



# Tokyo Tech-AYSEAS 2013

Tokyo Tech-Asia Young Scientist and Engineer  
Advanced Study Program 2013

## Final Report

—From Asia to the World—



## ACKNOWLEDGEMENT

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**Bridgestone Co., Ltd. Tokyo Plant**  
**JICA Project (Bangkok Water Supply Improvement Project)**  
**Nissan Motor Co., Ltd. Nissan Technical Center South East Asia**  
**National Science and Technology Development Agency (NSTDA)**  
**PTT Public Company Limited**  
**AGC Flat glass (Thailand) Plc.**  
**Bangchak Petroleum Public Company Limited**  
**King Mongkut's Institute of Technology Ladkrabang**  
**King Mongkut's University of Technology Thonburi**  
**Chulalongkorn University**  
**Kasetsart University**  
**Thammasat University**  
**De La Salle University**  
**Institut Teknologi Bandung**  
**Universitas Gadjah Mada**  
**Universitas Indonesia**

Special Thanks to **King Mongkut's Institute of Technology Ladkrabang**, this year's host university in Thailand.

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## About the Program

### 1. Program Information

#### A) Outline

Tokyo Institute of Technology (Tokyo Tech) launched the Tokyo Tech-Asia Young Scientist and Engineer Advanced Study Program (Tokyo Tech-AYSEAS) in 2013. It is the successor to the highly successful Japan-Asia Young Scientist and Engineer Study Visit (JAYSES), which was launched in 2007 with the aim of establishing networks of promising young persons in Asia. Tokyo Tech-AYSEAS will continue in the spirit of JAYSES while developing as an integral part of the Global Scientists and Engineers Course, of which it recently became a part. Tokyo Tech-AYSEAS provides opportunities for participants to broaden their horizons through collaboration with students from different backgrounds and to experience the dynamism of rapidly growing Asian industry, education and government.

This year, we visited Thailand, and learned from many people working for manufacturers, government organizations, and educational institutions.

Tokyo Tech-AYSEAS 2013's main theme was "From Asia to the World." The program primarily consisted of the three parts outlined below:

#### 1) Preliminary studies

The Tokyo Tech participants had preliminary study sessions to deepen their understanding of the technical visits planned in Thailand.

- Lectures about several topics
- Visit to Bridgestone's Tokyo Plant
- Basic Thai
- Study and presentations (in English) on the institutions to be visited in Thailand
- Discussion sessions to improve oral English

#### 2) Activities in Thailand

- a. Technical visits to Japanese and Thai companies, government organizations, universities and JICA project sites.
- b. Group discussions and presentations  
At the end of each day, students discussed what they learned at the institutions and exchanged opinions. Based on the discussions,

each group chose one topic and made a presentation on the last day. The topics are below:

- Motorization and traffic jam
- Urbanization and economic discrepancy
- Development of energy resources and protection of environment
- Generation of electricity by nuclear energy and risk assessment for severe accident
- Economic growth and gap between the rich and the poor
- Education and industrial management
- Innovation and regional/global competition
- Receiving country's business growth and sending country's business growth regarding technology transfer
- Cultural difference and understanding on different culture (Understand others/Let others understand us)

### 3) Reporting

Tokyo Tech students held a final reporting session after their return to Tokyo and published the Final Report (this report).

## B) Objectives

- 1) To learn how the latest technologies and methodologies are applied to the practical stage in Thailand, and to learn about the support from and control by government organizations.
- 2) To experience collaboration with students from different nationalities, cultures, languages, viewpoints or fields of study.
- 3) To brush up on their English skills as a tool for international communication.
- 4) To develop close and international friendships.

## C) Participating Universities

Japan	Tokyo Institute of Technology (Tokyo Tech)
Thailand	King Mongkut's Institute of Technology Ladkrabang (KMITL): Host university of Tokyo Tech-AYSEAS2013
	King Mongkut's University of Technology Thonburi (KMUTT)
	Chulalongkorn University(CU)

	Kasetsart University(KU)
	Thammasat University(TU)
Philippines	De La Salle University (DLSU)
Indonesia	Institut Teknologi Bandung (ITB)
	Universitas Gadjah Mada(UGM)
	Universitas Indonesia (UI)

**D) Benefits for the participants**

- 1) Participants can develop an international human network.
- 2) Participants can learn the latest technologies in Thai industry and about the relationships between ASEAN countries and Japan through private investment or Official Development Assistance (ODA).
- 3) Participants receive certificates issued by an Executive Vice President of Tokyo Tech.
- 4) Participants can collect useful information about studying at Tokyo Tech.
- 5) Participants can improve their English skills.

**E) Expected Results**

- 1) More Japanese students will study abroad
- 2) More ASEAN students will study in Japan
- 3) Build a strong, international student network between top-ranking universities in ASEAN countries and Japan

## 2. Schedule of Tokyo Tech-AYSEAS 2013

April ~ May 2013	Announcement and application
June	Selection
June ~ July	Preliminary studies
8~ 18 September	Activities in Thailand
25 October	Final presentation session at Tokyo Tech and publication of Final Report

### Schedule of preliminary studies

Date	Theme
11 Jun	Orientation, Lecture by Prof. Tanaka
18 Jun	Lecture by Prof. Hope
25 Jun	Lecture by Prof. Hanamura
2 Jul	Lecture by Prof. Yamakita
9 Jul	Lecture on Thailand and Thai lesson by Thai students
16 Jul	Visit to Bridgestone's Tokyo Plant
23 Jul	Pre-trip presentation

### Schedule of Activities in Thailand

<b>Date</b>	<b>Event</b>
<b>8 Sep</b>	Participants arrive in Bangkok
	Ice Breaking Session
<b>9 Sep</b>	Opening ceremony at KMITL
	JICA Project (Bangkok Water Supply Improvement Project)
<b>10 Sep</b>	KMUTT
	Nissan Motor Co., Ltd.
<b>11 Sep</b>	National Science and Technology Development Agency (NSTDA)
	PTT Public Company Limited
<b>12 Sep</b>	AGC Flat glass (Thailand) Plc.
<b>13 Sep</b>	Bangchak Petroleum Public Company Limited
<b>14 Sep</b>	Sightseeing
<b>15 Sep</b>	Sightseeing
<b>16 Sep</b>	Preparation for presentation and Cultural Exchange Party
<b>17 Sep</b>	Preparation for presentation
	Final Presentation and Closing ceremony
<b>18 Sep</b>	Participants leave Bangkok

### 3. Selection

#### A) Tokyo Tech students

##### 1) Announcement at Tokyo Tech

The Tokyo Tech-AYSEAS administration office announced the program through its website, posters and flyers in April. They had briefing sessions on several occasions including the Study Abroad Fair and English events on campus.

##### 2) Application

Applicants submitted an essay with their application titled “What is your purpose and expectations for joining Tokyo Tech-AYSEAS?” within 500 words in English by 20 May 2013. The number of applications this year was 25.

Statistic of application (by nationality and gender)

Nationality	Female	Male	Total
China	1	3	4
Japan	2	18	20
Malaysia		1	1
<b>Total</b>	<b>3</b>	<b>22</b>	<b>25</b>

Statistic of application (by grade, school and gender)

Years of Study	Grade	Female	Male	Total
Undergraduate	B1		2	2
	B2		1	1
	B3	1	3	4
	B4	1	7	8
<b>Total of Undergraduates</b>		<b>2</b>	<b>13</b>	<b>15</b>
Graduate	M1		6	6
	M2	1	3	4
	D1			
	D2			
<b>Total of Graduates</b>		<b>1</b>	<b>9</b>	<b>10</b>
<b>Grand Total</b>		<b>3</b>	<b>22</b>	<b>25</b>

##### 3) Interviews

Tokyo Tech-AYSEAS Working Group (WG) members interviewed the

applicants in June. The applicants were divided into six groups of 3-5 persons. They were asked to have a discussion for 20 minutes and to give a presentation about their conclusions. The topic was “In the last decade social networking systems such as Facebook and Twitter have become increasingly popular ways of distributing information around the globe. As global citizens how can we use these services and how can we tackle potential problems of false information?”

4) Criteria for Selection

The essays were scored based on the applicant's English ability, logical composition, and eagerness. In group discussions, applicants were appraised by assertiveness, cooperativeness, logicity, calmness, and attitude by Tokyo Tech-AYSEAS WG members.

B) Students from partner universities

Students from partner universities sent their applications to Tokyo Tech. There were 52 applications from ten universities this year. The applications were sent for selection to the applicants' home universities, and 27 students participated in the program.

The certificates signed by the Executive Vice President of Tokyo Tech were given to the participants.

Statistic of application (by country and gender)

Country	Female	Male	Total
Indonesia	10	9	19
Philippines	2	2	4
Singapore			
Thailand	15	11	26
Viet Nam	2	1	3
<b>Total</b>	<b>29</b>	<b>23</b>	<b>52</b>

## Preparatory Studies in Japan

### Outline

Before going to Thailand, Japanese participants had two kinds of preparatory sessions: lecture sessions and discussion sessions. In addition, we visited a Japanese company-- Bridgestone.

#### **1. Lecture sessions**

In every session, we listened to lectures that included discussion, group work and watching videos. Schedule and contents are shown as below.

- 1) **11<sup>th</sup> June:** Inter-Cultural Communication and Self-Motivation Assessment for improving our global involvement (by Prof. Yoshitoshi Tanaka)
- 2) **18<sup>th</sup> June:** Respecting the other, learning from difference and similarity (by Prof. Tom Hope)
- 3) **25<sup>th</sup> June:** Energy issues for sustainable community (by Prof. Katsunori Hanamura)
- 4) **2<sup>nd</sup> July:** Understanding rules, discussion of strategies and machine design for pseudo RoBoCoN (by Prof. Masaki Yamakita)
- 5) **9<sup>th</sup> July:** Thai language and culture (by Thai students)
- 6) **23<sup>rd</sup> July:** Pre-study presentation

In the pre-study presentation, we made a presentation to share the information about companies which we would visit in Thailand. We were divided into three groups and each group made a presentation about (A) KMITL and JICA, (B) NISSAN and NSTDA, and (C) PTT and Bangchak.

