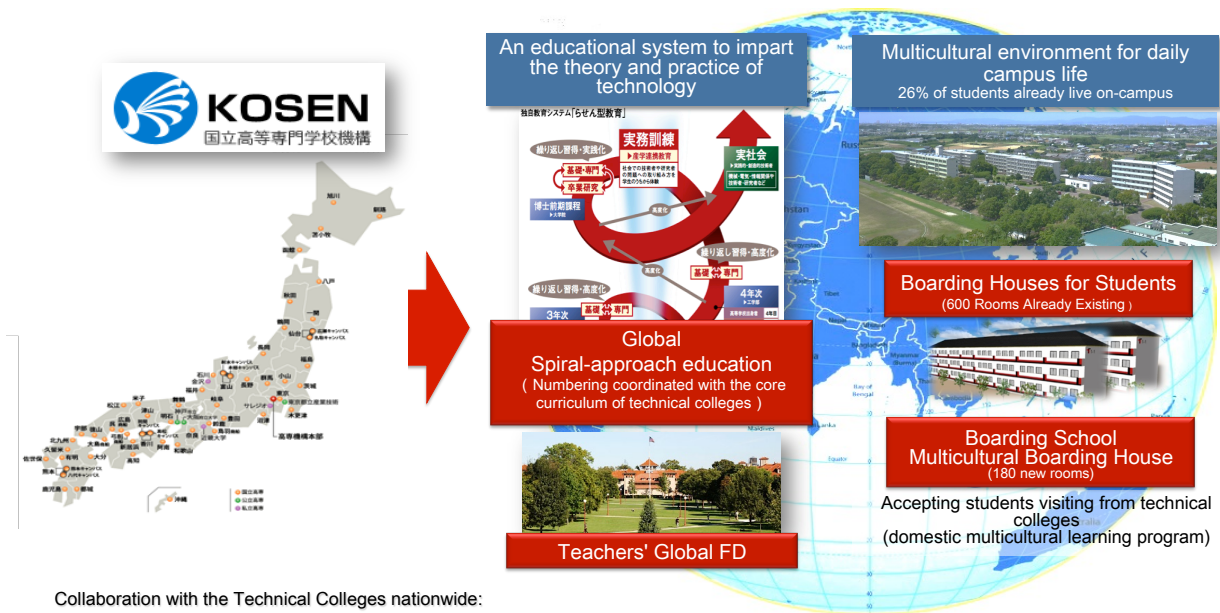- **Developing interpersonal skills applicable globally through Japanese and international students living together**

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3. Global capability upgrade of all students, faculty members and university staff

Creating programs which establish a **two way connection with the global stage**, facilitating **borderless interaction** of students, teachers and staff **between TUT and the world.**

Global Architects Course
Internship / credit transfer system

Overseas internship/ courses
Credit transfer system

Percentage of international students
From 10.3% to **23.4**%

Percentage of students with overseas experience
From 0.3% to **8.9**%

Students

Campus **interactively connected** to the **global stream of talent and ideas**

University staff

Faculty members

27% of university staff having TOEIC scores of **600** or higher

Personnel exchanges with partner schools overseas

Foreign university staff, etc.
From 1.4% to **6.5**%

In ten years **38**% or more of all university staff will have had experience working overseas

50% of teachers having TOEIC scores of **730** or higher

Global FD / research unit overseas exchanges

Foreign teachers, etc.
From 16.8% to **22.7**%

Female teachers
From 5.2% to **11.2**%

*The numbers are targets for 2023

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Top Global University Project to lead the globalization of technical colleges nationwide

An educational system to impart the theory and practice of technology

独自教育システム「らせん型教育」

Multicultural environment for daily campus life
26% of students already live on-campus

Global Spiral-approach education
(Numbering coordinated with the core curriculum of technical colleges)

Boarding Houses for Students
(600 Rooms Already Existing)

Boarding School Multicultural Boarding House
(180 new rooms)

Accepting students visiting from technical colleges
(domestic multicultural learning program)

Teachers' Global FD

Collaboration with the Technical Colleges nationwide:
New flagship program for education of global engineers
Globalization of technical colleges through Toyohashi Tech's globalization

65 (this course) to 440 (all TUT) to **10,000 KOSEN students per year (approx. 1% of national student total per year group), having a major knock-on effect on technical colleges**

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Creative Campus for Nurturing Global Technology Architects

What This Project Aims at

✓ At the core of this program is the goal of bringing globalization to every part of the campus

✓ Evolving into a university interactively connected to the global stream of talent and ideas

✓ Toyohashi Tech's Top Global University Project to lead the globalization of technical colleges nationwide

Global Technology Architects Course

Multicultural Boarding House for students from across the globe

Global Capability Upgrade of all students, faculties members and university staff

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The Top Global University Project

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