

Spring 2019

Global Scientists and Engineers Course

Short-term Study Abroad Program

India Report

## **Chapter1 Overview of the program**

### **1-1 Purpose of the program**

There are 4 main purposes of the program as follows.

- ① Experience the India culture of their thinking religions, customs and food.
- ② Extend our way of thinking based on our gained knowledge from local to international, from shallow to deep, from one aspect to many aspects.
- ③ Improve our English skills by communicating with local students.
- ④ Find out and experience the main social problems in India, and try our best to think about some solutions by using our field of expertise.

## 1-2 Participants

## 1-3 Schedule

date	time	Activities	Accommodation
3-Mar	sun	Haneda Airport International Terminal Terminal Business Trip Lobby A Counter6:30 SQ631 Haneda 8:50-Singapore 15:25 SQ528 Singapore 20:20- Chennai 22:00	Chennai
4-Mar	mon	11:00-11:30 Visit IITM / Orientation of IIT Madras and meeting with the International office staff in the 2nd floor, Conference room 11:30-11:45 Meeting with the Dean IAR 11:45-12:45 Lecture on Indian Culture and Society (HSS Faculty) in 2nd floor Conference room 1:00-2:00 Lunch at TGH 2:30-4:00 Campus tour 4:00-4:45 Center for Innovation and Central Workshop 5:15-6:30 Talk on Tokyo Tech and its programs; Tokyo Tech students' interaction with IIT students 7:30-8:30 Yoga Class	Chennai
5-Mar	tue	10:00-12:30 Lab visit (Mechanical Engineering, Physics ) 12:45-2:00 Lunch at TGH 2:15-4:00 Visit to the Research Park 4:30-5:30 Mathematics Lecture 7:30-8:30 Yoga Class	Chennai
6-Mar	wed	8:00-5:00 Attend classes at the respective departments 7:30-8:30 Yoga Class	Chennai
7-Mar	thu	9:00 Visit Nissan Chennai pm Chennai City tour (Kapaleeswarar, San Thomas Cathedral, Marina Beach )	Chennai
8-Mar	fri	10:00 Visit TARA Books 14:30 Visit L&T construction	Chennai
9-Mar	sat	am Visit Mahabalipuram(World Heritage) pm Chennai City tour (Ritchie street )	Chennai
10-Mar	sun	am 6:00-10:50 Shatabdi Express 12007 Chennai ~Bangalore by train pm Bangalore city tour	Bangalore
11-Mar	mon	10:00 NEC Technologies India Pvt. Ltd. pm Free 18:00 Leave hotel for Bangalore International Airport SQ503 Bangalore 23:10-	Bangalore
12-Mar	tue	-- Singapore 6:10 SQ632 Singapore 08:05-HND15:35	

## Chapter 2 India

### 2-1-1 Overview of India

India has 1.36 billion people as of 2018 and it is the second most populous country in the world, following to China, which has 1.39 billion people. Additionally, it is considered that India will overtake China on population in 2030 and reach around 1.8 billion populations in 2100.



Figure1: Flag of India

India is located in the south part of Asia and the capital city is New Delhi, located on the north part of India, we did not able to visit there at this time. The distance between India and Japan is about 6000km. Time difference between them is 3.3 hours, Japan time is 3.3 hours earlier. The area of India is 3.2 million km<sup>2</sup> and it is about 8.7 times that of Japan. India's area is the 7th largest in the world.

India has two official languages, Hindi and English. Additionally, more than 22 main languages and uncountable local languages exist in India. India has 29 states and 7 union territories, and each states establish official languages. However only English is used in college lectures so India students can use English fluently. We can communicate with local students, shop staff and so on in English.



Figure2: India on google map

Rupee is official Indian currency and 1 rupee equals to 1.6 Japanese yen as of March 14, 2019. Rupee is described as Rs or INR. Current used paper money is called 'Mahatma Gandhi Series.' There are 8 sorts of bills, 5 rupees, 10, 20, 50, 100, 200, 500 and 2000. In these bills, character is described in English and in Hindi on the front side and in the other 15 languages on the back side.

About 80% of Indian people believe in Hinduism and the other people have other religion, Islam, Christianity, Sikhism, Buddhism and Jainism. The features of Hinduism are belief of reborn, vegetarian, ablution, yoga and so on. We experienced yoga at this time.



Figure3: The mark of rupee

### 2-1-2 Overview of India

Most parts of India are the tropical zone. They have the rainy season and the dry season. In March, both Chennai and Bangalore are in summer, and the highest temperature there is approximately 35 degrees. However, the climate in Bangalore is a bit comfortable than that in Chennai due to the lower humidity. This is probably because Bangalore is about 900 meters above sea level while Chennai faces the Indian Ocean.

Food is what we get worried about and also look forward to when we go abroad. Let me talk about Indian food from geographical and religious points of view. First, according to Indian people we met, it seems true that they usually eat spicy curry three times a day. They eat it with rice or bread, and both rice and wheat are the main crops in India. Second, tea is also one of the main crops, and each tea from a different area has specific flavor. Third, there are veg menu and non-veg menu in most restaurants in India. Most Indian people are Hindus or Muslims. Hindus do not eat beef, and Muslims do not eat pork. Therefore, there are many veg menus in India.



Figure4: City of India

As you may know, India is one of the most rapidly developing countries in the world. According to Oxford Economics, all of the fastest-growing cities in the world from 2019 to 2035 are in India. Chennai leads the automobile industry, and Bangalore, “The Silicon Valley of India”, prospers in the IT industry. Wherever you go in India, you will face the energetic India.

### 2-2 History of India

#### 2-2-1 Ancient India

The history of India started with the ancient river valley civilization, which is so-called Indus Valley Civilization.

