

Summer Program

18– 30 Aug., 2019

Taipei, Taiwan

TAIWAN TECH
NATIONAL TAIWAN UNIVERSITY OF SCIENCE AND TECHNOLOGY

ABOUT THE SUMMER PROGRAM 2019

In 2019, National Taiwan University of Science and Technology (Taiwan Tech) offers 2-week Summer Program, for students to pursue individual research projects under Taiwan Tech's faculty supervision or to enjoy internationally collaborative study in Taiwan. All participants will have the opportunities to learn about Taiwanese culture and experience life in one of the most exciting and advanced societies in the world.

The Programs will focus on the cooperative work among different students to resolve engineering problems. The core purpose is to promote and enhance the intensive theoretical and experimental approaches to acquiring various knowledge in engineering. Taught by Taiwan's leading professors in the fields of Physics, Chemistry, Materials Science, Electrical Engineering, Design, Biotechnology Science, Patents and Entrepreneurship, in this year, the programs are aimed to further inspire participants that are involved in the fundamentals and applications of the engineering knowledge. In addition, the participants will have the opportunities to meet the experts and visit companies. All participants must be affiliated with the 6U-HAPPIER and able to present in English.

Program Projects and Goals:

- **Preparation of wound dressing material**
- **Advanced Green Systems**
 - **Microbial Fuel Cells**
 - **Plasma application**
- **New Design Thinking and Psychology Skill**
- **The Art of Mobile Photography**
- **Factory Tours**
- **Taiwanese culture and Language**
- **Exploratory Field Trips and Site Visits**

The program fee amounts to **8,000 NTD**. (technical program proceedings, bus tour, accommodation fee and welcome/graduation Party)

The registration fee for the program will be collected at the IB-301 room on 19th August 2019.

VENUE (Host City)

Taipei, capitol of Taiwan, is located in the north of the main island, surrounded



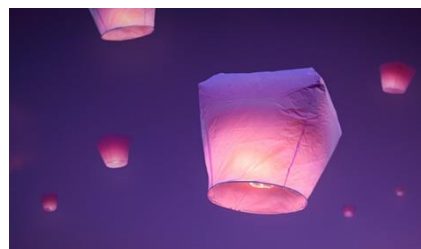
by towering mountains and home to some greatest hot springs in the world. With a mesmerizing history, Taipei is a tough little city whose beauty lies in its blend of Chinese culture with a curious fusion of Japanese, Southeast Asian and American/European influences. A bustling metropolis with charming neighborhoods, fascinating temples, and friendly people, Taipei is blessed with compelling city scene and abundant natural attractions. Its efficient transportation system makes it easy and comfortable to navigate the city.

Meet
Colors!
台湾



Taipei is referred to by Condé Nast as being the best Asian food city for its multicultural culinary tradition: street-food stalls, Michelin-starred restaurants, design-driven cafés and eclectic coffee shops and tea rooms. The famous Shilin Night Market is one great dining and shopping destination among the many

night markets in the city. It is extremely crowded streets feature small stores and stands selling a mixture of food, clothing, and consumer goods that are tailored to satisfy the latest trends among young people. Like many vibrant destinations in Taipei, Shilin Night Market usually opens in late afternoon and operates well past midnight.



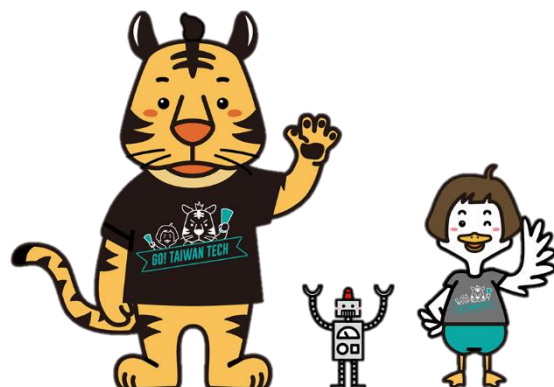
ABOUT TAIWAN TECH

*"AN INTERNATIONAL APPLIED RESEARCH UNIVERSITY PRODUCING
GLOBALLY COMPETITIVE HIGH-TECH AND MANAGEMENT PERSONNEL TO
BUILD THE FUTURE OF OUR NATION AND SOCIETY"*