#### **2. Discussion sessions**

During summer vacation, we held two discussion sessions on our own, aiming to improve our oral English. Schedule and contents are shown as below.

- 1) 5<sup>th</sup> August 13:00-15:00 "TALK about Japan"
- 2) 7<sup>th</sup> August 15:00-17:00 "TALK about South East Asia"

#### **3. Factory visit**

We visited a Japanese company Bridgestone on 16<sup>th</sup> July.

On the following pages, you will see detailed reports about (1) Lecture about Thai language and culture, (2) Discussion sessions and (3) Factory visit.

## (1) Lecture about Thai language and culture

**Reporter:** Jiang Jiawen (Mia)

**Date & Time:** July 9th, 2013, 16:50~18:20

**Program:** Lecture on Thailand by Thai international students

### **Contents of visiting and Reporter's comment:**

On the last lecture before the preliminary-study presentation, we welcomed two international students who come from Thailand to gain more understandings about Thailand. In their lecture, they talked about Thailand's religion, currency, seasons, Thai sports and so on. Since we are going to visit Bangkok during our tour, the two Thailand students shared a lot of information about it's attraction, shopping centers, famous food and so on.

The most exciting part on that day is the Thai language part. In order to have a safe and happy trip in Thailand, the international students prepared many Thai words and phrases for us, like greeting, self introduction, numbers, buying things, asking for directions, getting in a taxi, order food and even flirting. They are so useful when we arrived at Bangkok, since it helped us to get on well with Thai students in a shorter time.



Group Photo

### **Q&A:**

Q2: How to say let's go drink tonight?

A2: Pai doom gan mai?

## (2) Discussion Sessions

**Reporter:** Inose Yu (Yu)

**Date & Time:**

August 5th, 2013, 13:00~15:00 “TALK about Japan”

August 7th, 2013, 15:00~17:00 “TALK about South East Asia”

**Contents and Reporter’s comment:**

**1) “TALK about Japan”**

- 2 minutes speech---“Introduce Japan!”

Every participant prepared and gave a 2 minute speech about Japanese culture. The purpose of this activity is to practice of English speech as well as gain further understanding of Japanese culture before we go to another country. We also had Q&A session.

- Discussion---“What will we perform in the Cultural Exchange Session”

Participants were divided into 3 groups and discussed about our performance at cultural exchange session. After the discussion, each group made presentation about their result and the performance was decided by voting and discussion among all members.

**2) “TALK about South East Asia”**

- 2 minutes speech---“South East Asia and Me”

Each participant gave a speech about the relationship between South East Asia and themselves. They talked about their friends, memory, favorite food and stars in South East Asian countries. Q&A session was also held.

- Discussion “Souvenir from Japan”

We discussed about what kind of souvenirs we will bring to participants from other countries.

In those sessions, we could practice English speech. Some of the presenters prepared some goods such as a photo to make audience understand the contents more clearly. By listening to these speeches, we could learn several ways of giving a speech. In addition, Q&A session was very exciting because we discussed about our familiar topics. Therefore, hopefully, it would be a good practice for Q&A session during our technical visits in Thailand.

### (3) Bridgestone Co.

**Reporter:** Inose Yu (Yu)

**Date & Time:** July 16th, 2013, 12:30~ 17:30

**Program:** Presentation about company, Exhibition and Factory tour

#### **Contents of visiting and Reporter's comment:**

##### **1. Presentation about company**

One of the researchers explained about their history, business and products. Since she was a researcher, she kindly answered even our technical questions.

##### **2. Exhibition**

We had the chance to visit exhibitions about products and history of Bridgestone. Two of the most amazing exhibitions by the reporters were real tires which were used in F1-race and a real seismic isolation device (using rubber), which is gathering attention nowadays after the big earthquake in 2011.

##### **3. Factory Tour**

During factory tour, we saw the forming and trimming processes of tires. In addition, Bridgestone is producing eco-friendly tires that can improve fuel efficiency. We rode on bicycles with normal and eco-friendly tires to feel their difference.



Seismic isolation device



Group photo

#### **Q&A:**

**Q1:** We saw an indicator of noise level to prevent noise pollution at factory tour but how about smell pollution? (I asked this question because the tire factory had very strong smell.)

**A1:** We don't have the indicator for smell but we are making an effort to minimize the smell pollution. To prevent smell from leaking, we are considering arrangement of machines. The smell at the factory comes from natural rubber. Interestingly, synthetic rubber doesn't have such strong smell.

## Technical Visit

### Outline

The 'technical visit' is the main activity of AYSEAS. We visited nine organizations in Thailand and learned as many things as we can from factory tours and presentations there.

These experiences helped us to think about the current situation in Thailand, relationships between Thailand and other Asian countries, and environmental issues in Thailand.

They were also useful when we thought about technology. For example, in the organizations, there were many machines from Japan, China and so on. In Thailand, technological transfer was implemented. As students in science and engineering majors, we could learn current situation from such viewpoints.

We also had chances to understand staffs' thinking about their work through Q&A session.

From the next page, we will share the information of each organization as well as what we learned through our visit.

### Schedule

September 9 <sup>th</sup>	King Mongkut's Institute of Technology Ladkrabang (KMITL)
September 9 <sup>th</sup>	JICA (Bangkok Water Supply Improvement Project)
September 10 <sup>th</sup>	King Mongkut's University of Technology Thonburi (KMUTT)
September 10 <sup>th</sup>	NISSAN
September 11 <sup>th</sup>	NSTDA
September 11 <sup>th</sup>	PTT
September 12 <sup>th</sup>	AGC
September 13 <sup>th</sup>	Bangchak (Oil Refinery)
September 13 <sup>th</sup>	Bangchak (Solar Farm)

## King Mongkut's Institute of Technology Ladkrabang (KMITL)

**Reporter:** Miura Kengo (Ken)

**Date & Time:** September 9th, 2013, 9:30~ 12:00

**Program :** Opening ceremony & Presentation of general information about KMITL

### **Contents of visiting and Reporter's comment:**

King Mongkut's Institute of Technology Ladkrabang (KMITL) is a leading research and educational institution, which is known as the top-ranking engineering institute in Thailand. It is located in the city of Bangkok and was founded in 1960 under the technical support of Japanese government. KMITL has grown to include seven faculties such as engineering, architecture, science, industrial education, agricultural technology, argo-industry, and information technology and each faculty is located in the different building.

The campus size is much larger than Japanese university that there is a station in the campus, so students had to move by bike in the campus. I was also surprised that there were a lot of big lizards in the campus.

KMITL cooperates with several institutes, such as Tokyo Tech, Sirindhorn International Institute of Technology (SIIT) and National Science and Technology Development Agency (NSTDA), aiming at developing the human resources as worldwide researchers and high-level engineers. Especially, KMITL have partnered with Thailand Advanced Institute of Science and Technology to offer international Master's degree in Automotive Engineering.

According to industrial development in Thailand, KMITL has developed and nowadays, it is said that the 30% of engineers in Thailand are KMITL graduates. Of course, KMITL is necessary for Thailand industrial field.



Opening ceremony



Coffee break

## **JICA**

**Reporter:** Azuma Reo(Reo)

**Date & Time:** September 9th, 2013, 14:30~16:30

**Program:** Presentation of general information about JICA and JICA Bangkok, Q&A session.

### **Contents of visiting and Reporter's comment:**

JICA (Japan International Cooperation Agency) is a Japanese government-related organization that works to support development in other countries. JICA has more than 100 footholds abroad and developed 150 projects in the world. They have 3 ways of cooperation. First is the technical cooperation. JICA sends professionals to the country or do training to the local people. Second is the loan assistance. Third is the grant aid. In this program, we went to "MWA" Thailand water board, which receives all three ways of aid from JICA. This institution is the biggest facility of clean water in Southeast Asia. We learned the history of Thailand water board and listened to the presentation of each facility in detail, the activity of NWTTI, presentation on how to clean water and the problems they are facing now. After that, we visited the control room and the facility of clean water. In addition to other methods, this water board has a unique way to check how polluted the water is. They raise some freshwater fish in the water of waterworks and watch whether the fishes are anomaly or not. Now they have the problem. They clean water in their facility but the water becomes dirty outside the facility through dirty water pipes. It has become a wasting process. They will continue to make an effort to provide water that is clean enough for the people all over Thailand to drink.



### **Q&A:**

**Q:** In this institution, you use freshwater fish to know whether the water is polluted or not. How and what kind of fish are chosen for the inspection of the water pollution?

**A:** When we do the new test, we can use different fish but the fish in the tank should be the same. The reason why we use fish for this inspection is because we can dissect them to find out what happened to the water.

## King Mongkut's University of Technology Thonburi(KMUTT)

**Reporter:** Nomura Yoshinari (Yosshi)  
**Date & Time:** September 10th, 2013, 9:00 ~ 13:00  
**Program :** Presentation of general information about KMUTT, Library tour.

### **Contents of visiting and Reporter's comment:**

King Mongkut's University of Technology Thonburi (KMUTT) is a leading technology academy in Thailand, focusing on teaching and researching in engineering and technology. The University was named after His Majesty King Mongkut, King Rama IV who is respected as the father of Thai Science. KMUTT was established in 1960.

King Mongkut's University ranked in the 351-400 band in its debut in the Times Higher Education rankings.