After or during the mysterious civilization, Aryans and other ethnic groups came into the region, forming many ancient states.

In 500 BC, Hinduism, which is still prevalent now in India, already came into existence. This old form of Hinduism was called Brahmanism. The social structure was solidified by its Caste System. This system is still affecting Indian people’s behavior today.

In its long history, India was unified under some dynasties, but most of the time, it was divided into

some small nations. Some of the nations believed in Hinduism, and some devoted themselves to Buddhism. What's more, around 1200 AD, Muslims came from Persian Gulf, and started conquering some nations. One Islamic state once almost unified India. Coupled with many minor local religions, today Indian culture has a wide variety and a complexity.

In the so-called middle age, China and India were at the center of the world trade. According to a research conducted by JP Morgan, 500 years ago, those two areas dominated more than 70% of the world GDP. Those two areas were the most prosperous places in the world. This fact is still affecting world nowadays. China and India are the most populated nations in the world today.



Figure5: Cathedral of India

At the end of the trade, the spices were brought in to Europe. But during the process of the trade, merchants added value to their goods. Therefore, the price of goods from India was high in Europe. Faced with this problem, Europeans wanted to make a new trade route by which they can directly import those spices. Eventually in 1498, Vasco da Gama found a new trade route from Portugal to India.

During the Age of Exploration, European empires fought each other to obtain their own colonies. India was one of the targets of those empires including what are now called Spain, France, Netherland and the UK. Finally, British Empire succeeded in colonizing most of the Indian territory.

## 2-2-2 Modern India

Modern India is formed during 1800 to 1947. To know the history of India, we must know the relations between India and the U.K.

In 1600, East India Company (EIC) are established. However, the start of rule of India is about 18<sup>th</sup> century. In this century, EIC did some wars and expand their power in India.

In 1857, Indian Mutiny happened. This is the beginning of rule of India by British government and the movement of Independence. In 1877, Indian Empire is formed to ensure the rule of India. This rule continues to 1947. During this reign, British bring somethings, for example trains, building and some educational systems.

### 2-2-3 Divided India

India was colony of The United Kingdom, but India attained independence in 1947. However, after the independence, India was divided into two countries, India and Pakistan. The reason is religious. After that, India and Pakistan cause dispute after the separation three times because of territory. Besides, India causes dispute between many countries since independence. In consequence, the most historical event caused in India since independence is dispute. There are some problems that isn't solved yet. Additionally, India has become the 6<sup>th</sup> country that has nucleus in 1974. In addition, the economic progress of India is remarkable since 21<sup>st</sup> century. India came to be called member of BRICS.

Mohandas Karamchand Gandhi played very important role for independence of India. We can learn he is very famous person in India from the fact that his name is used for the name of road in Chennai. He led a lot of Indian people for independence with no violence. He did some movements, "Salt March" is one of the famous movements.

After the WWII, the U.K. decided to permit the independence of India. India became independent country in 1947. However, India was divided into two country, India and Pakistan because of some religious problems.

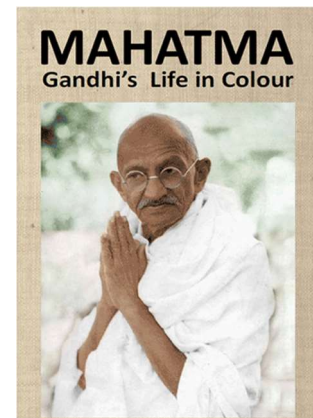


Figure6:The book about Gandhi

### 2-3 Culture, Political system, Religion, Industry, etc

We enjoyed plenty of Indian food, India Yoga, and Indian culture.

First, I am going to explain what Yoga is. It is one of the six systems (darshans) of Indian philosophy. In Indian philosophy Darshan designates the distinctive way in which each philosophical system looks at things, including its exposition of sacred scriptures and authoritative knowledge. The six principal Hindu darshans are Samkhya, Yoga, Nyaya, Vaisheshika, Mimamsa, and Vedanta. Non-Hindu darshans include Buddhism and Jainism. But as for Yoga, its practical aspects play a more important role than its intellectual content does!

Next, I explain the modern Yoga. It was created by the blending of Western styles of gymnastics

with postures from Hatha yoga in India in the 20th century. Before 1900 there were few standing poses in Hatha yoga. But many standing poses used in gymnastics were incorporated into yoga by Krishnamacharya in Mysore (Southern part of India) from the 1930s to the 1950s, and by his students & other schools. And they spread all over the world, including Europe and US. Now modern yoga is a physical activity consisting largely of postures called asanas, sometimes accompanied by the breathing exercises of pranayama, and usually ending with a period of relaxation or meditation. It is often known simply as Yoga, despite the existence of multiple older traditions of yoga within Hinduism where asanas played little or no part, some dating back over 2000 years to the Yoga Sutras of Patanjali (old texts), and the fact that the practice of asanas was central in no tradition.

We did Sivananda Yoga for 3 days. It was a good relaxation and physical activity, which we enjoyed.

