



# 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

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

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

## Press Release



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.

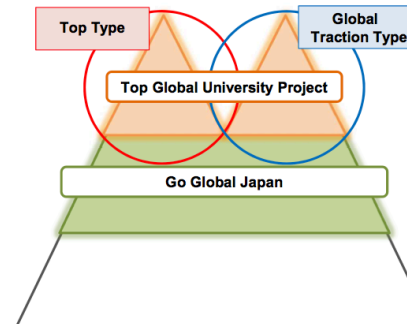
#### 2. Summary of the Selection

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



### 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.

◎ 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.



■ 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
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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



#### 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



#### Leading Graduate School Program

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



#### Program for Promoting the Enhancement of Research Universities

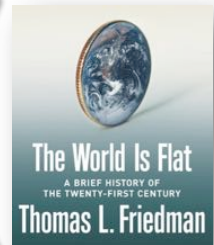
Center of Competency of Value Creation Engineering

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

Engineering industry	Global 1.0 Industrial Revolution <small>1970s</small>	Global 2.0 Information Technology <small>2008</small>	Global 3.0 IT / Business Revolutions
	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.

Oil crisis

Financial crisis



## 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

# Creative Campus for Nurturing Global Technology Architects

## ■ 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



**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 communication capability

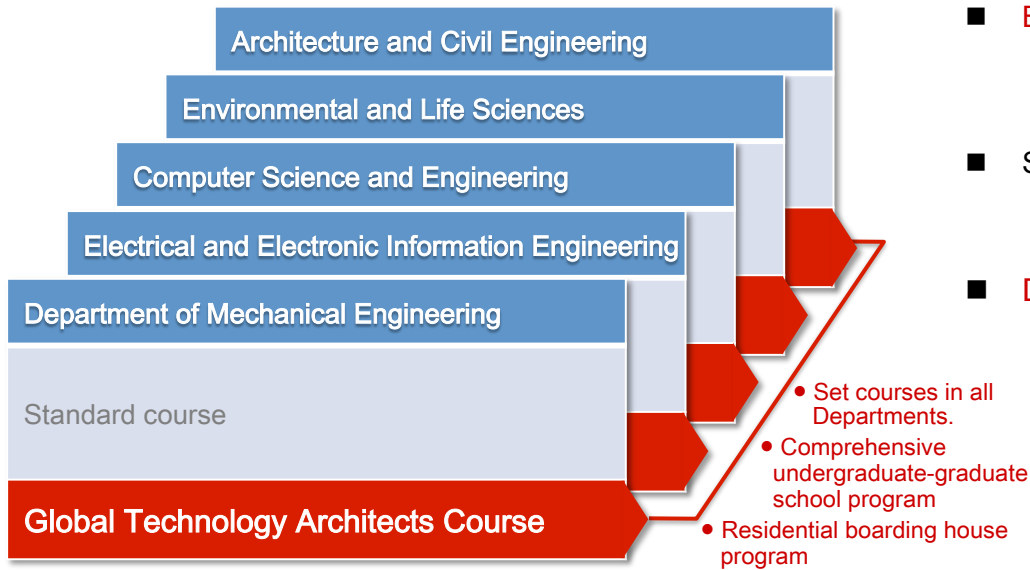
Problem solving skills under diverse value sets

Interpersonal skills applicable globally

## Multicultural Global Campus

**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

# 1. Global Technology Architects Course



- **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.