After the presentation we visited KMUTT library. KMUTT library is a central office in KMUTT and supports the university's missions by providing education and encouraging research. The library adopts some Japanese culture to make the atmosphere relaxing. For example, in the 5<sup>th</sup> floor there is a space where people sit down on the ground using a "zabuton".

The relaxing atmosphere enables students to make creative idea.



Flag of KMUTT



Group photo

### **Q&A:**

Q1: What is the meaning of the flag's color?

A1: Orange comes from the dharmaraksa flower (KMUTT sign flower), and yellow comes from the King.

Q2: What's the difference between School and Faculty?

A2: School is smaller than Faculty.

## NISSAN

**Reporter:** Takahashi Shinsuke (Shin), Kumagai Yoshiki (Kuma)  
**Date & Time:** September 10th, 2013, 13:30~ 16:30  
**Program :** Presentation of general information about NISSAN, Factory tour and Q&A session.

### **Contents of visiting and Reporter's comment:**

We visited NTCSEA (NISSAN Technical Center South East Asia). This institute is a branch of NISSAN motor Asia Pacific co. ltd. At first, we heard the presentation of the basic information about NTCSEA. After that, we visited the factory. We could see car assembly lines. Finally, there was Q&A Session.

Two points impressed us very much. First, in the development of each eco-car, by using common parts to different vehicle types, NTCSEA produces them in the same assembly line. This has an advantage of increasing the efficiency of the production line. Second, in order to reduce the cost of eco-car, they increase the localization ratio. To realize 100% localization of steel for the platform of the new March, they use low-intensity steel. Body technologies are implemented to achieve performance requirement. Since my (Kuma) major is material science, it was a fresh story.



NISSAN building

### **Q&A:**

**Q:** At the factory, according to the presenter, some NAVARA assembly lines have been changed to MARCH assembly lines. Is this because the demand for NAVARA reduced?

**A:** NTCSEA are outsourcing the assembly of NAVARA to other companies. It does not mean the reduction of the demand for pickup trucks.

## NSTDA

**Reporter:** Kameyama Atsushi (Kame)  
**Date & Time:** September 11th, 2013, 9:30-11:30  
**Program:** Presentation of general information about NSTDA, Q&A session.

### **Contents of visiting and Reporter's comment:**

NSTDA (National Science and Technology Development Agency) is a research center in Thailand. The minister of Science and Technology established it in 1991. Its vision is to be a key partner of R&D, technology transfer to commercial society. They aim to make collaboration research in university and to develop in company. Undergraduate students from other universities can do research here. Tokyo Tech Thailand office is in here. Every year, many students come to Tokyo Tech from here under the help of their program. They have network not only with the university or company in Japan, but also with research institute in other countries.

NSTDA has 5 departments: 4 for technical research and 1 for technology management. Their research is focused on Agriculture and Food, Energy and Environment etc. These are related to problems in Thailand.

Some of their works are to support the researches and make collaboration between research and business. For example, they make loan to laboratory and promote the research as well as giving advices on how to do business using one's research.

In this visit, they showed us some researches. One is about tire wheel design and calculation of its load stress. This technology enables to skip crash testing and to fasten the tire wheel development. Other one is about fungus. They keep so many kinds of fungus refrigerated and making library. They research the property of fungus, and have fungus-matching service.



NSTDA building



Group photo

### **Q&A:**

**Q:** What is the merit of using this calculation method?

**A:** The company can reduce the cost and time, so they can be more competitive.

## PTT Public Company Limited

**Reporter:** Nakai Soma (Soma), Jiang Jiawen (Mia)

**Date & Time:** September 11th, 2013, 13:30~ 16:30

**Program :** Presentation of general information about PTT, Factory Tour, Q&A session

### **Contents of visiting and Reporter's comment:**

PTT (formerly known as the Petroleum Authority of Thailand) is an oil and gas company. PTT is one of the largest corporations in Thailand.

Fossil fuel is limited. So they took two countermeasures. One is “enhance fossil fuel”. Another is “develop alternative fuel”. Through two methods, their concept is “low energy, low waste”, and their vision is “Innovation and Breakthrough technology.” In order to run along these thoughts, they do not only research and develop, but also survey and infrastructure development. Each field is divided into each department, which are interactive. This structure makes it easy to flow their research result in the correct sequence. Now, they give high priority to human resource development and business expansion. Actually, PTT owns extensive submarine gas pipelines, network of LPG terminals, petrochemical products, oil and gas exploration, etc. In addition, PTT owns restaurants, super markets, convenience stores, etc. They suggest that their effort would save energy resource and environment.



Delicious PTT lunch

### **Q&A:**

**Q:** As a petroleum company, why do you develop the coffee business?

**A:** In fact, only 1% income of PTT comes from our gasoline station. We did sell a lot of gasoline, but the profit is really small. Actually, in order to sell it, we lower the price of gasoline from 16 baht/L to 10.5 baht/L. While as a result, people began to use it without concerning environment. In contrast, our coffee business—*AMAZON COFFEE*, in spite of its small market, has a much higher margin.

## AGC Flat glass (Thailand) Plc.

**Reporter:** Inose Yu (Yu), Sawada Jun (Jun)  
**Date & Time:** September 12th, 2013, 14:00~ 16:30  
**Program:** Presentation & Tour (Float glass plant)

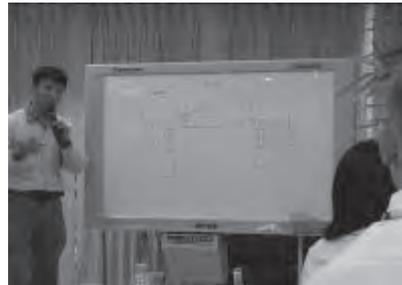
### **Contents of visiting and Reporter's comment:**

In the presentation section, the presenter showed the history about the company, their business, their products and production process of float glass. To support our plant tour, they especially explained about production process flow and property of their products including technical information that attract us engineering students.

After the presentation, float glass plant tour is conducted. We could see the process of float glass production from melting process to inspection process. By walking along with plant, we felt hot because of the heat coming from furnace. The engineer explained that they are trying to reduce such kind of heat loss. Q&A session after the tour was so excited with full of the questions.



Entrance of the factory



Q & A session

### **Q&A:**

Q1: Thai Glass Company (TGC) was established in 1963 but acquired by AGC in 1964. Why the duration when the company had been run by only TGC is so short?

A1: Because the requirement from both of them matched so well. TGC (Thailand) wanted technology since only EU and Japan were the producers of glass. AGC (Japan) wanted silica sand that is produced in Thailand and Asian market.

Q2: What about waste management of your factory?

A2: There are 3 kinds of waste from our factory: Solid, water and gas. Since we recycled missed batch ingredients and cullet, solid waste comes only from the office. Wastewater contains little dirtiness because it comes only from the cooling process. About air pollution, when heavy oil was used as fuel, the higher quality machine was introduced to reduce sulfur dioxide emission. Nowadays, natural gas replaced heavy oil, thus emission has been dramatically reduced.

## Bangchak & Sunny Bangchak

**Reporter:** Saito Minako (Mina), Fukai Katsuyuki (Katsu)  
**Date & Time:** September 13th, 2013, 11:20~13:30, 16:00~18:00  
**Program :** Presentation of general information about Bangchak, Tour of oil refinery plant, Q&A session  
 Presentation of Sunny Bangchak, Q&A session, Tour of solar plant

### Contents of visiting and Reporter's comment:

#### Bangchak

Bangchak (Bangchak Petroleum PCL) is a petroleum company. Its maximum crude-processing capacity is 120,000 barrels per day and it holds 10% share in Thailand. The company's main business is refinery business. It imports crude oil from the Middle East, the Far East and domestic sources (e.g. PTT). They refine oil by changing temperature, like Table 1.

Table 1 refining temperature

	Temperature /°C
Fuel gas + LPG	< 40
Naphtha	40 ~150
Jet	105 ~235
Diesel	235 ~385
Fuel Oil	385++

World Crude Oil to Thailand



They are also doing refinery improvement projects, which consist of EURO IV, Natural Gas for Production, Efficiency Improvement. Besides, Bangchak is also doing 3E's project. 3E means energy, efficiency and environment. For this project, they introduced a new co-generator to improve efficiency, energy consumption and to minimize CO<sub>2</sub>'s emission. They have many eco-friendly products, for example Biodiesel B5. It consists of 95% Diesel and 5% B100 (palm oil). On their website, we can see their present environmental quality, which includes air quality around refinery, effluent quality at refinery, air emission refinery. They also send these data to Thai government. Bangchak has been taken part in the activity to cooperate with the civil society. They also bought used vegetable oil from people at 161 fresh markets in Bangkok.

After the presentation, we went to the plant tour and saw the control center. Most of the facilities were automatically controlled and monitored by surveillance cameras.

#### Q&A:

Q: What is the meaning of the company's name and symbol?

A: "Bangchak" is the name of a typical kind of trees in Thailand. And the symbol represents the leaf of these trees. Furthermore, it also shows that Bangchak

cares about environment.

### **Sunny Bangchak**

Sunny Bangchak is the largest solar power plant in Southeast Asia, owned by Bangchak Public Petroleum Co. It is located in Ayutthaya, forty kilometers outside Bangkok, and it was built based on the solar power plant project which is a part of new business for growth and risk mitigation. This project focuses on renewable energy, clean and stable income, at the same time contributes to the government's renewable energy policy. This plant generates electric power (67M kWh) except bad weather or maintenance time. It also contributes to reduce CO<sub>2</sub>'s emission.