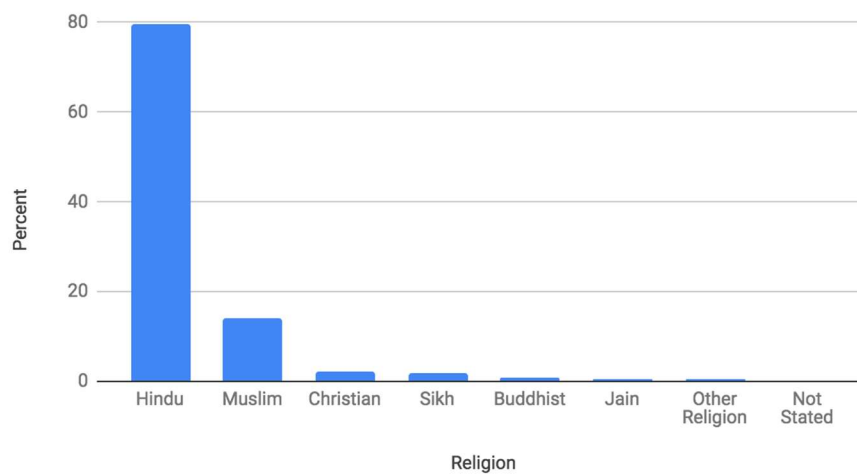


Figure7: City of India

In India, most people, including IIT students, believe in religion. They got surprised when I said that 70% of Japanese people do not believe in any religions by statistics. Most of Indian people believe in Hindu.



Religious population of India (Religion Census 2011)



In Chennai, we went to St. Thomas Cathedral and Arulmigu Kapaleeswarar Temple (Hindu). There were mosques and English churches near there, too. There is a mixture of various religions, classes, and cultures in India. This may be a part of the reasons why IIT do not accept foreign students from neighboring countries as proper students.



Figure8 :St. Thomas Cathedral

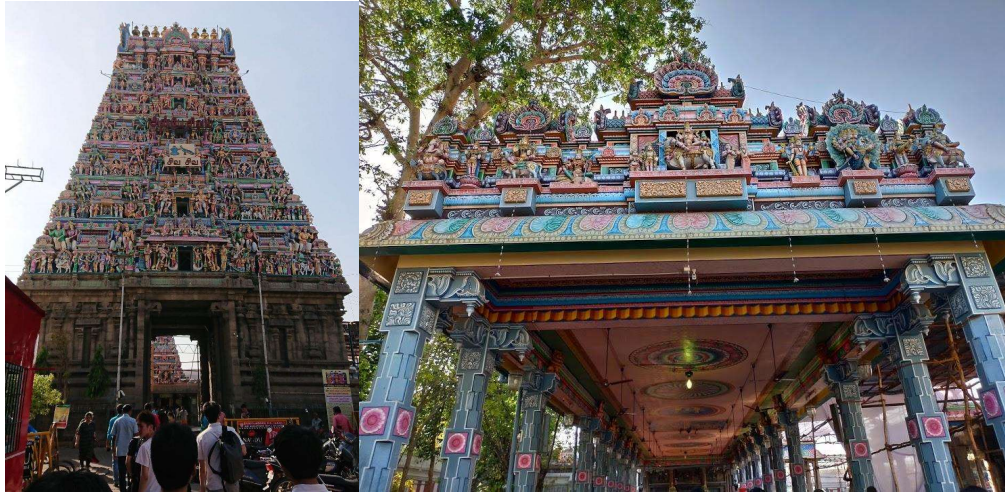


Figure9: Arulmigu Kapaleeswarar Temple

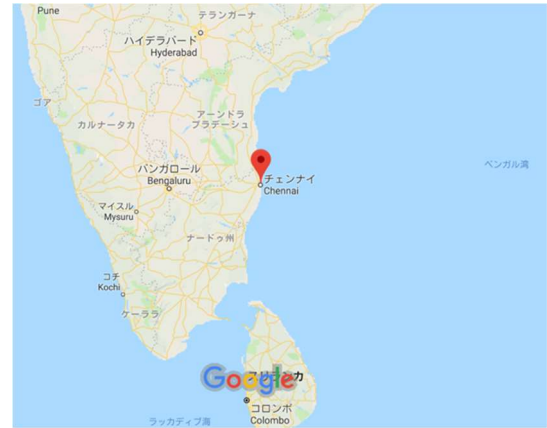
One of TA students said, there exist a lot of bad cultures they follow from their ancestors. In Indian traditional culture, women were not ought to be educated. And because there are various cultures, religions, believes, etc in India, women were expected to get married into the husband's house and understand their all cultures, religions, believes, and so on, and practice them completely. In Japan, even now, "quiet" and "obedient" women are "preferable." Then, the TA asked us why on the earth this is OK? Though the problem of Japan is not so serious as that of India, we could not answer the question well enough, and even now.

## Chapter 3 Cities

### 3-1 Chennai

#### 3-1-1 Basic Information

Chennai is situated at lat13°05'N, and at long80°16'E, and belong to Tamil Nadu state. The climate of Chennai is Sabana Climate (Aw), so it's hot and there are rainy season and dry season clearly. The population is approximately 4.6 million (2011). The main language is Tamil and English is also spoken by many people.



地図データ ©2019 Google

#### 3-1-2 Culture

The culture of South India is different from North India. It culture. It is reflected in Hindu temples or languages.

Figure10: Location

#### 3-1-3 Economy

Chennai is called the gateway of South India, or Detroit of South India. In fact, many Japanese companies, such as Nissan and YAMAHA base in Chennai. Tamil Nadu state occupies the 8.5% of GDP of India in 2012.



Figure11:Karpaleeshwarar Temple

#### 3-1-4 Tourism

There are some sightseeing areas in Chennai. We have been to Karpaleeshwarar Temple, Marina Beach, and San Thome Basilica.

Karpaleeshwarar Temple is one of the Hindu Temples. The temple worships Shiva and many devotees visit the temple to worship. The entrance gate is decorated with very colored statues.

Marina Beach is the second longest beach in the world. It is not the place where people swim but where people take a rest on the beach.

San Thome Basilica worships St. Thomas, who is one of the 12 apostles of Christ.



