

# Re-Inventing Japan Project: The University of Tokyo

## “International Educational Program for the Head Engineer over the Fronts of Gigantic Systems”

In the rapidly changing environment in engineering research and education, it is already apparent that multidisciplinary thinking is urgently needed to muster human resources to respond to the needs of the globalized world. Further, the nature of engineering research and education has changed substantially in recent years due to these cross-disciplinary trends. Thus, it is now crucial that traditional engineering education be augmented with multidisciplinary studies without compromising depth.

To this end, the Graduate School of Engineering at The University of Tokyo aims to promote the formation of a multidisciplinary research and educational environment by establishing joint educational programs through collaboration with leading partner universities in the U.S. and Europe within the “Deans Forum”.

■ The following are the six pillars of our program through which the quality of academic exchanges with our partner universities is assured.

1. Promotion of student exchange based on transferrable credit system.
2. Increase mobility of students based on joint degree supervisions.
3. Exchange of faculty members for multidisciplinary academic guidance.
4. Cooperation in compilation of engineering text books.
5. Periodical Deans Forum meetings.
6. Organization of student symposiums and workshops.

### ■ Programs in 2012

**1. UT-MIT International Lectures:** As part of this joint lecture with MIT, 8 MIT students visited UT and 14 UT students visited MIT. Students experienced lectures and lab visits and held an international symposium. Presentations were given in groups and active discussions were held.

**2. Workshop for Interdisciplinary Global Engineers:** 15 Master’s students were selected to take part in this workshop at KTH (Sweden) and Imperial College London. Students experienced academic exchanges with students and researchers in English on multidisciplinary topics.

**3. Student Exchange Program:** 2 students to KTH, 5 students to ETH (Zurich), and 1 student to Imperial College London were sent as exchange students based on agreements.

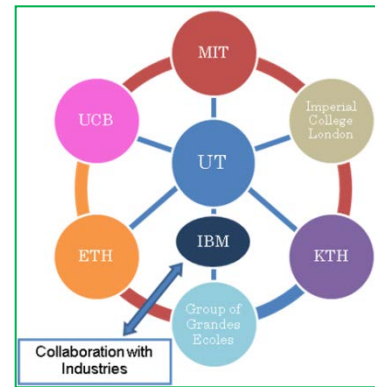
**4. Short-term student visit to KTH:** Four students were selected to visit KTH to experience graduate-level lectures using the “Peer instruction method”.

**5. International Spring School at UCB:** 8 US Students, 7 Japanese students and 2 European students participated in a Spring School 4 day workshop on nuclear engineering organized by UC Berkeley and UT.

**6. Doctoral Student Research Projects in Overseas Universities:** 5 doctoral students were selected to conduct short-term research in overseas partner universities to establish new multidisciplinary joint educational programs.

**7. Deans Forum Workshops and Meetings:** Within the Deans Forum framework, an interdisciplinary workshop on Resilience Engineering was held at UT. A working-level meeting among members was also held to discuss further collaboration in joint education and research.

<Deans Forum on Engineering>



<Visit to KTH>

### ■ Student-Mobility

Through this project, we aim to increase the number of outbound and inbound students by promoting student exchange based on a transferrable credit system, joint degree supervisions, and short-term student exchanges related to multidisciplinary, project-based programs.

	2011	2012	2013	2014	2015
Outbound	70	59	78	78	78
Inbound	14	25	57	57	57

Note : FY2011-2012 results, FY2013 -2015 planned

### ■ Promotion of Student-Mobility Environment

In 2011, the Institute for Innovation in International Engineering Education (IIIEE) was established in the Graduate School of Engineering to reinforce a global system of education and research. 4 centers (the Global Centre for Innovation in Engineering Education, the Center for Engineering Fundamentals, the Center for International Affairs, and the Center for Interdisciplinary Research and Education Collaboration) each play an important role in the promotion of this project.

### ■ Visualization of the Content of Education, Dissemination of the Outcomes

The contents of education and research at the School of Engineering and reports of the various programs conducted under this project can be found on our “Global Initiative” website. On this website, there is also a syllabus search system where the relationships between course syllabus structures can be searched for and viewed. <http://global.t.u-tokyo.ac.jp/>

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### ■ Programs in 2013

**1. UT-MIT International Lectures:** As part of this joint lecture with MIT, 20 MIT students visited UTokyo and 16 UTokyo students visited MIT. Students experienced lectures and lab visits and held an international symposium. Presentations were given in groups and active discussions were held.

**2. Workshop for Interdisciplinary Global Engineers:** 16 Master’s students were selected to take part in this workshop at MIT. Students experienced academic exchanges with students and researchers on multidisciplinary topics.

**3. Student Exchange Program:** Students were exchanged with Deans Forum partner universities including ETH, KTH, Imperial College London and the French Grandes Ecoles.