Bangchak has already built three solar power plants including the plant we visited and is going to build the fourth plant by the middle of 2014. These plants are expected to generate 250M kWh per year, which can supply electric power for 156,000 households. After visiting Sunny Bangchak, I thought the government and companies in Thailand are strongly concerned with energy problems and environmental problems. That's because the government promotes introducing renewable energy, and companies like Bangchak support this policy and are developing new energy (bio fuel, solar power etc.). I think companies should cooperate with other companies and at the same time we have to build the system, which encourages companies to compete to develop renewable energy.



Solar power plant



Group photo in front of sunny bangchak

### **Q&A:**

Q: Is solar power plant suitable for countries like Thailand?

A: Solar power plant is suitable for Thailand. Because solar radiation in Thailand is better than other countries although it isn't as good as in the desert.

## **Discussion and Presentation**

### **Outline**

We had Cultural Exchange, Discussion and Presentation in Tokyo Tech-AYSEAS 2013. We discussed and prepared for the final presentation everyday. In Tokyo Tech-AYSEAS 2013, all participants were separated into 7 groups, and each group had to decide the topic of their presentation during the technical visits in Thailand.

We shared what we had learned there and our opinions after each technical visit. In the process, each group discussed and chose one of the following topics or one trade-off topic related to the theme of this program “From Asia to the World”. Each discussion group consisted of students from many countries, the Philippines, Thailand, Indonesia, China, Malaysia and Japan. Through discussions, we shared information of each country and gained new standpoints. Students from each country have different backgrounds, so we could think about the topic more deeply by sharing our knowledge and opinions, and finally reached conclusion. From the next page, each group describes the detail of their final presentation.

### **Schedule**

September 9th~13th: Information sharing for each day @KMITL

September 16th: Preparation for presentation & Cultural Exchange @KMITL

September 17th: Preparation for presentation & Final presentation @KMITL

### **Options of topic in final presentation**

- #1. Motorization and traffic jam
- #2. Urbanization and economic discrepancy
- #3. Development of energy resources and protection of environment
- #4. Generation of electricity by nuclear energy and risk assessment for severe accident
- #5. Economic growth and industrial management
- #6. Education and industrial management
- #7. Innovation and regional/global competition
- #8. Receiving country's business growth and sending country's business growth regarding technology transfer
- #9. Cultural difference and understanding on different culture

### **Topic of final presentation**

Group1: #6, Group2: #7, Group3: #1&3, Group4: #7

Group5: #3&9, Group6: #3, Group7: #3

**Group 1:** Education and Industrial management  
**Members:** Take, Kuma, Ploy, Por, Kuk-Kik, Mente

**Contents:**

**1. Background**

What is Education? We think education is to find new things. What is Management? We think management is to contribute many things to the society. Education and industrial management have strong relationship and because of the lack of the balance between them some problems occur. The first example is solar panel. In this example, education is superior to industrial management. That is, since the technology of solar panel is already enough, the environment to spread it over society is not good. So solar panel is not popular yet. Another example is the electric car. This is an example in which industrial management is superior to education. Since the environment to produce it is enough, the technology of electric car is not enough (e.g. the capacity of the battery is still low). We saw solar panel at Sunny Bangchak and electric car at PTT, so we got interested in this topic.

**2. Definition**

Let's define education and industrial management again. Education: Get something new, apply for daily life, earn more benefit. Industrial management: A business of manufacturing products, a chance to make a network, make a profit

**3. Relationship between Education and Industrial management**

There are strong relationship between education and industrial management (Fig.1). Education offers their technology to industrial management so industrial management can improve their products quality. Industrial management offers good environment to researchers by financial support, providing scientific facilities and so on. One example is flash flood-tolerance rice. In Thailand, flood is a serious problem and it makes rice production down. NSTDA developed the new kind of rice and offer them to farmers. Farmers can prevent damage from flood, and NSTDA gets trust from them. This example shows that, in order to enhance the products quality, we need researchers.

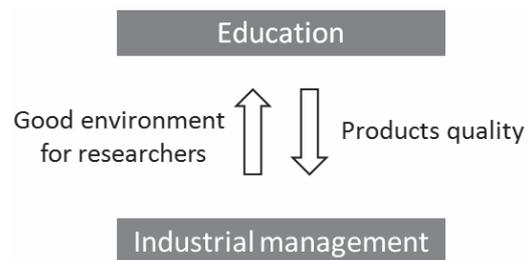


Fig.1 Relationship between Education and Industrial management

How can we strengthen the relation between education and industrial

management? Let's see the former examples of solar panel and electric car. Apparent problems of these examples are as follows:

Solar panel: High cost of semiconductor materials, limitation of electric generation

Electric car: Unsatisfied efficiency of car engine, high cost of production

To solve these problems, we think that we need the mentor, which connects education and industrial management (Fig.2).

Examples of mentor are JICA and NSTDA. JICA transfers Japanese water supply technology to Thailand, so JICA is working as a connector between education and industrial management. NSTDA gets CAD software from company and then develops the skill to improve the design of wheel. Also they offer that skill to companies.

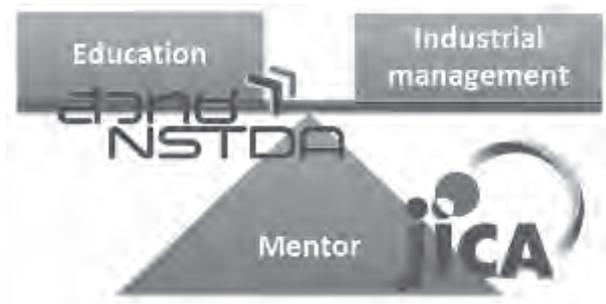


Fig.2 Relationship between Education, Industrial management, and mentor

#### 4. Conclusion

We discussed the relationship between education and industrial management. Education improves products' quality, and industrial management supplies good environment for researchers. To maintain the good relationship, we need mentor.

**Group 2:** Innovation and regional /global competition  
**Members:** Mint, Dicky Li, Ploy, Frame, Yosshi

**Contents:**

**1.Introduction**

Through technical visits, most of us felt innovation is fundamental things in this century and competition is really severe in all industries. So, we chose No.7 topic: “Innovation and regional/ global competition” as our presentation’s theme.

After choosing this topic, we decided to choose one industry to discuss deeply and we chose car industry. There are two main reasons why we chose car industry. First, rapid innovations and severe competitions actually exist in car industry. Second, there are relations with other fields: bio, IT, petro, material and we can use our own knowledge.



Relationship with other industries

**2.Discussion**

When we visited NISSAN, the presenter Mr. Moriya said “Research on new material is being undertaken to meet the demands for next generation cars,” and we noticed that the car industry has a relationship with the material industry, and innovation in the material industry mediates innovation in the car industry.



Discussion

Then we thought not only the material industry but also other industries mediate innovation in the car industry. So, first we researched how our major relates to car industry and how innovations of our major affect the car industry.

After learning the relationships between the car industry and other industries, we discussed how companies can survive global competition.

First, we focused on NISSAN as an example of making innovation to survive global competition. NISSAN has been expanding their sales in Thailand. The reason is localization. In Thailand, NISSAN has not only a factory but also a research and development center. NISSAN recruits many Thai people to research the Thai market and understand Thai people’s needs effectively. Based on the research, NISSAN is making cars that meet the needs of the Thai people.

Second, we focused on German car companies as a successful example of survival in global competition.

Then, we discussed how to make innovation.

### 3. Our suggestion

We believe that we should focus on two aspects of innovation: Business Management innovation and Technical invocation.

#### Business Management innovation

With the continuous development of society, people have become increasingly come to demand good products and a comfortable life. In order to meet people's needs, companies must grasp the consumer's needs accurately, which requires companies to have timely insight to be able to respond quickly to market trends. Therefore, companies need to set up the appropriate internal structure so that they can ensure the smooth conduct of business. For example, excellent local market research and cost reduction are pretty crucial.

#### Technical invocation

At the same time, with the accurate prediction of future market, what scientists need to do is just following this route doing R&D. At this time, adequate funding for research which sometimes needs government's support and the co-development environment between university and enterprise are the most important two factors.



Members of Group 2

### 4. Conclusion

There is a strong relationship between creating innovation and surviving competition. In order to achieve it, we need collaboration across a wide range of fields, other business sectors and also the government.

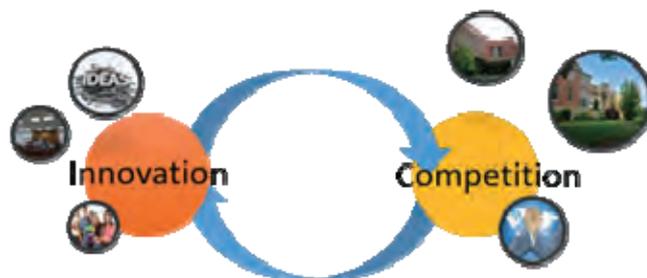


Fig.2 Relationship between Innovation and Competition

**Group 3:** Development of Energy Resources and Protection of Environment with Cultural Difference and Understanding on Different Culture

**Members:** Kame, Firu, Yada, Angun, Novan, Dhika

**Contents:**

**1.Introduction**

Our group decided to mix two themes. We chose No.3, the development of energy resources and protection of environment and No.9, the cultural difference and understanding on different culture. The main reason why we mixed up these themes was that we were from different 4 countries, Japan, Thailand, Indonesia and Malaysia. As you all know different countries have different point of views. Even people in the same country have various opinions. Due to this we thought it would be necessary for us to know each country's culture and their way of thinking before making every important decision.

The demand of worlds' energy keeps on increasing from time to time so we believed that this was a very good topic to be discussed. Besides, we also became interested in the development of energy from each technical visit.



The two figures on the right show: (a) the breeding of green algae to produce oil that can generate electricity (biomass) and (b) a portion of hundreds solar panels in one of our technical visit in Sunny Bangchak.