Figure12: San Thome Basilica

## 3-2 Bangalore

### 3-2-1 Basic information

Bangalore is situated at lat $12^{\circ}58'N$ , and at long $77^{\circ}33'E$ , and belong to Karnataka state, on the Deccan plateau. Bangalore is also Sabana Climate (Aw), but the temperature is milder than the one of Chennai, for example, the lowest temperature of Bangalore is much lower than Chennai in March.

The population is over 12 million (2017), which is the third largest in India currently. As for language, Kannada is widely spoken and English is also spoken among white-

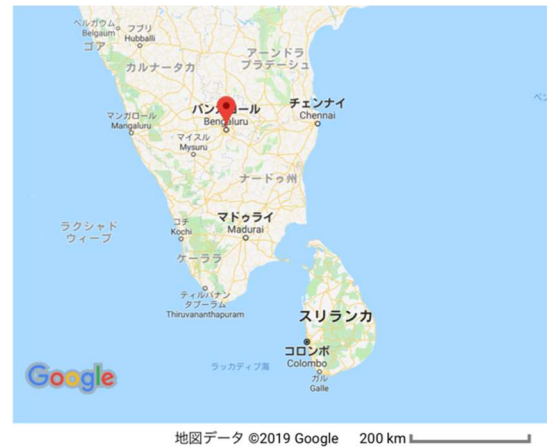


Figure13: Location

### 3-2-2 Economy

Bangalore is often called Silicon Valley of India. There are a lot of head offices of heavy industry companies and military industry companies such as HAL, BHEL, and BEML. IT industry is also developing, for example, there are some preferentially industrial park for IT.



Figure14: Urban Building

### 3-2-3 Lifestyle

There are a lot of foreign workers and excellent engineers. On the other hand, there are untouchable people and people who live in slum. In suburbs, we could see the sight of South India. As in other developing countries, there are gap between citizens.



### 3-2-4 Entertainment Facilities

In Bangalore, there are many shopping malls and amusement facilities such as aquarium and amusement park. These are almost the same size to the ones of developed countries.



Figure16: Aquarium



## Chapter 4 IITM

### 4-1 Education System in India

As well Japanese System, Education System in India is divided into five stage of schools. There are kindergarten, elementary school, lower secondary school, upper secondary school and higher school. When they are 18 years old, Indian Students are graduate from upper secondary school and someone go in to higher school as university. In that time, students have to pass JEE-main and JEE-advanced like National Center Test and Secondary Test in Japan. In order to take JEE-advanced, you must get the score of upper 10% in JEE-main. And the rate passing JEE-advanced is under 7%. That is why it's very hard to pass both tests.



Figure17: Children in India

Known as calculation method of India, students learn math and scientific subject rather than other subjects. In some elementary school, students must learn programing as compulsory subject. That's because the government would like to develop human resources who work in IT section.

But, there are a few problem in India. There is a shortage of public school so poverty people cannot go to school due to population growth and financial problem. Despite that the system of caste was



abolished in public, it remains deeply rooted at present and affects people in India. So some people in lower caste cannot get an education and cannot run away from caste system.

This two problems should be resolved as soon as possible.

Figure18: Classroom of India

## 4-2 Overview of IITM

### 4-2-1 Campus

Indian Institute of Technology Madras is a public engineering institute located in Chennai, Tamil Nadu. The institute has nearly 550 faculty, 8,000 students and 1,250 administrative and supporting staff. IIT Madras is a residential institute that occupies a 2.5 km<sup>2</sup> campus, which is ten times larger than Tokyo Tech. IITM campus is divided into three zones, as shown in the figure to the right. White one is the academic zone, which has many laboratories and classrooms. Blue one is the residential zone, which has post office, bank, and temples. Pink one is the hostel zone, which has hostel and guest house where visitors as well as IIT

Madras students and teacher can live. Most students commute from hostel zone to academic zone by bicycle, bike and bus inside the campus. So, you should be careful of traffics when you are walking and crossing the road. In addition, IITM has part of the adjoining Guindy National Park. So, you can see many animals, dogs, monkeys and black bucks and a natural lake. Although being in the campus, you can feel in national park.

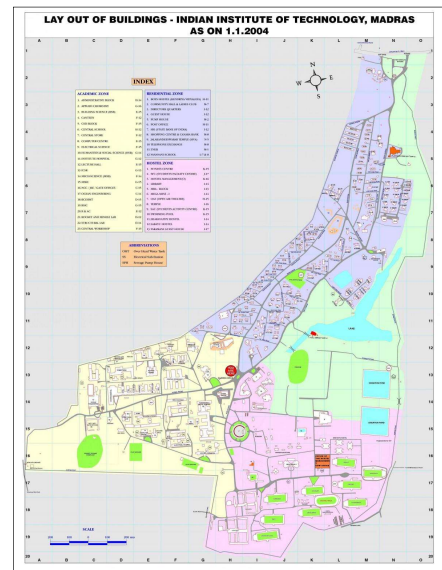


Figure19: Map of IITM

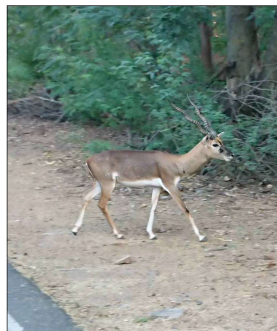


Figure20: black buck



Figure21: Monkey

### 4-2-2 Education

The IITM has sixteen academic departments and advanced research centers in various disciplines of engineering and pure sciences, with nearly 100 laboratories organized in a unique pattern of functioning. A faculty of international reputation, an excellent student community, supporting staffs and an effective administration have all contributed to the status of the Institute. The Institute has been ranked the world's top 150 institutions in seven subjects.

#### 4-2-3 Taramani guest house

The Institute has two guest house, Taramani Guest House and Bose-Einstein Guest House, in the campus. The guest house near the Admin Building is called the Bose-Einstein Guest House and the other in the hostel zone is called the Taramani Guest House.