**4. Exchange Program for Global Mechanical Engineers:** The joint project between UTokyo and KTH to develop and build a solar boat enabled students from both universities to collaborate, share ideas, and work together in an international environment, combining knowledge from many different fields.



<Workshop for Interdisciplinary Global Engineers>

**5. Faculty Development Workshop:** UTokyo Faculty members visited the FD center at KTH which have been at the forefront of revolutionizing engineering education. Sessions on the CDIO initiative and how to make lectures more interactive were given and there were discussions on further collaboration in FD with other partner universities.

**6. Deans Forum Workshops and Meetings:** The second meeting of the Deans Forum was held at KTH on February 7, 2014. Members exchanged ideas about how to collaborate to meet future challenges. On February 5-6, a workshop on Brain-like computing was held with the participation of the Deans Forum Universities.

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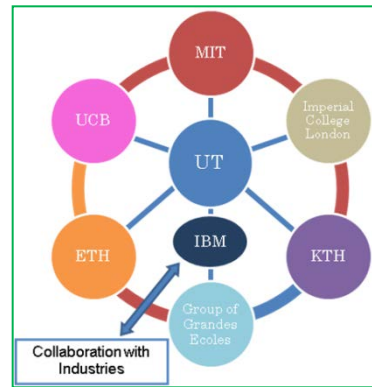
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<Deans Forum on Engineering>



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### ■ Programs in 2014

**1. UT-MIT International Lectures:** As part of this joint lecture with MIT, 22 MIT students visited UTokyo and 16 UTokyo students visited MIT. Students experienced lectures and lab visits and held an international symposium. Presentations were given in groups and active discussions were held.

**2. Workshop for Interdisciplinary Global Engineers:** 16 Master’s students were selected to take part in this workshop at KTH and ETH. Students experienced academic exchanges with students and researchers on multidisciplinary topics.

**3. Student Exchange Programs:** Students were exchanged with Deans’ Forum partner universities including ETH, KTH, Imperial College London and the French Grandes Ecoles.

**4. Exchange Program for Global Mechanical Engineers:** The joint project between UTokyo and KTH to develop and build a solar boat enabled students from both universities to collaborate, share ideas, and work together in an international environment, combining knowledge from many different fields.

**5. Intensive Lecture Course on Micro-Nano Fluidics and Bio-Medical Applications:** The intensive summer lecture course held at UTokyo was taught by invited lecturers from Deans’ Forum member universities.

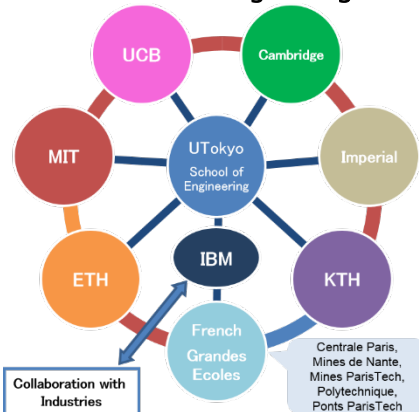
**6. Deans’ Forum Workshops and Meetings:** The third workshop on Resilience Engineering was held at UCB on March 23-24. 5 graduate students from UTokyo participated in the event.

**7. Faculty Development Workshop:** Lecturers from KTH were invited to UTokyo to deliver FD training focusing on how to make engineering education more interactive and learner-centered.



<Workshop for Interdisciplinary Global Engineers>

### <Deans’ Forum on Engineering>



### ■ Student-Mobility

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	2011	2012	2013	2014	2015
Outbound	70	59	68	66	80
Inbound	14	25	49	55	58

Note : FY2011-2014 results, FY2015 planned

### ■ Promotion of Student-Mobility Environment

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### ■ Internationalization of the university, Information disclosure and Publication of outcome

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## “International Educational Program for the Head Engineer over the Fronts of Gigantic Systems” (Adopted year: FY2011, Type B-1)

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### ■ Programs in FY2015

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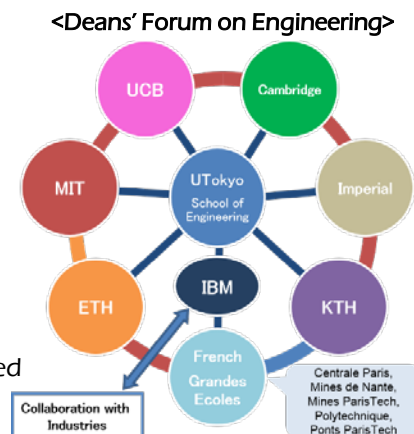
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**6. Deans’ Forum Meetings and Workshops:** The Deans’ Forum was held in NY (IBM Watson Research Center) focusing on University –Industry Collaboraton. Workshops were also held during the year on various multi-disciplinary topics.



### ■ Student-Mobility

	2011	2012	2013	2014	2015
Outbound	70	59	68	66	58
Inbound	14	25	49	55	64

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