**Fig.1**

**2.Discussion**

Considering about renewable and non-renewable energies, we decided to discuss about nuclear, biomass and solar energy. First of all, we gathered each energy advantages as well as its bad affects towards the environment. Next, we discussed about each country's reaction and future plans for each type of energy. As different countries have their own level of technologies skills and supply of resources, it was a very interesting and informative brainstorming.

During discussion, we started from confirming advantages/disadvantages of each energy resources. For example, nuclear power can generate much energy and doesn't generate CO<sub>2</sub>, but we don't have technology to handle radioactive material. Nuclear was main energy resource in Japan, but after Fukushima nuclear power

plant accident, we faced serious problem and all power plants in Japan have stopped. Furthermore, ASEAN countries had plans to make nuclear power plant, but all plants have stopped.

We also confirmed each country's condition. For example, Indonesia is consisted of over 14,000 islands. Each island is very small and far from main island and has small population, so it's very difficult to lay undersea cable.

### **3.Our suggestion**

We made suggestion for each energy resources, from Asia to the world.

For nuclear, the condition of nuclear power plant accident should be opened clearly. Second is to make a system to manage the reactor well from construction until prevention from the disaster. South East Asia countries can follow. Third is education for engineers and common people are desired to overcome the accident.

For biomass energy, using waste food is recommended, in order not to raise food crisis. Malaysia, Indonesia and Thailand have the potential to benefit from resources. Such countries should be the leaders in this field. But for environmental protection, we need to avoid excessive deforestation.

For solar energy, problems of solar energy are low conversion efficiency and its life and difficulty of solar panel recycling which is caused by its complex structure. So countries that have technology should investigate and government should keep on promoting the use of solar energy.

### **Our members**



### **4.Conclusion**

Through discussion, we exchanged information (emotion, knowledge, opinion, strategy, problem, dream and etc...) of each student. This experience broadened our way of thinking, knowledge of southeastern Asia and how to express our opinion.

**Group 4:** Global Competition

**Members:** Mia, Mina, Andrew, Marlin, Eric, Flash

**Contents:**

**1.Introduction**

After visiting many companies in this program, we found that they all have their particular characteristics in doing business. During daily meetings, our group members expressed their impressions on each company and analyzed what they have in common. Through many discussions, we agreed on 3 top factors that a global competitive company should have. They are innovation, the environment and investment. In our final presentation, we proposed the model of an ideal company. Besides the 3 top factors, an ideal company should also provide comfortable working conditions and be active in forming collaborations.



**Final Presentation!**



**Daily discussion!**

**2.Three necessities of an ideal company**

**(1) Innovation & Research**

**Innovation** is important, because the ideal company has to progress every day. For example, Bangchak started new energy projects, such as solar farms, biodiesel. Bangchak is a petroleum company, but petroleum will be exhausted in the future. Therefore, they have to find other energy sources to survive.

In order to get enough knowledge to innovate, **research** is also important. Technology progress every day, so in order to compete with other companies, the company has to research continuously and make the best product. For example, AGC made the laminated glass that made up of two plate glasses and PVB. By putting PVB between the two glasses, the strength got better. Furthermore, it wouldn't break into pieces. Take Nissan as another example. NISSAN made the plastic that has a coarse surface. The light reflects on the coarse surface randomly, so it will look like real leather.

## **(2) Green**

We thought of 6 points that will benefit the business if companies make contributions to being green. They are: ( i ) Realize the responsibility to protecting environment, ( ii ) Taxes and costs can be reduced(according to Thailand's regulation), (iii) Can help solve environmental problems, (iv) New technology and eco-friendly products can be generated, ( v ) Can make a better society, (vi) The company would be sustainable.

## **(3) Widen the investment**

The advantages of expanding the business are that: it can help the company to balance its business and recover quickly from a disaster.

As in the case of PTT, known as a petroleum company, it's largest margin product is their coffee business, which supports the entire economic chain of the company. Another example to illustrate the point that a "wide range of investment could contribute to the company's risk investment" is Toshiba. Toshiba is known for its digital and electronic products. While it's large share in infrastructure (41%!) is the reason why they recovered quickly during the depression.

## **3. Conclusion**

During our discussion, we found that there is a connection between sending country and receiving country during the process of technical transfer. And the innovation generated from the process is the initial point to influence the company's global competition.

**Group 5: Motorization and traffic jam & Development of energy resources and protection of environment**

**Members: Ryu, Katsu, Jun, Palm, Ohh, Ita**

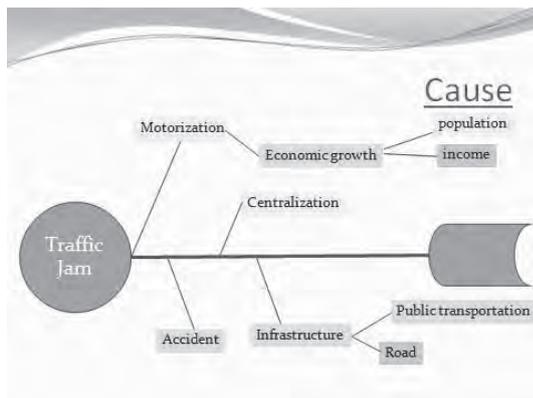
**Contents:**

**1.Introduction**

Nowadays, we think that traffic jam is one of the biggest problems in the world. We can say Bangkok is the worst city of traffic jam, as we experienced. It might be true that traffic jam is the symbol of economic growth, however, it causes serious problems. For example, energy shortage, destruction of the environment, economic loss and so on. We discussed mainly about causes and solutions of traffic jam by using fish born chart. And we summarized the information of the companies we visited especially about environment.

**2.Discussion & our suggestion**

We think there are mainly four reasons why traffic jam is caused.



(i) Motorization

This is caused by economic growth because it brought about increasing income and population. Of course, it is the reason of traffic jam, however it is not a bad thing. The reason of motorization also includes infrastructure and centralization.

(ii) Infrastructure

This includes two things, public transportation and road situation.

First we talked about public transportation. We thought of two reasons why people don't want to use trains. Firstly, the fare of train is much more expensive than that of bus. Secondly, it is very inconvenient to use trains. We cannot reach our final destination by using trains because the number of lines is quite few. We think we cannot use bicycle because of the heavy traffic and dangerous road situation, so we have to use bus or taxi to reach our destination. In this case, people chose only cars instead of trains. So we should improve the trains and arrange the environment for using bicycles.

Next is Road situation. This includes the number of road and road condition. Bangkok has relatively few roads considering the huge number of cars. And there are some small paths almost of which are dead end, therefore we have to use the main street. Moreover sometimes the condition of road isn't good. There are many uneven roads. For these reasons, we have to slow down. That occurs traffic jam.

(iii) Centralization

Thailand had been developed under the plan based on the motorized society like America. So, many companies are centralized in the city where we don't necessarily

need cars, and also people and resource are centralized. People in Thailand go to office or school and so on in the same direction. Therefore, traffic jam is caused.

We thought two solutions to measure this centralization. First, we transfer the government body into suburban city. Second, we make the gap of corporation tax. It means tax is high in urban city and tax is low in suburban city. If we use these solutions, we can accomplish decentralization of economics and population. It will lead to reduce traffic jam.

(iv) Accident

Accident is also one cause of traffic jam. We think there are two types of reasons why accidents are caused, environmental factors and human factors. First, environmental factors are too few signs, signals, traffic mirrors and so on. Second, human factors include drunk, unskillful and careless driving (using some devices like smartphone while driving).

Therefore, we can reduce environmental factors by constructing many signs, and human factors by strengthening punishment and education for drivers.

In these ways, we thought about causes and solutions of traffic jam. But if we solve traffic jam by these solutions, the number of car will increase which will cause further environmental problems. So we also will have to deal with them.

### **3. Conclusion**

Through the program, we found these problems are very complicated. To handle the problems, companies have to cooperate with the government and other industries and even competitors. Even if they do like that, solving the problem is very difficult. Moreover, some problems are related to each other, which makes the problems become more complex.

Of course, the companies we visited are thinking about and making an effort tackling with both problems. But in spite of all their efforts, problems haven't been solved yet like traffic jam in Thailand. We also thought that the situation of environmental problem isn't good. It's really tough problems, but if we don't do anything, the situation will become worse than now.

For our future and our children's future, we must deal with these problems from each standpoint by having the sense of responsibility and ownership.

We should draw the future with our hands!!!

**Group 6:** The development of energy resources and the protection of environment

**Members:** Ken (KMUTT), Ken (Tokyo Tech), Nut, Aswita, Soma, Shin

**Contents:**

### **1.Introduction**

Tokyo Tech-AYSEAS is an exchanging study program. The content is to visit companies, discuss about them and finally make a presentation by each group.

Through this program, we can know the relationship between Japan and Thailand, and get the chance to observe innovation and local industries.

Our group is constructed of 3 Japanese, 2 Thai, and an Indonesian. We discussed about the companies we had visited each day and decided the final topic at the last day.



Our group members

### **2.Discussion**

We shared the information obtained from companies we had visited on that day with each other in daily meeting, and we discussed how to relate it to the topic of our final presentation. For example, on the day we visited JICA that deals with water purification facilities, we talked about localization that is related to JICA. And on the day when we visited NISSAN, we discussed about motorization.

After each discussion, we got a conclusion that many companies are conscious about the impact on the environment by their behavior. So we chose No.6 topic as final presentation topic: “The development of the energy resource and the protection of the environment”. The reason is that we thought this topic would be easy to be associated with each company. This is also a topic that we are most interested in.

### **3.Our suggestion**

For the protection of the environment, we came up with 4 suggestions.