The Taramani Guest House has 83 rooms, where we have stayed for seven days. This guest house provides boarding and lodging facilities for the Institute guests and visitors, newly appointed faculty, staff members, delegates and participants attending various Conferences, Seminars, Symposia and Workshops. TGH is operated as a non-profit activity to mainly support the academic and research activity on the campus with a homely atmosphere and ambiance traditionally acclaimed for its environs of hygiene and food of homely relish and richness.

The rooms provide comfortable Indian life for you with a bed, an air conditioner, TV and bathroom. The bed is very soft and clean, so you can fall sleep easily. Also, your room can get cooler with an air conditioner and you can take a hot shower and even have a space to play card game with everyone. However, you will need a lot of time to lead such life. You should acquire some special skills to use these equipment. You can stay seven days for 7000yen, which is very reasonable considering the room life. In addition, you can eat breakfast, lunch and dinner with the cheap price in this guest house. Although this tastes spicy for someone, you should try to eat this to get to be familiar with Indian food.

#### 4-3 IITM class

I took two classes during this program. The first classes which I attended was 28<sup>th</sup> “Basic Concepts in Aerospace Engineering”, which was held in 2<sup>nd</sup> period from 9:00 to 9:50. It consisted of 30 students and almost all of them seriously listened to the professor. I learned whether we could determine the orbit of spacecrafts from given information or not and the procedure to solve it.

After the class finished, I would like to take “Ancient Civilization” class, but there was nobody in the class room. Soon later I moved to “Social Psychology” class and I took it. The teacher of this class was Prema Rajagopalan, who valued group discussion and presentations. During the first half of the class she showed how group works was important. At the last half of it, we watched a video named “a class divided. In this video a teacher has divided 3<sup>rd</sup> graders by eye color and gave superiority to one group. They steadily have learned how discrimination was bad.

As for these classes I did not sense a difference between Indian and Japanese classes very much but I think that Tokyo Tech’s education level is higher.



Figure22: class in IITM

### Central Workshop

We visited workshop on the 2<sup>nd</sup> day. It is an educational platform where science is translated into technology. Central work shop is centralized facility of the Institute. We observed many facilities such as to make racing cars.



Figure23: car in IITM

### The Research Park

The next day we went out of IITM and visited the Research Park. It is an independent company promoted by IIT Madras and its alumni. It facilitates the promotion of research and development by the institute in partnership with industry, assisting in the growth of new ventures, and promoting economic development. We were introduced the latest medical devices and told how they were used.





Figure24: Research Park

#### 4-4 Student Exchange

There are many hostels and dormitories for students in IITM so all of IITM students live in IITM. And, not only students but also teachers and their families live in IITM. This system is very good. Of course, it's because outside of IITM is dangerous for students to study. But there are other reasons. If you cannot deal with your research, you can knock on the door of teacher's room and ask him all the time. I heard from TA in IITM that many teachers and upperclassmen live in same building and he ask them any question easily.

And also, it is easy to make friends. This is second reason. In case of Tokyo Tech or other Japanese universities, students make friends with someone in some class, some major, some club. But in case of IITM, students can easily make friends with someone who has no relationship. Maybe, that friend is lifelong friend.

In IITM, there are many playground so students play any club activities after sunset. Before this visit, I think people in IITM study all the time and don't play other activities, but it's not right image. Students enjoy doing club activities like volleyball, cricket, kabaddi and so on.

One of TA who can lift more than 100 kg with bench press said, "No Training, No Life"

Also, on my way to hostel, many enthusiastic students were listening to music of band by some students. I heard this live were held by only students regularly. Like them, many students in IITM concentrate on not only studying but also other activities.



Figure25: City of India

## **Chapter5      Company visit**

### **5-1 Industry in India**

Industry in India has been highly developed after new economic policy was carried out in 1991. GDP in 2015 is 7.56% and it is larger than china's one. The proportion of GDP of each industrial structure in India is as follows. In 2012, Primary industry is 18%, secondary industry is 27%, and tertiary industry is 55%.

The main industry in India is IT, Information Technology. The development of IT was one of the primary purposes in new economic policy in 1991 and now about the half of Fortune 500 outsource their IT system to Indian company. There are three reasons that IT industry was highly developed in India. First, there are a number of people in India who can speak English. Additionally, they can be employed at low cost. Therefore, India could get a number of task from America. Second, the time difference between America and India is about 12 hours. So if Americans sent software which they are developing to India at night, Indians could takeover their task. Third, caste system in India also contributes to development of IT. Caste system was banned at constitution, but it still remains as a habit. IT industry came out in the latter part of the 20<sup>th</sup> century, so it is irrelevant to cast system. Therefore, in India, it is said that if you can get a job of IT-related company, you can break out of that system.

### **5-2 L & T(Chennai construction company)**

L & T has started two staffs; Henning Holck-Larsen and Soren Kristian Toubro, and their initial became company's name. Now L & T is so famous company that business magazine Forbes listed L & T among the World's Best Employer for 2018 and on the list; Forbes Global 2000 rankings of publicly traded companies in 60 countries around the world, L & T placed at No.22. It has construction, power, financial services, and many kinds of branch and its business is essential for Indian lives. In 2011, they cooperate with Japan Research Institute to exchange their information and proposal their business. So there is much connection between L & T and our society.

We visited L & T on 8 March, and went to Engineering Design and Research Centre (EDRC). We experienced Building Information Modeling (BIM). BIM is database which include shape, property of building element, geographic information and so on like CAD and we can watch these data as 3D models with 3D grasses. We watched Statue of Unity which is statue of Vallabhbhai Patel who was famous Indian politician and was 182m. That is higher than Ushiku Buddaha(120m) that is the highest statue in Japan and the highest statue in the world. Using this application, not knowing expertise, we cannot grasp only shape but also structure, material and so on. In the future, using this

application, all people will be able to think their living when they buy house. But now we can watch this application in only L & T. I wish Tokyo tech had.