The National Taiwan University of Science and Technology (NTUST), commonly referred to as Taiwan Tech, was founded on August 1, 1974 as the first higher education institution of its kind within the nation's technical and vocational education system. After more than thirty years of dedication to growth and excellence, NTUST is now the number one technology-focused university in Taiwan, and has ranked among the top 10 institutes in Asia in science and technology. A school committed to meeting the needs created by the rapid economic and industrial development for highly trained bachelor's degree-level engineers and managers, Taiwan Tech now is a world-class intellectual community that grants master's and doctoral degrees and comprises seven colleges, including Engineering, Electrical and Computer Engineering, Management, Design, Liberal Arts and Social Sciences, Applied

Science, and Intellectual Property Studies. A leading research institution, Taiwan Tech strives for meaningful collaboration that encourage and enhance research, innovation, and service.



Schedule

(i) Registration :

Date and Time: Sunday, August 18, 12:00 to 18:00

(ii) Opening Ceremony

Date and Time: Monday, August 19, 09:00 to 09:30 (IB-301)

Opening Remarks:

Culture Shock and Cultural Adaptation

Time: 9:40-11:00

Period (Room No.): IB-301

Dr. Yvonne Chuang (Center for Institutional Research and Development)

Course Description

The goal for this presentation is to help students understand the meaning of cross-cultural stress and the impact of stress on student's learning experience and social interaction. Based upon these understandings, students will discuss their comfortable and uncomfortable cultural experiences while proposing the improving strategies for uncomfortable encounters.

Course Objectives

1. Understand the definition of cross-cultural stress and the impact of chronic stress on brain function.
2. Familiarize with the sources of cross-cultural stress, such as cultural context, privacy, and proxemics.
3. Help students adopt strategies to alleviate stress through scenario-based simulation training

Fun Taiwan: Culture and spots in Taiwan

Time: 13:30-16:20

Period (Room No.): IB-301

Ms. Ya-ting CHIANG (Language Center, Taiwan Tech)

Taiwan is a small island with huge diversity! Taiwanese culture is a blend of traditional Chinese, Taiwanese aboriginal, Japanese and Western cultures that made Taiwan become so fascinating! Not to mention the fact that the hospitality of Taiwanese people impressed visitors and became one of the best part of their travel experience. Through exploring different perspectives of Taiwan (e. g. languages, customs, religions, festivals, food, etc.), we hope that visitors will have a deeper understanding of Taiwanese culture and enjoy their stay in Taiwan!

Course Description

In this course, we will probe different perspectives of Taiwan via lectures and various activities. The topics that we will cover are as follows:

1. etiquette (e.g. greeting, dining etiquette, etc.)
2. attractions
3. festivals
4. food culture

Course Objectives

The student, upon completion of this course, should be able to:

1. understand the customs and etiquette in Taiwan.
2. familiarize themselves with the must-see attractions in Taiwan.
3. use simple Mandarin to communicate with the locals.

Schedule: Summer Program 2019

Dates	Schedule
8/18	Registration
8/19	Opening Remarks Culture Shock & Cultural Adaptation Fun Taiwan: Culture and spots in Taiwan Welcome Party
8/20	Exploratory Field Trips and Site Visits
8/21	Exploratory Field Trips and Site Visits
8/22	Exploratory Field Trips and Site Visits
8/23	Exploratory Field Trips and Site Visits
8/24	Cultural exchange With Taiwan students
8/25	Cultural exchange With Taiwan students
8/26	<ul style="list-style-type: none"> ➤ Creativity and Cognitive ➤ The Art of Mobile Photography
8/27	➤ Advanced Green Systems - Microbial Fuel Cells
8/28	➤ Preparation of wound dressing material
8/29	➤ How to Initiate a Scientific Research?
8/30	Final presentation Closing ceremony Graduation Party

Advanced Green Systems - Microbial Fuel Cells

Period (Room No.): IB-301

Prof. Chen-Hao WANG (Department of Materials Science and Engineering)

The scale of modern industrialization has given rise to environmental problems of unprecedented complexity. Like toxic waste, wastewater disposal, heavy metal pollution of contaminated land and water. The challenge for today's environmental problems requires innovation in improvements to manufacturing processes and in the utilization of natural resources. The microbial fuel cell (MFC) is a renewable energy system, in which bacteria harvest energy from bio-degradable materials. In an MFC, organic matter is oxidized by microorganisms in the anode, and electrons are subsequently transferred to the cathode via the external circuit. The MFC not only converts wastewater into electrical energy but also degrades the chemical oxygen demand (COD) in wastewater. Therefore, the MFC provides a tremendous opportunity to achieve sustainable wastewater treatment as it is possible.