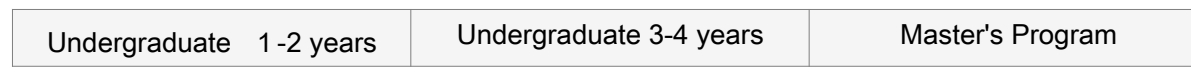
## ■ Course design

**1st year matriculation total**  
 15 international students primarily from ASEAN

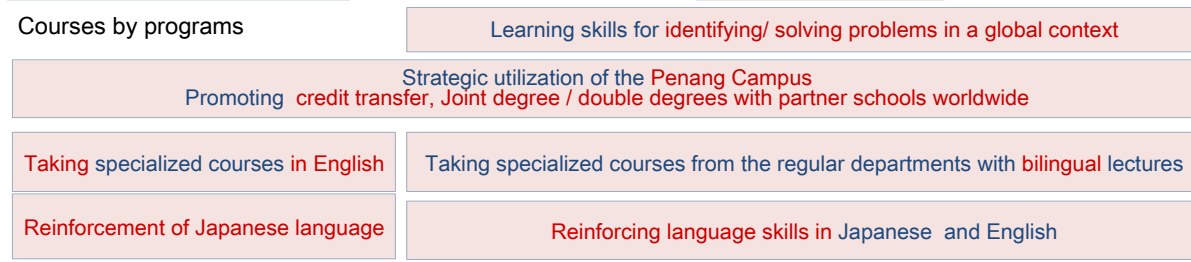
Late specialization from 3rd year  
 1-2 year joint course

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



Global Technology Architects

Various international programs  
 Coordination with the course

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

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



## 2. Multicultural Boarding House for students from across the globe

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

\*inclusive of existing student apartments

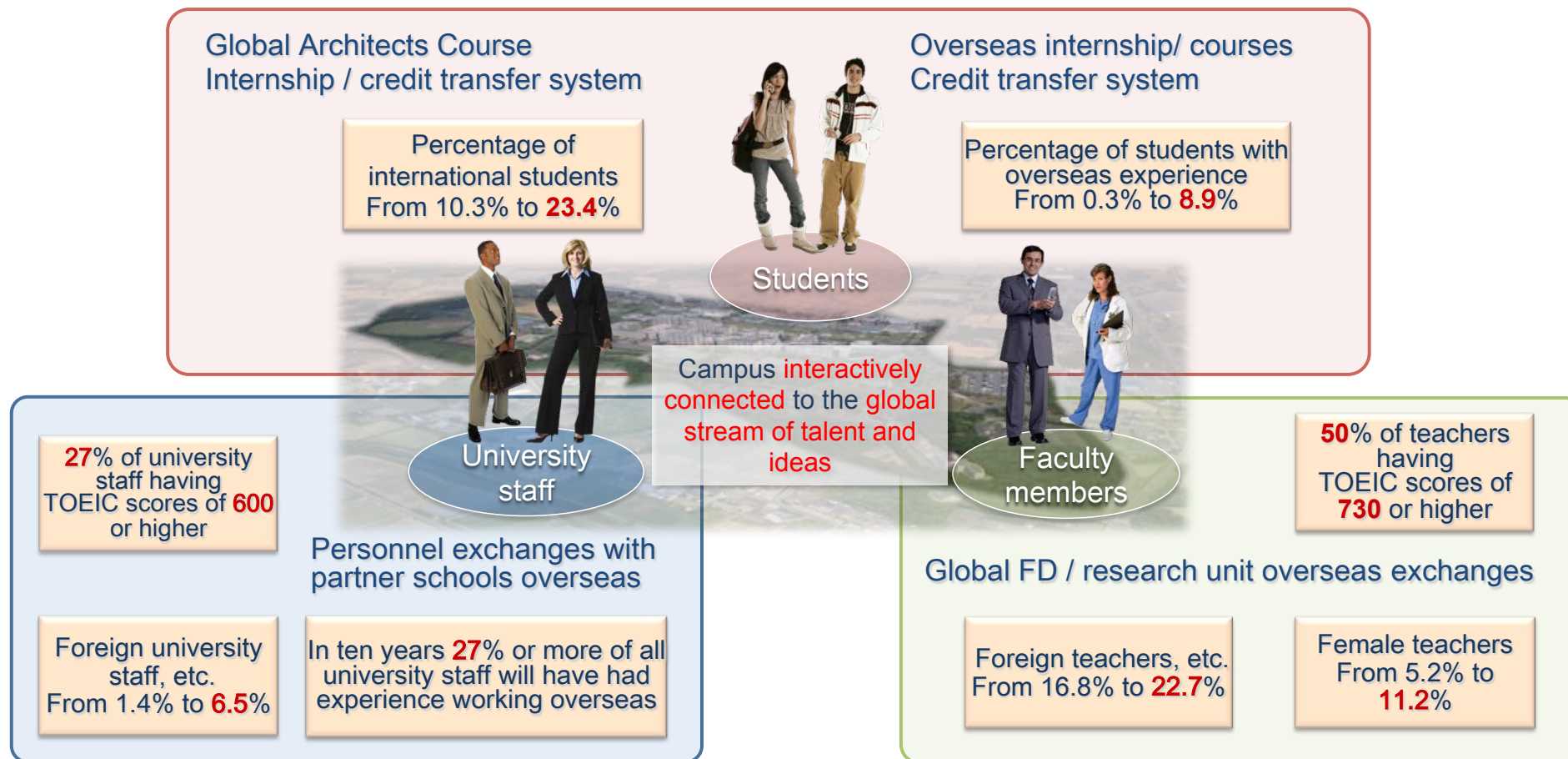
- **Fully residential boarding house** where the course's students will live
- English as the standard language
- **Shared-house style** with four students to a room (newly built with outside capital, having 200 rooms in two buildings)
- Permanently stationed house masters / residents' assistants
- The 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