After the BIM system experience, we visited Technology Development Center. They study material; concrete. In Japan we use various materials to build things, but in India 90% of structure are concrete. Study of concrete is important for developing Indian civil. There are eco concrete called GEO-POLYMER concrete not using cement, concrete filled with styrene foam which is used some building for roof, very light concrete named LWC pipes and the machine that liquid includes oil change water. 3D projector is there too.

Policy of L & T is “committed to total customer satisfaction” and “enhancing shareholder value”. In this visit we catch this feeling and vitality. L & T will be so big company that all of us know this name.



Figure26: In L & T

### 5-3. Automotive industry in India and Nissan India

#### Automotive in India

In India, share in automotive occupies only 19% (including passenger vehicles, commercial vehicles and three wheelers) in 2017-2018. Besides population in India is increasing so it can be expected that automotive market in India become larger and larger. Even now, the number of cars which are sold in India in 2017 is the 4<sup>th</sup> largest in the world (1<sup>st</sup> is China, 2<sup>nd</sup> is America and 3<sup>rd</sup> is Japan).

In automotive market today, Maruti-Suzuki accounts for 49%. Tata Motors and Mahindra and Mahindra also have big share.

#### 1. Nissan India

Nissan Motor India Private Limited was established in 2005 by Nissan and Renault. Both companies made a 50% investment each for the company. We visited its factory in Chennai and watched process of producing cars. Nissan India haven't found what type of car can be sold well in India yet so many types of cars were made there to know it. Much more people were working in the

factory than Japan. There are several reasons for that. First, as they create many types of cars at same place, it is difficult to make cars automatically. Also, employment cost in India is so low and the number of cars which they can produce in the factory is not so much so that it isn't reasonable to introduce machines. On the other hand, they made a lot of devices to make cars precisely and safely. Thanks to the devices, they can see how well the factory works and where troubles happens if they have some troubles. After watching process of producing cars, we talked with Japanese employees of Nissan India.

## 2. Through the visit

It was exciting experience for me to visit Nissan India. I saw differences between India and Japan in a view of car factory such as human cost, the number of people who are working there and so on. Also, I was impressed to know how much careful they are when they make cars. It is also great that we had a talk with Japanese employees. We knew how it was like to work in India as Japanese.



Figure27: Nissan

## 5-4. IT industry in India and NEC Technologies India Pvt. Ltd.

### 1. Information Technology in India

These days, people in the world say that there are many Information Technology (IT) Companies which are both domestic and foreign ones and lots of people who can write computer programs and have specialize knowledge of Artificial Intelligence (AI) and machine learning. Especially, Bangalore, we visited, is called "The Silicon Valley of India". The name signifies it as the center city of IT in India.

### 2. Visit to NEC Technologies India Pvt. Ltd.

In this short-term visit program, we went to NEC Technologies India Pvt. Ltd. (NECTI) on March 11th (Day 8). I want to show you what we have seen below.

NECTI has a good relationship with NEC Corporation of America. Both companies can share their tasks, because the time difference between India and U.S.A. (Washington, D.C.) is 9.5 hours and people in both countries use English. During our visit in NECTI, Mr. Ikeno, who is president and CEO in NEC Corporation of America, came to NECTI.

NECTI has developed many kinds of services. Especially, it has made and provided services related

to Biometrics. It is a kind of technology which can recognize each person by using features he or she has such as finger print, iris, and face. Thanks to biometrics, for example, we can spend less time checking in and out hotels and cameras can detect the faces of criminals. Not only with image recognition technology but also with load sensor technology, NECTI has designed the system which can automatically check the number of items on the shelves.



Figure28: In NEC

### 5-5. TARA Books

When we stayed at Chennai, we visited not only large and global companies like NISSAN, but also small company. It is Tara Books. Tara Books is an Indian publisher and is also famous in Japan. People there print traditional pictures and wall paintings as illustrations of books. They produce not only folded books but unique books. For example, a sheet of paper like a map when you open the book. And their ways of printing are also unique. In Japan, many publishers print papers with ink, bind books, and send them to book stores. But Tara Books uses soy ink, which is popular one in Japan, and also uses screen printing. I am a member of Tokyo Tech art club and have an experience with screen printing, so I know its difficulty (spending a lot of time, expending a piece of cloth tightly and correctly... and so on). Once I looked at the books with screen printing technique, I was amazed that 3 or 4 colors are used in them, and I felt that inks are really on the papers when I touched printed area.



Figure29: Tara Books

#### references

- [1]<https://www.census2011.co.in/religion.php>
- [2]<https://www.britannica.com/topic/Yoga-philosophy>
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## **Chapter 6 Comment of each student**

### **B4 School of Science, Physics**

It was the first time for me to participate in this kind of institutional program. It was better than I arranged a trip myself, because it enables us to interact with foreign brilliant students, go into campuses and corporations, shorten the necessary time for preparation for the trip due to the coordinators' help, and we are forced to make our opinion explicit by this report. But there exist some bad points, for example, we can survive with our Japanese somewhat, we can survive without organizing the itinerary by ourselves. Therefore, though my English skill is blunt, I am not determined to study English so hard as Indian people do. But overall, the participation to this program changed my opinion to some extent, because there are fewer "rules" and "manners" in India than in Japan. I couldn't enjoy this opportunity if I had to do it myself, because I was too busy to arrange a trip by myself. I really appreciate Ms. Taya's contribution to this program and her kindness, and thank you all of the participants for their tolerance for me.