Course Description

Fundamentals of the fuel cell. Electricity generating microorganisms. Electron transfer mechanism microbial fuel cell (MFC). Parameters for evaluating MFC performance. MFC reactor configuration. Potential applications of MFC.

Course Objectives

The student, upon completion of this course, should be able to:

1. Understand basic fundamentals of microbial fuel cell activity and explain potential applications.
2. Write a short research proposal based on the course contents.

Atmospheric Pressure Plasma Technology

Period (Room No.): IB-301

Prof. Yu-Lin KUO (Department of Mechanical Engineering)

Course Description

In recent decades, the plasma systems operated at atmospheric pressure has developed dramatically due to the possible benefits of eliminating an expensive vacuum system, on-line processing capabilities, high efficiency, and the scalability to a larger area. Nevertheless, atmospheric pressure plasma systems are desirable in comparison to low pressure plasma systems: the atmospheric pressure plasma overcomes the drawbacks (cost, complexity) of low pressure processing. So far, typical atmospheric pressure plasma systems are divided into two parts. First one is arc plasma torches belonging to equilibrium thermal plasma, while corona discharges, dielectric barrier discharges (DBD), and atmospheric pressure plasma jet (APPJ) are the type of nonequilibrium thermal plasma. In particular, atmospheric pressure plasma jet gained large acceptance, because they are easy to integrate into existing production lines and it can treat specific parts of substrates selectively. The lecture is to address several industrial applications based on atmospheric pressure plasma technology to solve the adhesion (bonding) problem on heterojunction components.

Course Objectives

1. Basic introduction of plasma technology and category of atmospheric pressure plasma system.
2. Adhesion issue on bonding cases.
3. Fundamentals of surface treatment technology.
4. Understand the problems offered from the industrials and the total solution.

Preparation of wound dressing material and its application on traumatic mice model for evaluation

Period: National Defense Medical Center

Prof. Meng-Yi BAI (Graduate Institute of Biomedical Engineering)

Course Description

The aim and goal of this one-day practice course is to lead the student quickly familiar with the material processing. In addition, a step by step teaching course will be given by the instructor to let the student understand the basic ethics and animal study procedures using a traumatic mice model operating in an international accredited animal center.

Course Objectives

1. Preparation of wound dressing using electrospinning technique
2. Introduction of mouse physiology
3. Animal restraint and animal anesthesia administration
4. Operation of full skin removal surgery
5. Application of wound dressing
6. Drug administration for relieving pain
7. Post-anesthesia care

※ On-Site Research

National Defense Medical Center

www.ndmctsgh.edu.tw

The Art of Mobile Photography

Period (Room No.): IB-301

Prof. Tsan-yu Hsieh (Alanus Hochschule für Kunst und Gesellschaft, Germany)

Hsieh Tsan-yu, an Artist from Taiwan, creates beautiful, colorful and soothing photos of everyday objects by arranging them into neat and orderly collections based on size, shape and color. The simple and beautiful patterns in his images are profoundly calming, and they also show that beautiful art can be made from just about anything!

This course is like nothing that has ever been offered before! Mobile photography IS photography. In this course, you will learn basic principles of photography and creative techniques that you can apply to your mobile device, point & shoot or new DSLR camera. Although I teach the course on a phone, everything you learn will benefit you throughout your entire photographic adventure!