First suggestion is “connect the environment and the economy.” This connection promotes research for the environment.

Second suggestion is “more ecofriendly.” Motivation for ecofriendly comes from our knowledge of “how important energy is” and “how difficult it is to develop renewable energy soon”. So we should share our knowledge with common people.

Third suggestion is “visualization of emission.” Clear targets will make organizations and nations make more efforts.

Fourth suggestion is “right method in right place.” There are various renewable energies and each method has specific characteristics. So we should choose the appropriate methods which match the location

#### **4. Conclusion**

Finally we came up with the strategy for sustainable development. To protect environment, we need to develop two methods: “saving energy” and “developing energy resources”.

Recently, the energy consumption increases from year to year while the limited energy resources will run out sooner or later. As a result, we have to save the energy consumption by using energy effectively and develop the reusable energy resources. In order to develop the global industry sustainably, the development of these methods is necessary, and actually there are a lot of companies that are trying to develop the methods.

Moreover, we thought that promoting these two methods leads to protect environment. If we selected the right methods of the economic development, we could combine the sustainable economic development with the protection of environment.

**Group 7:** Development of energy resources and protection of environment

**Members:** Yu, Reo, Mei, Alin, Cem, Ton, Noon

**Contents:**

### **1.Introduction**

Any activities undertaken by human being need energy. Various forms of energy surround our life. For a long time, we had relied on petroleum as our energy resource. However, because of the limitation of its reserve, its cost had become higher and higher. Therefore, people developed the technology to utilize natural gas instead of petroleum. Especially Thailand, which is one of the natural gas producers, uses natural gas as 27% of its energy resources.



Discussion time



Final presentation

### **2.Discussion**

#### **2.1. Advantages of Natural gas**

There are 3 advantages: less emission, more safety and local production. In terms of emission, usage of natural gas emits carbon dioxide, nitrogen dioxide and sulfur dioxide much less than oil or coal when we use the same amount of materials. In addition, natural gas is safer than petroleum, which had many accidents especially in logistics like the oil spill accident at PTT. Finally, the biggest advantage of natural gas for Thailand is local production. Thailand has many places for exploitation of natural gas. For example, PTT exploit natural gas from Gulf of Thailand (off shore) and also there are some places for on shore exploitation.

#### **2.2. Disadvantages of Natural gas**

There are 3 disadvantages: environmental damage, technical problems and our mind. In terms of environmental damage, natural gas still has carbon dioxide emission. In addition, destruction of the marine ecosystem at exploitation process is also a big problem. Also we have some technical problems for the treatment of natural gas because of its volume and risk of explosion. As the technical problem, we still have energy loss in the process of utilization. For example, as we heard at AGC, glass plant inputs natural

gas 4600 m<sup>3</sup>/hour for its melting process, but there are some heat losses as we could feel the heat coming out from furnace. Finally, the most important thing is our mind: “Since we have much natural gas which is available with cheap price, we can use energy resources as much as we want! ”. This mind is related to the problem mentioned by the vice president of PTT research center: many empty taxis at midnight in Thailand. It would be wrong because of course the reserve of natural gas is also limited.

### **3.Our suggestion**

We find 3 ways to solve this problem through this program. First is “developing energy technology”, improving energy efficiency and developing renewable energy resources. For example, solar energy like Bangchak, Bioenergy (Algae oil at Bangchak/ Bioethanol or Biodiesel at PTT&Bangchak), Hydroelectricity, Wind Power, EV car like PTT and so on.

Next is “action by government”. We think that government’s cooperation is necessary to solve the problem. There are 4 kinds of actions by the government. First is the action toward citizen. For example, Thai government does the campaign about eco-car. If you buy eco-car in Thailand, you can get a subsidy. Next is making the system. For example, Thai government buys the energy produced with solar energy at 8B/kWh but buys the energy produced with conventional energy at 3B/kWh. The third is toward companies. Government sometimes subsidizes a company that does something good for the environment. The last is toward the publi. Construction of infrastructure is very important for development as we heard at NISSAN.

The final point is to “change our minds”. At first, changing our mind to “Energy resources have limitation”. And next we should share this knowledge with the people who have no idea about environmental problems. We should make the knowledge as easily understandable as the entertainment like Bangchak 4D Theater and show it to many people. The last is The Philosophy of Sufficiency Economy and its Three Pillars.

This is our opinion, Thank you.

## Evaluation of Tokyo Tech-AYSEAS 2013

### [Section A] Evaluation for overall Tokyo Tech-AYSEAS 2013

#### *A-1. What was your FIRST MOTIVATION to participate in this program?*

##### Answers

- To meet people from other countries and to build a network.
- To learn culture
- To go to Thailand and to experience something new
- To discuss and to share knowledge with international participants
- Because I received suggestion from professors/ friends/ brothers
- To enhance English skill
- To visit companies in the field of engineering
- Name of University (Tokyo Tech)
- Interested in ASEAN

##### Comment

There are many reasons to participate in the program. Among them, most common reason is to communicate with foreign people and to make a lot of friends. We can guess almost all of the participants are interested in getting knowledge about other cultures as well as enhancing their English skill.

#### *A-2. Were you satisfied with Tokyo Tech-AYSEAS2013? (Rate 1 (Not satisfied at all) to 5 (satisfied very much))*

##### Answers

	All members (36)	Tokyo Tech (16)	Overseas (20)
Average	4.5	4.4	4.6

##### Comment

You can see that all or almost all the students were satisfied with this program. There are no participants who marked less than 3. This result indicates that their first motivations were fulfilled to a certain extent.

#### *A-3. What did you think of schedule arrangement? (Rate 1 (very hard) to 5 (not hard at all))*

	All members (36)	Tokyo Tech (16)	Overseas (20)
Average	3.8	3.7	3.9

#### Comment

There are many points to enhance the schedule arrangement but there are no participants who marked less than 3.

#### ***A-4. Describe your suggestions, ideas, and comments for all of Tokyo Tech-AYSEAS 2013.***

##### Answers

- There are few opportunities to talk with local people besides the participants
- We stay in bus for quite long time
- This experience is our precious memory
- It would be better to let participants gain information quicker
- Good schedule
- The schedule is too tight
- Period should be longer, like about 2 weeks. And please make discussion time longer
- Found the lack of Japanese education system about English, how to discuss and to do presentation
- The period doesn't match with Thai students
- Need more Thai staff
- More free time should be arranged
- It is the most interesting program I ever joined.
- This program should provide a worldwide collaboration between the participants and their university or company.
- We should manage time more efficiently, for example we should select a factory or company that are not so far from the host university.
- PTT lunch is expensive
- We should add other countries' participants
- We can roll the group for the trip because when we go on trip with different country member, we will know their character more
- Company visits are good in terms of seeing and learning from different industries. Sometimes however there are language barriers that limit our understanding.

#### Comment

Overall, the participants gave suggestions about the length and contents of the program, it seems there are a lot more to enhance in the future AYSEAS program.

**[Section B] Evaluation for parts of Tokyo Tech-AYSEAS 2013**

*B-1. Please grade each part of the program (Rate 1 (Not satisfied at all) to 5 (satisfied very much)). Preparatory study program in Japan (only for Tokyo Tech students)*

Answers

<b>Preparatory study program in Japan</b>	<b>Average</b>
Inter-Cultural Communication and Self-Motivation Assessment for improving our global involvement	4
Respecting the other, learning from difference and similarity	4
Energy issues for sustainable community	3.7
Understanding rules, discussion of strategies and machine design for pseudo RoBoCoN	3.1
Thai language and culture class	4.2
Bridgestone factory tour	4.3
Presentation	4.1

*B-2. Please grade each part of the program (Rate 1 (Not satisfied at all) to 5 (satisfied very much)). Programs in Thailand (for all participants)*

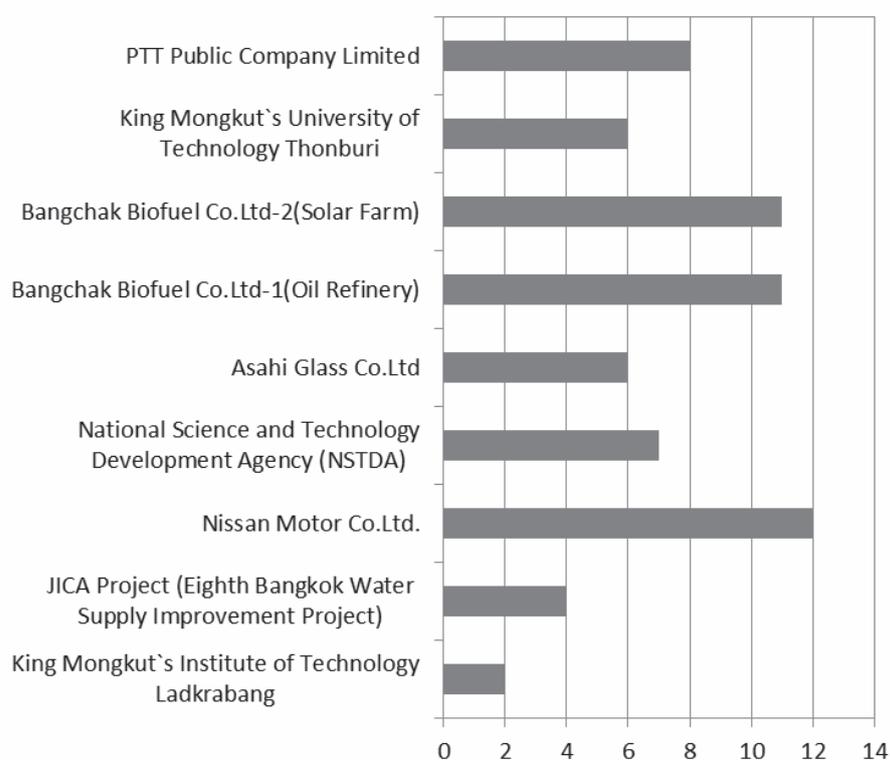
Answers

<b>Programs in Thailand</b>	<b>All members (36)</b>	<b>Tokyo Tech (16)</b>	<b>Overseas (20)</b>
King Mongkut`s Institute of Technology Ladkrabang	4.0	4.1	4.0
JICA Project (Eighth Bangkok Water Supply Improvement Project)	3.6	3.2	3.8
Nissan Motor Co.Ltd.	4.1	4.1	4.1
National Science and Technology Development Agency (NSTDA)	4.1	4.3	3.9
Asahi Glass Co.Ltd	4.1	3.7	4.4
Bangchak Biofuel Co.Ltd-1(Oil Refinery)	3.6	3.5	3.7