### **B3 School of Materials and Chemical Technology, Chemical Science and Engineering**

I joined this program to get stimulation. I have lived in Japan safely for a long time so I must recognize as if this safety normal I think the narrow point of view is very dangerous. Actually, visiting India, I found its development from atmosphere there. I found that India is more developed than I imagined. In the IITM campus, students were studying enthusiastically and very active when sports festival was held during our staying. Through this program, I think strongly I have to build a core of something that Nissan company employees told us. I will build a next target and spend my campus life to achieving my goal meaningfully.

### **B3 School of Engineering, Electrical and Electronic Engineering**

I applied for this program because of many reasons.

I enjoyed the visit to companies such as Nissan because I'm interested in joining business in developing countries. Also, diving into a chaotic and strange world was fascinating.

But the top reason is that I wanted to see the real situation of the rapidly developing country which will allegedly grow as big as China.

One of the astonishing aspects of India for me was its huge population. I knew its population is high,



but it exceeded my expectation. What's more, I could see many problems which are at least partly attributed to its population.

Although the new automatic system was devised in Bangalore, it can't be installed because hiring people is way cheaper. There were innumerable number of people in just a common market. Cars obeyed few laws on the road (only signals, reverse run, etc...). Many stalls were on the streets and even inside the tourist spots (I suspect this is because there is no job).

I felt those problems would be relieved if only India had smaller population. India's population is said to surpass China's population in the future. Before going to India, I thought it is one of the factors of India's rapid development. But it turned out, this brings many problems to the nation. Later on the Internet, I found out India tried to, but failed to limit its population unlike China.

This experience taught me that each country has its own problems. And sometimes those problems can be seen only from inside the country. This visit to India stimulated me to think about problems of the world more broadly, and more deeply.

### **B2 School of Engineering, Industrial Engineering and Economics**

Caste are my impression for good or bad. Despite that the system of caste was abolished in public, it remains deeply rooted at present and affects people in India. Walking around the beach near the slum area, an elderly woman come close to us and showed the silver cup with a little money. She was a so-called a beggar who asks others to give money or goods.

I have heard there are many beggars in India before this visit, but I thought complex feeling.

They are victims of caste system so they have no power to escape from this system. Not only that, they may have no will to escape from this system. If I were them, I could have not endured.

Of course, I enjoyed and learned other side of India. In the time of class, many students concentrated on class and asked many questions. That convinced me of the difference between the mind of students in Japan and that in India. Indian people spoke English too quickly so I could not understand what they said at first. But concentrating on their speaking, I managed to understand them. That's why they improved my English skill. Indian dishes are very spicy and delicious for me. But I was always careful not that curry jumped to my clothes.

At last, I appreciate everyone who give me this wonderful opportunity and I'm looking forward to visiting India next time.

### **B2 School of Engineering, Mechanical Engineering**



Actually, India was in chaos! This is my impression of the country through this study program. While I was going to the destination by bus, I was surprised to be very busy with lots of motorbikes and cars. This traffic jam was completely different from that in Japan. I saw minor traffic accidents many times, so I believe that their minds in keeping the traffic rules in India are such a mess. Their society seems to be in chaos. There were the significant gaps between the rich and poor, compared with Japan. There was no difference between IITM campus and Tokyo Tech campus except for the size of campus. However, when I went outside IITM, I saw the world that I had never seen in Japan. There were much garbage and many homeless on the road. Food and drinks were too bad in terms of sanitary condition, so I was not able to eat and drink. I can survive in IITM campus but not able to survive outside the university.

Although Indian minds and society looks in chaos, they are good-hearted and very friendly. Officers and teachers in IITM kindly guided us many facilities in campus. Students also helped us being familiar with the university and Indian culture. At the conference and the presentation, they were speaking English slowly so that we could understand easily. From these experience, I encounter a new different image of India. I thought that most Indian are not friendly for visitors. After visiting India, I learn that they are good-hearted and very friendly. I really enjoyed short Indian visiting. I appreciate everyone who gave me these wonderful experiences.

## **B1 Group 2**

This is my first time to go abroad and I have to say that it was wonderful experience. Of course, there were several things that I felt stressful at first. It was too hot and most drinks including water in India was not so cold. But people in India were very kind, honestly kinder than I expected before I went India. They sometimes helped us when we had troubles and seemed to try to understand our not-so-good English. Their kindness, their approach to communicate with us was encouraging to me. It was also interesting to touch their culture, food and so on. As for me, every experience I had in India was fresh and filled with stimulus. On the other hand, I found some homework that I have to do after I went back to Japan. I think I should study English harder so that I can communicate with foreign people more fluently. Besides I have to learn professional things. When I took classes in IITM (Indian Institute of Technology Madras), I hardly understood what the teacher in the class said. It was sad experience. Anyway, I learned a lot and found what I have to do from now on through this program. I had really good time. I appreciate all who involved in this program.

### **B1 Group 7**

I was the only girl who participated in this program. Let me focus on what I experienced in India from the girl's point of view.

In India, kurta, a loose shirt, is popular among young women. When I heard about this shirt, I made up my mind to wear one in order to feel like I was a member of the local people. At a class, I got along with two students, and after school they kindly took me to a shopping mall and chose a nice traditional kurta for me. To my surprise, a lot of people told me that it looked good on me. This kurta is one of the mementoes of my days in India.

The girls in IITM were tough. Their actions were energetic and they did not hesitate in arguing and cooperating with boys, which stimulated me to be more active. However, some students told me that Indian society was still conservative. For example, there were some restaurants and buildings in the campus that only girls were allowed to use. Although these rules may protect girls, the society should question the assumption that girls are weak and need protection.