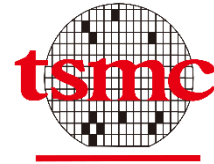
Course Objectives

1. Create Simple Yet Powerful Compositions
2. Master The Visual Language of Photography
3. Master The Creative Photography Process
4. Master The Art of Portrait Photography
5. Take A Picture That Impresses with Any Camera

Exploratory Field Trips and Site Visits

TSMC

www.tsmc.com



Technology is one of TSMC's cornerstones. TSMC has the broadest range of technologies and services in the Dedicated IC Foundry segment of the semiconductor manufacturing industry. The IC Industry Foundation strategy embodies an integrated approach that bundles process technology options and services. TSMC collaborates with partners to ensure that all services supporting those technologies represent the best practices in the Dedicated IC Foundry segment. To that end, TSMC and its ecosystem partners deliver the largest portfolio of process-proven IP and libraries, and the IC industry's most advanced design ecosystem.

ULVAC

www.ulvac.co.jp



Our company was founded in 1952 for the purpose of importing and selling various types of vacuum systems, and it concluded a general agent agreement with NRC Equipment Corporation, a U.S. company, for technical cooperation in the future. ULVAC possesses research and development institutes as its group's think tank in order to meet the latest process needs from their customers by providing solution from various points of view including equipment, processes and materials.

GARMIN

www.garmin.co.jp



Garmin Ltd. (shortened to Garmin, stylized as GARMIN, and formerly known as ProNav) is an American multinational technology company founded by Gary Burrell and Min Kao in 1989 in Lenexa, Kansas, United States, with headquarters located in Schaffhausen, Switzerland and Olathe, Kansas. The company is known for its specialization in GPS technology development for use in automotive, aviation, marine, outdoor, and sport activities and utilities. Due to their development in wearable technology, they have also been competing with activity tracker and smartwatch consumer developers such as Fitbit and Apple.

Shiseido TW

www.shiseidogroup.com



Shiseido Company, Limited is a Japanese multinational personal care company, that is a skin care, hair care, cosmetics and fragrance producer. It is one of the oldest cosmetics companies in the world. Founded in 1872, it celebrated its 140th anniversary in 2012. It is the largest cosmetic firm in Japan and the fifth largest cosmetics company in the world. Shiseido is only available at cosmetic counters at selected department stores or pharmacists. The company owns numerous brands and subsidiaries worldwide, in addition to its founding label. The company is headquartered in Tokyo, and trades on the Tokyo stock exchange, it is a chief competitor of SK-II.

Grabio Greentech Corporation

www.grabio.com.tw



Grabio Greentech Corporation was established in 1999, engaged in the research and development of environmental materials. In the revolution of food, medical treatment, environmental protection, and energy problems, GRABIO provides products that can cut down on pollution and reduce the use of petroleum. GRABIO believes by using renewable resource material to develop Bio-based and Biodegradable plastics (Bioplastic), it can replace plastics made from petroleum and create a cleaner and more sustainable future.

SYM Motors

www.sym-global.com



Sanyang Motor Co., Ltd. was founded in Taipei in 1954 by Huang Chi-Chun and Chang Kuo An. The company's headquarters is established in Hsinchu, Taiwan and sells its two-wheeled products under the brand name SYM. Sanyang's three major production bases are in Taiwan, China and Vietnam. The company manufactures and sells scooters, motorcycles and ATVs under the SYM brand, while it also manufactures automobiles and mini-trucks under the Hyundai brand. Since it began, the company has produced more than 800 thousand automobiles and 16 million scooters and motorcycles. The annual sales revenue of the company exceeds 1 Billion US dollars and it produces about 600,000 units of motorcycles and 20,000 automobiles per year. SYM currently employs around 2,300 people in its Taiwan manufacturing plants.

Location & Transportation

From Taiwan Taoyuan(桃園) International Airport to Taipei downtown

Taiwan Taoyuan International Airport (Airport Code: TPE) which is situated 40km (24.8 miles) southwest of Taipei. It takes about an hour by car to get to most places in Taipei downtown in moderate traffic.

▲ By Taxi

Taxis queue outside the Arrival Halls of both Terminal I and Terminal II of Taiwan Taoyuan International Airport. Airport taxis charge according to the meter plus a 50% surcharge (highway tolls not included). Typical fare to Taipei downtown is around NT\$1,100 (NT\$1,200 to NTUST campus and hotels nearby). Note: Please ignore any solicitations of taxi service inside the Arrival Hall. Do hire one at the official taxi stop.