Bangchak Biofuel Co.Ltd-2(Solar Farm)	4.6	4.5	4.8
King Mongkut`s University of Technology Thonburi	4.4	4.3	4.5
PTT Public Company Limited	4.0	3.7	4.3

*B-3. Please choose the BEST 3 programs from your viewpoint within technical visits..*

### Best programs



**Fig.1 best programs**

#### Reasons

*King Mongkut`s Institute of Technology Ladkrabang*

- Good facility
- Good meal
- Everything is ok except for the media system
- We can learn Thai culture very well

*JICA Project (Eighth Bangkok Water Supply Improvement Project)*

- Comprehensive explanation
- Good presentation but bad weather to visit

- It was a little bit difficult for me to understand Thai-English
- Good presentation
- Related to my major

*Nissan Motor Co.Ltd.*

- Related to my major
- Factory is amazing
- They are very kind to let us visit their plants
- It was a little bit difficult for me to understand Japanese-English
- I can see all of the producing process of the factory
- Interested in industrial engineering
- Organized program

*National Science and Technology Development Agency (NSTDA)*

- Good presentation
- They might be busy, they did not prepare to show us any laboratories

*Asahi Glass Co.Ltd*

- Good line production, visit burner
- They present and answer very briefly
- It was a little bit difficult for me to understand Thai-English
- Technical explanation

*Bangchak Biofuel Co.Ltd-1(Oil Refinery)*

- They present and answer very briefly and clearly
- It was a little bit difficult for me to understand Thai-English
- I want to see more laboratories except for the control room
- Staff is friendly and I can ask all types of questions

*Bangchak Biofuel Co.Ltd-2(Solar Farm)*

- Amazing green energy development
- Good presentation
- It was a little bit difficult for me to understand Thai-English
- The exhibitions are well organized
- Staff is friendly and I can ask all types of questions
- Easy to understand

*King Mongkut`s University of Technology Thonburi*

- Good library
- Good hospitality

*-Creative building*

*PTT Public Company Limited*

*-They present and answer very clearly*

*-Speakers avoid answering some questions*

*-The researches are interesting and the researchers are very professional and were able to provide us some information*

*-Good vision*

*-Presentation by vice president*

### **[Section C] Evaluation of the discussion and presentation**

***C-1. What did you think about the discussion and presentation (discussion topic, group discussion and final presentation)? Please grade the method (Rate 1 (Not satisfied at all) to 5 (satisfied very much)).***

	All members (36)	Tokyo Tech (16)	Overseas (20)
<b>Average</b>	4.0	3.9	4.1

#### Answers

*-We could not understand some of the topics*

*-We need more time for discussion. Too much things to discuss for the time*

*-We can share our opinions*

*-It is difficult to integrate our way of thinking because we come from different countries, majors and cultures*

*-Some members could not speak fluently. Because of English skill, we could not understand each other*

*-Need some guidelines*

*-Everyone tried to participate in the discussion*

*-I could notice that we have to enhance presentation skills*

*-I could learn a lot of things from foreign people*

*-Good opportunity to develop friendship*

***C-2. Please grade following items (Rate 1 (Not satisfied at all) to 5 (satisfied very much)), then describe your opinion.***

Discussion and Presentation	All members (36)	Tokyo Tech (16)	Overseas (20)
Time for discussion	3.2	2.7	3.7

Number of members in each group	4.6	4.5	4.7
Time for preparation	4.0	3.7	4.3

Answers

Time for discussion

- Short
- Quite efficient
- Proper
- We need more 30 min

Number of members in each group

- Proper
- We can drive our job description efficiently

Time for preparation

- Quite good
- Not enough

**C-3. What did you learn throughout discussing with member?**

Answers

- I can know international students' point of view
- Japanese students should study English very hard
- I can learn a lot of things from seniors
- I can learn Japanese and Indonesian
- I learn culture, exchange and can observe working behavior from each of my group member
- It is quite difficult to understand foreign friends' opinions
- I learn to appreciate other members' effort to deliver their opinion
- Development of energy resource and protection of environment
- Everyone needs to respond on the work
- How to support other participants to speak up
- I can learn nationality, religion culture

**[Section D] Your opinion for the future Tokyo Tech-AYSEAS**

**D-1. What kind of program do you want to join?**

Answers

- Exchange
- Discussion
- Encouraging us to have a leadership
- Visiting the leading companies

- Meeting international students from non-ASEAN too
- Industrial visitation
- Learning other culture or language
- More specific programs
- Visiting oil company

**D-2. Where / Which country should we visit in the next time?**

Answers

Countries	Number
Japan	8
Malaysia	4
Indonesia	8
Europe	1
Singapore	3
Philippines	1
Other	1

**D-3. What did you think the number of days (length) for Tokyo Tech-AYSEAS?**

Answers

Evaluation	Number
Proper	18
Too long	1
Too short	5
Other	1

**D-4. What kind of discussion topic do you want to suggest for the future Tokyo Tech-AYSEAS?**

Answers

- Related to the company we visited

- Traditional culture practice and experiment in science
- Innovation for solving the problem in the country that we went
- About the sustainable development (Economy, Environment, Energy)
- Real act of youth
- Social condition in developing country
- How ASEAN countries grow together
- Technologies and human awareness to the world
- It should be decided up to the country you will visit
- More focus on environment
- World culture

***D-5. Your suggestions, ideas, and comments for future programs.***

Answers

- We need more time to discuss and to visit company
- Do not go to the company where we cannot see their plant
- You have to interview future applicants, not us
- This program is better
- Every student should stay in the same hotel
- You should hold holiday
- Too short to be close to the member well
- We can make one simple research in this program
- Do not go to the place far from hotel

**[Section E] Present state in your university (Only for non Tokyo Tech students)**

***E-1. When and how did you know about Tokyo Tech-AYSEAS first?***

- Several months ago
- 3 months ago
- From my advisor who took TAIST-program
- I got an email from international office by email
- From my friend who participated in the program in 2012
- From a previous study trip
- Last year around November
- In August
- Mid May 2013
- From university
- My brother
- Office staff

***E-2. What kind of Tokyo Tech-AYSEAS advertisement was displayed in your university?***

Answers

- Mailing list
- From professor
- Foreign information office
- University website
- None
- Booklet
- Application to TAIST-program
- Poster on FB

***E-3. Was there any interview test in your university?***

Answers

- Yes (6)
- No (14)

***E-4. When was the first time to meet with your university members?***

Answers

- Already known each other
- 1 week before starting this program
- last year after interview
- June
- During interview
- At the beginning of the program
- 1 week after getting the acceptance mail

***E-5. Were there any preparatory study sessions in your university?***

Answers

- Yes (4)
- No (13)

***E-6. Any suggestions, ideas, and comments to improve future application process?***

Answers

- More advertising*
- You should arrange the period*
- I would like to make an interview and presentation session before attending the program*
- Add wider points of view from Industry because we have several industrial scope*
- You should specify schedule before program*
- We should stay in the same hotel*

[SUMMARY]

We got a lot of points to enhance the value of the program in the questionnaire. Especially, in terms of time management, we have a lot of things to improve. In addition, there are many good suggestions from the participants. Next year, we should consider the opinions and make a better program.

## ASEAN

**Reporter:** Inose Yu (Yu)

### 1. Overview

The Association of Southeast Asian Nations, or ASEAN, was established on 8 August 1967 in Bangkok, Thailand, with the signing of the ASEAN Declaration (Bangkok Declaration) by the Founding Fathers of ASEAN, namely Indonesia, Malaysia, Philippines, Singapore and Thailand. The aims and purposes of ASEAN are mainly to accelerate the economic growth, social progress and cultural development in the region and to promote regional peace and stability. Current member states are Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Viet Nam.



ASEAN countries



Logo of ASEAN

### 2. Economics in ASEAN

The population of ASEAN is much larger than other regional communities. But its economic scale is smaller than other communities (Fig.1 and 2). Therefore, in order to transform ASEAN into a stable, prosperous, highly competitive region with equitable economic development, as well as the reduced poverty and socio-economic disparities, ASEAN Economic Community (AEC) will be established by 2015. The AEC will establish ASEAN as a single market and production base which will make ASEAN more dynamic and competitive with new mechanisms and measures to strengthen the implementation of its existing economic initiatives; accelerating regional integration in the priority sectors; facilitating movements of business persons, skilled labor and talents; and strengthening the institutional mechanisms of ASEAN.