Another thing I realized is that Indian infrastructures were not with enough consideration for women. I often felt uncomfortable in a bathroom. Most bathrooms were not separated by gender, and the toilet seats looked too dirty to sit on. Moreover, many bathrooms did not have garbage cans or toilet paper. I hope they would solve this kind of sanitary problems, and more people would feel like visiting India, the energetic country with a lot of attractive cultures.



Figure28: Kurta my friends chose me

### **B1 Group 1**

Crowded people, very traffic jam, very fast taxi ... this is exactly the Chaos!!! The first time I got out of the airport, I was so excited and all I saw attracted me. Through the trip, I came to like India more and more.

The program changed two points of my view. The first one is compromise of selfish and kindness. Looking from me, people in India are basically selfish. On the other hand, they are very kind to other people if they are asked. Probably, they help each other to achieve their goals. This way of thinking is very nice and I'd like to adopt in anyway.

The second one is the way of communication in English. The English of India is very unique and I could hardly understand at one time. Therefore, I was forced to say "Excuse me?" many times. However, this experience gave me toughness to communicate in English. I noticed that I can demand the level of English to other people.

Came up, but lucky day.

### **B1 Group 4**

It is my first time to go to India and to go to foreign countries. I think I was able to study a lot of things.

First of all, English is very important for us to live in or go to foreign countries. I knew it before going to India but I was able to feel it strongly in this program. I listened at a lot of English in this visit and could only understand 60% of their contents. I realized I need to practice speaking and listening English more to get the ability to understand English speaking and tell something correctly in English.

Next is the diversity of foreign culture. Feeling this was very amazing experience. Almost all things are different from Japan. We can't drink tap water. All foods are spicy. IITM is very large and have many animals. We wasn't able to imagine it before going. I realize from this living in foreign countries is unpleasant for us before getting accustomed to the culture. However once I do so, living there and feeling another culture is very interesting.

In this program, I can get many information about India I cannot get from internet. People in south India are very kind. When I was looking around for class room, security guard talked to me and taught the class room. In Indian city, there are both rich people and shop for them and poor people and store for them.

This experience was very valuable one for our life because I was able to feel foreign country different

from Japan. In the future I want to go another country and search the difference between India and that country.

#### **B1 Group 6**

I thought that India is too difficult for me to live; traffic is not preparation and food is too spicy to eat and many crimes are there. But those were not so hard that I thought. Traffic was not crowded, and in some area of Bangalore there is rule. But somewhere cars were driven as a racing game. Food was delicious but there are not many kinds. People are so kind that they listen to my talked until they understood and they spook until I understood. But on the road, they talked to us if they did not know. Included those things, I noticed same and different things to Japan. Through this experience, if I meet different culture which I cannot image, I adjust their living to watch and listen. And I try to study civil engineering to think people's living.

India is good place to improve my English skill because they are good at talking. Their English has some accent and their English is different from Europe. But afford that it is alright foe me to mistake give me brave to talk.

#### **B1 Group 4**

Through the experience that I have studied in India, I feel that I have grown because I has gained in confidence since I visited there. The experience did not improve my English very well, but I cannot make progress without speaking.

In the first part of this program I felt that it was difficult to speak English because I was ashamed to be poor at English and to speak it with a Japanese accent. However, I gradually realized how important it was to talk to someone. There were some reasons in this. Many participants of the program actively spoke and asked questions. That stimulated me. Also considering most people in India speak English with an Indian accent, I have thought that my way to pronounce is not significant. The important thing is the content of story.

As time went on, I asked more questions to people there. They managed to understand what I said. By studying in India, I became able to speak English without hesitating.

#### **B1 Group 4**

What impressed me in India is Indians' kindness. I had trouble in listening English, but the speakers are kind enough to speak slowly and easily to listen. Besides, when I wait for cuisines in restaurant, the local people talk to me. They are very friendly. Before I go to India, I was worried if I can get along with local people, but we could make friends. This experience brings me confidence that I can get along with foreigners in the future.

In addition, I could experience the life in developing countries. There are many homeless, and many people wanted me to give money. This situation is impossible in developed countries like Japan. This experience gives me various things I didn't know.

#### **Group 5**

Before going to India, my friend who has been to India said to me, "Visit to India can change your point of view." Then I didn't think so, but I have an extremely different point of view after staying in India for 10 days. There are, of course, many rich people in India. There is UB City near the hotel which we stayed at in Bangalore. It is India's first luxury mall and I thought that it is similar to Roppongi Hills in Tokyo. On the other hand, I could see many people living in the houses which were covered with blue tarpaulin near the electrical substation. I have never seen it before. And some people there didn't wear their shoes on. In the future, I think that the more India develops, the bigger the gap between the rich and the poor. The same may be said of Japan.

#### **B1 Group 4**

One of my purposes of this study program was to experience what it is like overseas university classes. All classes at IITM was in English and teacher spoke fast, so it was tough to understand everything teacher said. Additionally, in some classes, I was said to answer questions suddenly, but I couldn't understand the meaning of it. Most of the students in class concentrated on class and some students asked questions positively. As a result of this stay at IITM, I felt that it is necessary to study English more to keep up with college students in other countries.

City in India was so interesting to me. Especially in Bangalore, in area around out hotel, there are many modern buildings and roads and traffic light was kept in good condition. However, at a little distance from central part, there are many local people and some people sat on the ground and sold old books or accessory at low cost. In Chennai, the atmosphere between inside and outside of IITM

was also very different and I felt that India has been developing rapidly and GDP is high, but there is still big gap between the rich and the poor.

Through this program, I could have a valuable experience which I couldn't do in Japan. From now, I'd like to join such programs more positively.