### 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**.



\*The numbers are targets for 2023

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



An educational system to impart the theory and practice of technology



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



Teachers' Global FD

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



Boarding Houses for Students (600 Rooms Already Existing)



Boarding School Multicultural Boarding House (200 new rooms)

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

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**

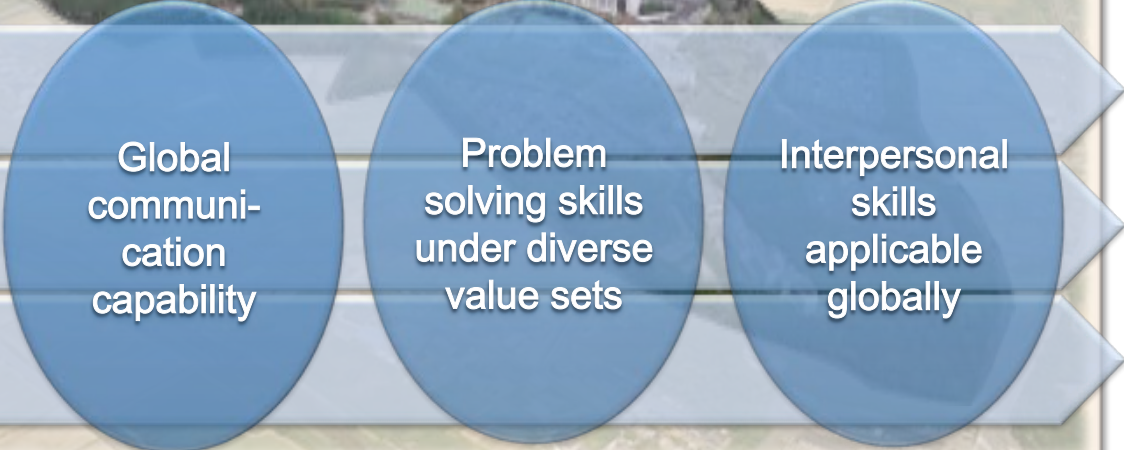
# Creative Campus for Nurturing Global Technology Architects

- 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

## Pioneering science and technology worldwide Course for Global Technology Architects



- Global Technology Architects Course**
- Multicultural Boarding House** for students from across the globe
- Global Capability Upgrade of all students, faculties members and university staff**



## Multicultural Global Campus

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

The Top Global University Project

TOYOHASHI University of Technology  
**Creative Campus for Nurturing Global Technology Architects**



<http://www.tut.ac.jp/english/>