

Science and Technology in Japan 2018 Program Report

School of Science and Technology (SST) carried out a short-term program called "Science and Technology in Japan" from 3rd to 12th July 2018. This is the third year of the program and 23 participants from overseas partner universities ^(*) attended.

(*) Participants' home universities: University of Cape Town (South Africa), Queensland University of Technology (Australia), University of New South Wales (Australia), Manipal University (India), University of Gadjah Mada (Indonesia), National Chia Yi University (Taiwan), Minzu University of China (China), Kashgar University (China)

Objectives and Features

The biggest objective is that participants learn industries and culture in Japan, one of the biggest economic and technical centers in Far East, and to achieve better understanding.

It will greatly help 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 was conducted as a part of a course of Graduate School of Science and Technology and master students supported participants throughout the program period. This is also a big feature as Meiji 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 electrical engineering, mechanical engineering, applied chemistry, and information technology

[Lecture titles]

• Materials for Energy & Environmental Applications

• Origami Expands Future: From Mathematics to Engineering

• Seeing your brain: medical engineering for well-being and rehabilitation

• Treewidth: a powerful tool for algorithm design

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

■ Site-visits

National Institute for Materials Science, Nissan Motor Corporation, Yokohama Plant, Hands-on Lab, ANRITSU INFIVIS

🚩 Program Report

■ 3 July

The very first lecture “Introduction to Japanese language and culture 1” was given from Senior Assistant Prof. Yohei Yamamoto. Participants learned in the lecture basic Japanese greeting expressions and introduction of culture via animations. Master students also made presentations featuring Japanese manga and music for better understanding of culture.



■ 4 July

(1) “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 positions 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 about Japan.



(2) “Campus tour” to Department of Architecture (Senior Assistant Prof. Kiwoong Jin), Department of Physics (Associate Prof. Takayuki Suzuki), Department of Electronics and Bioinformatics (Prof. Tetsushi Ikegami), and Department of Mathematics (Prof. Shigetoshi Yazaki)



■ 5 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



■ 6 July

(1) "Origami Expands Future: From Mathematics to Engineering" was given on the fourth day by Senior Assistant Professor Sachiko Ishida from Department of Mechanical Engineering. Mathematical design based on origami engineering and its practical applications were explained in the lecture.

(2) Visit to Nissan Motor Corporation, Yokohama Plant



■ 9 July

(1) "Seeing your brain: medical engineering for well-being and rehabilitation" was given on the fifth day by Professor Yumie Ono from Department of Electronics and Bioinformatics. Introduction to Japanese super-aging society and health system in Japan, BMI (Brain machine interface) technology and its applications.

(2) Hands-on Lab





■ 10 July

(1) "Treewidth: a powerful tool for algorithm design" was given on the sixth day by Prof. Hisao Tamaki from Department of Computer Science. A parameter called treewidth of graphs which can be applied to solve graph problems such as vertex coloring or Hamiltonicity was explained.

(2) Visit to ANRITSU INFIVIS.



■ 11 July

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



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





■ 12 July

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

[Presentation Topics]

- (1) Monozukuri
- (2) Nissan Yokohama Plant – Automation and it7s Engineering and Financial benefits
- (3) Developments in AI in Japan
- (4) Japanese Culture



Student Voice

- The course has provided an excellent introduction and immersion into Japanese science and technology and wider Japanese culture in general. It was a very enjoyable experience. (Queensland University of Technology, Australia)
- Made me regret not being in a lower college year so that I could come for the program again the following year. The knowledge of other disciplines I've gathered in such a short period in parallel to interacting with the SST students have probably broadened my scope of knowledge and understanding of the technical sector. It's definitely an experience I wouldn't forget. (Manipal University, India)
- I've learned lots of knowledge of Japanese culture and engineering, which is very useful and surprising, I love this program very much. (National Chia Yi University, Taiwan)
- Let's join STJ! By this program you will get amazing experience about sci-tech development in Japan, not only from the lecturers but also from the practice and site-visit, you will see the process with your own eyes. (University of Gadjah Mada, Indonesia)
- At the very beginning, the only reason attracts me to be here is my strong interest about Japanese culture. However, after several days of STJ, I learned not only Japanese culture but also some impressive research institutions and had several pleased chats with talented professors. What inspired me the most is the site visit to NIMS, technology development is not simply for prizes or wealth but for better, more safe and enjoyable life conditions for citizens. I have stronger willing to be a scientist and to work in Japan after these site visits. Moreover, friendly staff and graduate students were so helpful, I did learn a lot from them about Japanese culture, technology, lifestyle or even some simple Japanese expressions. This STJ program was incredibly useful, hence I will strongly recommend my friends to join this next year. (University of New South Wales, Australia)
- I have learned that the best way a country can be successful is through the mentality and behavior of its society. Discipline, good manners, punctuality and strong work ethics, to name a few, are key in the proper development of a country and of oneself. I have learned more about these characteristics from both Meiji University and Japan as a whole. My experience at Meiji University has been excellent because of this. (University of Cape Town, South Africa)

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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