▲ By Bus

There are several long-distance bus companies provide frequent services between Taiwan Taoyuan International Airport and downtown Taipei. The trip takes about 60-90 minutes. Ticket counters are located in the Arrival Passenger Reception Areas of both Terminals. Luggage is self-served. Adult single fares vary from NT\$ 125 to \$150 depending on the location of the terminal stop in Taipei. English flyers are distributed on the ticket counter. Most clerks are able to speak English and Japanese. For more information, please visit transportation information provided by the airport. You could choose a bus line which has stops near your hotel. The most convenient way to get to the hotel is by taxi.

From Taipei Songshan(松山) Airport to NTUST campus

Taipei Songshan Airport (Airport code: TSA) is close to the NTUST campus and the Taipei city center.

▲ By bus

Take the bus (275) from the airport main entrance to National Taiwan University of Science and Technology

▲ By Taxi

Taxi cab can be hired outside the Arrival Hall. The taxi charges according to the meter.

▲ By MRT

Take the Wenshan-Neihu Line; 文湖線 from Songshan Airport Station to Technology Building Station directly. The NTUST campus is close to Gongguan Station; 公館 (Green line).



國立臺灣科技大學

National Taiwan University of Science and Technology

10607 臺北市大安區基隆路 4 段 43 號

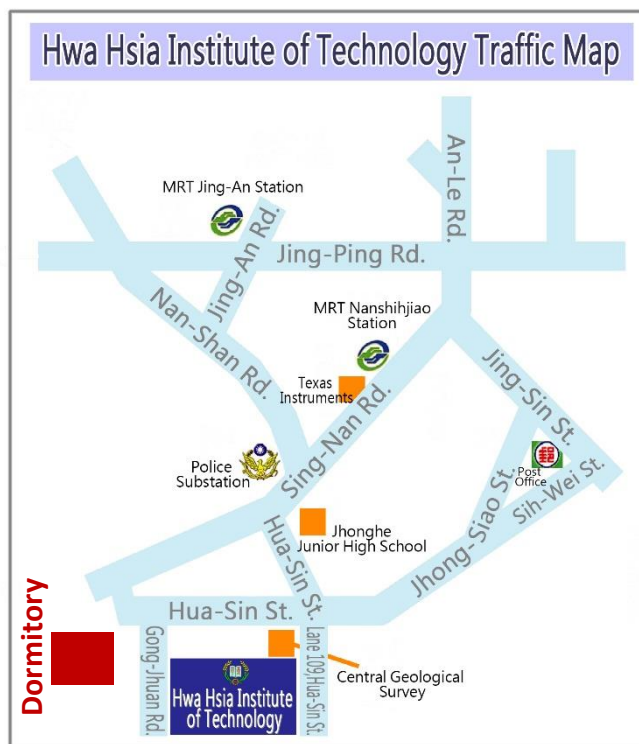
No.43, Keelung Rd., Sec.4, Da'an Dist., Taipei City 10607, Taiwan (R.O.C.)

Tel: 886-2-27333141



Dormitory

To reach our dormitory (Yuantongyazhu; 圓通雅筑宿舍), you are encouraged to use Taipei Mass Rapid Transit (MRT) Systems. Take the MRT and get off at Nanshijiao Station. Walk along Sing-Nan Road for about five minutes; turn left at the intersection of Sing-Nan Road and Hua-Sin Street. Walk down Hua-Sin Street for another five minutes, you will find our campus.



In addition, there are several bus lines that come near the campus area such as #249, #670, #241, #244, #275, etc. If you take the bus #249 or 670, get off at Hwa Hsia University of Technology Stop. If you take the bus #241, 244, or 275, get off at Jhonghe Junior High School Stop. Walk along Sing-Nan Road for about two minutes; turn left at the intersection of Sing-Nan Road and Hua-Sin Street. Walk down Hua-Sin Street for five minutes, you will find our dormitory

圓通雅筑宿舍

235 新北市中和區工專路 26-38 號

HP: <https://goo.gl/maps/SnAX98tEWFC5uuXv5>