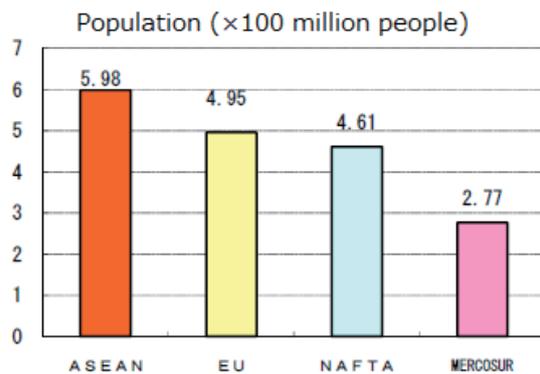


Fig.1 Population in each region

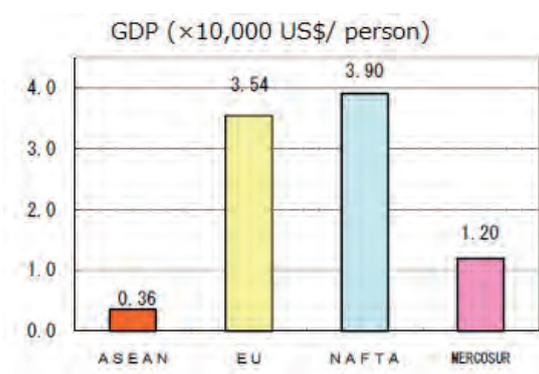


Fig.2 GDP in each region

Reference: [http://www.mofa.go.jp/mofaj/area/asean/pdfs/sees\\_eye.pdf](http://www.mofa.go.jp/mofaj/area/asean/pdfs/sees_eye.pdf)

### 3. ASEAN and JAPAN

To encourage the economic cooperation with eastern Asian countries, Japan established communities with ASEAN and surrounding countries.

#### 3.1. ASEAN+3, +8

To take in the energy of ASEAN where Japanese companies succeed, Japanese government is trying to realize smoother and freer economic activity throughout regional cooperation under ASEAN +3 and +8. Specifically, three pillars of our strategy are promotion of economic partnerships, reinforcement of regional connectivity, and quality of growth. The keyword in common among these pillars is infrastructure improvement, including soft and hard infrastructure.

#### 3.2. RCEP

Regional Comprehensive Economic Partnership (RCEP) is a conception of comprehensive economic cooperation, which binds five FTAs (Free Trade Agreement) between ASEAN and Japan, China, Korea, India, Australia and New Zealand. RCEP is advocated by ASEAN in 2011, then, negotiation was officially initiated in 2012. If RCEP is realized, wide economic bloc including 3.4 billion people (a half of global population), 20 trillion US\$ of GDP (30% of global GDP), and 10 trillion US\$ of total trade (30 % of global trade) will be established.

### 4. Tokyo-Tech AYSEAS 2013

In this program, there are participants from several ASEAN countries: Thailand, Indonesia, Malaysia and Philippines. Throughout discussions with those members, participants from Tokyo Tech could feel the dynamism of these countries. The most precious lesson this program has told us is the potential of economy, culture, society and people in Thailand.

## **Thailand**

**Reporter:** Jiang Jiawen (Mia)

### **1.Introduction**

The capital and largest city is Bangkok, which is Thailand's political, commercial, industrial and cultural hub. About 75% of the population is ethnically Tai, 14% Thai Chinese, and 3% is ethnically Malay, the rest belongs to minority groups including Mons, Khmers and various hill tribes. The country's official language is Thai. The primary religion is Buddhism, which is practiced by around 95% of the population.

Thailand experienced rapid economic growth between 1985 and 1996, and is presently a newly industrialized country and a major exporter. Tourism also contributes significantly to the Thai economy. There are approximately 2.2 million legal and illegal migrants in Thailand and the country has also attracted a number of expatriates from developed countries.



### **2.Education**

Thailand enjoys a high level of literacy and education is provided by a well-organized school system of kindergartens, primary, lower secondary and upper secondary schools, numerous vocational colleges and universities. The private sector of education is well developed and significantly contributes to the overall provision of education, which the government would not be able to meet through the public establishments. Education is compulsory up to and including age group 14, and the government provides free education through to age group 17.

### **3.Relationship with Japan**

Thailand and Japan have always been having a better relationship in terms of tourism and trade, as many Japanese spend their holidays in Thailand and vice versa. Despite the long distance, the countries exchange their friendship vows regularly during the holiday seasons, which could be examined in the streets of the two nations. The bond is unbreakable which you can understand clearly while seeing the citizens interchanging their nations during their vacations.

The Asian nations are always known for a better trade relationship. There are a number of Japanese companies in Thailand: around 7,000 Japanese firms are

positioned in Thailand, which also support the nations in improving their economy. At the same time it is also important to quote that Japan has invested around 300 billion baht in Thailand to improve the trade. Japan ranks number one among the foreign investors that fund Thailand, as more than half (63%) of the foreign investment is from Japan.

To make the relationship even better, a symposium was held on May 22, 2013, where Tourism Authority of Thailand and Japan's leading travel industry rubbed shoulders to discuss the facts and features that would strengthen the bond.

The summit was actually conducted to ensure the two-way flow between Thailand and Kyushu city of Japan. More than two hundred travel industry participated in this symposium and shared their ideas to enhance the tourism trade between the countries.

#### **4. Tokyo Tech- AYSEAS 2013**

During our visit, I think everyone had a really great experience in Thailand. Its delicious food, great temples, hospitable people and prosperous environment impress us a lot. We all wish we can go to Thailand again and our friendship will last forever!



List of Participants

University	Name	Nickname	Sex	Department
Tokyo Tech	Inose Yu	Yu	F	Chemical Engineering
Tokyo Tech	Li Xiuyang	Li	M	Metallurgical Engineering
Tokyo Tech	Firdaus Bin Anaspekri	Firdaus	M	Metallurgical Engineering
Tokyo Tech	Jiang Jiawen	Mia	F	International Development and Engineering
Tokyo Tech	Hatai Taketora	Take	M	Inorganic Materials
Tokyo Tech	Takahashi Shinsuke	Shin	M	Mechanical Engineering
Tokyo Tech	Nomura Yoshinari	Yosshi	M	Bioprocess
Tokyo Tech	Minematsu Ryutaro	Ryu	M	Bioprocess
Tokyo Tech	Miura Kengo	Ken	M	Biomolecular Engineering
Tokyo Tech	Kumagai Yoshiki	Kuma	M	Metallurgical Engineering
Tokyo Tech	Sawada Jun	Jun	M	Polymer Chemistry
Tokyo Tech	Kameyama Atsushi	Kame	M	Chemical Engineering
Tokyo Tech	Fukai Katsuyuki	Katsu	M	Mechanical Engineering and Science
Tokyo Tech	Saito Minako	Mina	F	Metallurgical Engineering
Tokyo Tech	Azuma Reo	Reo	M	School of Engineering
Tokyo Tech	Nakai Soma	Soma	M	Mechanical Engineering and Science
KMITL	Aphimeteetamrong Suchitra	Ploy	F	Science / Apply Biology /Microbiology
KMITL	Supanat Sasipongpana	Frame	M	College of Nanotechnology, Nano materials Engineering
KMITL	Koonyada Insuang	Yada	F	College of Nanotechnology/ nanomaterial engineering
KMITL	Sarayut Duangkaew	Flash	M	Mechanical Engineering
KMITL	Veerayut Wongpattharaworakul	Ton	M	Mechanical Engineering
KMUTT	Nakin Korkijrattanakul	Cem	M	Information Technology
KMUTT	Narakorn Inkamma	Andrew	M	environmental engineering
KMUTT	Piyarat Kittiwat	Palm	F	environmental engineering

KMUTT	Ukrit Tipsepa	Por	M	chemical engineering
KMUTT	Kelwalee Jutipnya	Ken	F	civil engineering international program
CU	Pontakorn Pakavaleetorn	Nat	M	Information and Communication Engineering
CU	Nutchra Temiyasathit	Ploy	F	Information and Communication Engineering
KU	Tatchamapan Yoskamtorn	KUK-KIK	F	Science/chemistry
KU	Chutamath Sittplangkoon	Mint	F	Biology
KU	Aphisorn Limruangrong	Ohh	F	Zoology
KU	Ansaya Pumchan	A-ngun	F	Zoology
TU	Theesuda sotpiparpnukul	Noon	F	SIIT/Electronics and Communications
DLSU	Eric C. Flordeliza	Eric	M	Civil engineering
ITB	Novan Putra Irnanda	Novan	M	Industrial Engineering
ITB	Dicky Andhika Abdurrahman	Dicky	M	Petroleum Engineering
ITB	Mentari Pujantoro	Mente	F	Environment Engineering
UGM	Meilani Adriyati	Mei	F	Vocational School
UGM	Andhika Yudha Prawira	Dhika	M	Engineering/Nuclear Engineering
UI	Annisa Marlin Masbar Rus	Marlin	F	Industrial Engineering
UI	Fatwa Dewi Widayani	Alin	F	Industrial Engineering
UI	Aswita Wulandari Saragih	Aswita	F	Civil Engineering
UI	Ita Yupita	Ita	F	Industrial Engineering

### Staff

Hanamura Katsunori	Professor, Department of Mechanical and Control Engineering, Tokyo Tech
Tom Hope	Associate Professor, University Management Center, Tokyo Tech
Tone Eriko	Staff, International Affairs Division, International Affairs Department, Tokyo Tech





**Tokyo Tech-AYSEAS 2013:**

**Tokyo Tech-Asia Young Scientist and Engineer Advanced Study Program 2013**

International Office, Tokyo Institute of Technology

M1-54 2-12-1, Ookayama, Meguro-ku Tokyo 152-8550, Japan

Tel: +81-3-5734-7607

Fax: +81-3-5734-3685

E-mail: [ayseas@jim.titech.ac.jp](mailto:ayseas@jim.titech.ac.jp)

Home Page: [http://www.ayseas.ipo.titech.ac.jp/2013/top\\_e.html](http://www.ayseas.ipo.titech.ac.jp/2013/top_e.html)