




Science and Technology in Japan 2019 Program Report

School of Science and Technology (SST) carried out a short-term program called "Science and Technology in Japan" from 2nd to 11th of July 2019. This is the fourth year of the program and 12 participants from overseas partner universities ^(*1) attended.

(*1) Participants' home universities: Queensland University of Technology (Australia), Western Sydney University (Australia), Manipal University (India), King Mongkut's Institute of Technology Ladkrabang (Thai), Chulalongkorn University (Thai), National Taipei University (Taiwan), University of the Philippines Diliman (Philippine), State University of Management (Russia), Kashgar University (China)

Objectives and Features

-  The biggest objective is that participants learn industries and culture in Japan, the biggest economic and technical center in Far East, and to achieve better understanding.
-  It will be of great help for students who hope to play an important role in the global society to deepen the understanding over the society, industry, and the underlying culture in Japan, which has different philosophy and is widely recognized as being difficult to understand.
-  The program operation was combined with a course of Graduate School of Science and Technology and master students supported participants throughout the program. This is also a big feature as students are able to improve English language abilities by discussing the current situation of Japanese science and technology and their own research fields, and making presentations.

Program Outline

Program mainly consists of lectures in science and technology field, and site-visits to related research institutes or companies. Not only gaining knowledge from lectures, but also opportunities were provided where participants could learn real opinions of engineers and researchers and how the technologies were applied in the field.

■ Lectures

- (1) "Introduction to Japanese Language and Culture" by SST faculty
- (2) "Introduction of Science and Technology in Japan 1" by SST faculty
- (3) Lectures focused on fields of mechanical engineering, architecture, applied chemistry, mathematics, and Physics.

[Lecture titles]

- Dynamics on vibration control and shaking table experience tour
- Earthquake Damage and Retrofitting Technique in Japan, Experiment Lab. Tour
- Materials for Energy & Environmental Applications
- How to track the flame/smoldering front of combustion of a paper sheet in mathematics
- Nanoparticle synthesis assisted by proteins

Abstract for each lecture is available at <http://www.meiji.ac.jp/sst/international/stj.html>

- (4) "Introduction of Science and Technology in Japan 2" by master students
- (5) "Lecture by SST alumni" by graduated students

■Site-visits

National Institute for Materials Science

✚ Program Report

■2 July

"Introduction of Science and Technology in Japan 1" was given on the second day by Prof. Teruhisa Kumano from Department of Electronics and Bioinformatics. He gave overviews of current and past Japan's position in science and technology field by showing statistics and indicators of population, economics, and environment, and also by explaining features of Japanese society such as public security, education, and politics. Participants were then asked to share their interested fields.



■3 July

(1) The very first lecture "Introduction to Japanese language and culture 1" was given from Prof. Keita Hatooka. Participants learned basic Japanese greeting expressions and introduction of culture via presentations in the lecture.



(2) "Dynamics on vibration control and shaking table experience tour" was given on the second day by Associate Prof. Taichi Matsuoka from Department of mechanical engineering. He introduced recent research efforts in a field of mechanical engineering focusing on maintaining soundness from the impact of earthquakes.



■4 July

"Earthquake Damage and Retrofitting Technique in Japan, Experiment Lab. Tour" was given on the third day by Senior Assistant Prof. Kiwoon Jin from Department of Architecture. He introduced effective retrofitting techniques against the earthquake in Japan and conducted an experiment Laboratory Tour.



■5 July

"Nanoparticle synthesis assisted by proteins" was given on the third day by Prof. Hideyuki Yoshimura from Department of Physics. He introduced biophysics, specially in nanoparticle synthesis and its evaluation. nanoparticle in the lecture.

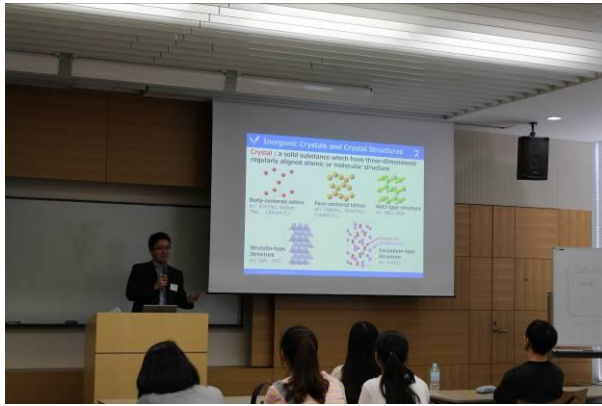


■8 July

(1) "Materials for Energy & Environmental Applications" was given on the third day by Senior Assistant Prof. Hajime Wagata from Department of Applied Chemistry. He introduced recent research efforts in a field of

materials science to solve problems facing society such as environment pollution and consumption of fossil fuels.

(2) Visit to National Institute for Materials Science



■9 July

(1) "How to track the flame/smoldering front of combustion of a paper sheet in mathematics" was given on the forth day by Prof. Shigetoshi Yazaki from Department of Mathematics. They observe behavior of fire flames and do some simple experiments. He introduce mathematical models of smoldering phenomena of combustion of a paper sheet.



■10 July

(1) "Introduction of Science and Technology in Japan 2" was given on the seventh day by master students. Each student introduced his theme, progress and result of research.



(2) "Preparation for final presentation" – Each participant shared interested topic by giving two-minute speech. Three groups were formed via discussions.



(3) "Lecture by SST alumni" by graduated students" was given on the seventh day by graduated students, Ms. Akane Katayama. Each student introduced his theme, progress and result of research. A program that asks for creativity to create a new mechanism and thinking ability to solve problems around the world using a tool "MESH" that can form various ideas by combining familiar functions and functions such as switches and programming carried out.



■11 July

Final presentations – Each group decided a topic based on knowledge and interests obtained through the program.

[Presentation Topics]

- (1) Vibration control
- (2) Japanese food and culture
- (3) Transportation in Tokyo





Student Voices



■STJ helped us understand a lot about how Japan's various industries work and gave us a broader understanding about Japanese culture. The staff and senior students helped us at every stage and taught us about the Japanese work ethic while introducing us to various fields under science and technology. I have gained a broad understanding of where Japan is focused towards, and what its goals are for the future (society 5.0). This insight will help me learn and apply the same things wherever I can.

■The STJ program helped me in learning about the various technical fields and researches going on in Japan. The tours and experiments were really helpful and helped me learn about topics varying from material

science to earthquake control. The program also helped me to interact with people from different cultures and learn about them. Overall it was a wonderful experience.

■I joined the STJ 2019 program to gain new insights on the current advanced technology in Japan. After attending the whole program, I was amazed on how all the lectures were new to me as well as innovative. I learned that one must look at his or her surroundings, identify a problem or issue and create a device or technology that can address that problem. Overall, I went home with a smarter view on the things around me.

■STJ was unique experience for me. One of the reasons I came here is to challenge myself with studying abroad. So I realized that I can communicate to classmates and understand lectures in English. It is the most important thing for me. Also I just enjoyed every lectures and learned a lot about Japan. It is an amazing country. I wish I will come back one day.

Thankful Acknowledgment

Last but not least, we would like to express our sincere appreciation towards the visited companies, institutions, and all faculties, students, and staffs involved in this program for their kind understanding and cooperation.

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