



# CHULA INTERNATIONAL SCHOOL OF ENGINEERING

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## ISE Summer School 2018

### 1. Introduction

ISE Summer School will take place **from July 2 to 20, 2018** at the Faculty of Engineering, Chulalongkorn University in Thailand. It will be **fully taught in English** by Lecturers from Australia, UK, France, Japan, and Thailand.

ISE Summer School is a great opportunity to evolve during three weeks into an international environment and to get to know more about engineering and emerging topics such as UAV, IoT, Artificial intelligence and Fintech.

### 2. Application for Admission

The summer school is open to Chula students and non-Chula non-degree students. Please refer to the section you are concerned as the procedure to follow will differ from one category of students to another.

#### a) Chula students from ISE

ISE students shall register online and do not need to fill in the application of ISE summer school for admission.

#### b) Chula students from Thai program or other international program

Please fill in the application of ISE summer school for admission.

#### c) Non-Chula students

- Undergraduate students
- Postgraduate students
- High school students
- Other

Please fill in the application of ISE summer school for admission.

#### d) Exchange students from partner university

Exchange students from partner university shall follow the exchange program application process and do not need to fill in the application of ISE summer school for admission.

Applications for category (b) and (c) of ISE Summer School for Admission with completed documents shall be submitted to [ise@chula.ac.th](mailto:ise@chula.ac.th) and due on **May 15, 2018**. ISE will notify the **admission results on June 1, 2018**. Applications for category (d) are due on **March 31, 2018**.

### 3. English Proficiency Requirement

Applicants of category (b), (c) will have to provide English proficiency test result not more than 2 years old and passing the minimum requirement amongst the following tests.

TOEFL: Internet-based: 79; Computer-based: 213; Paper-based: 550

IELTS: Overall band: 6.0

CU-TEP (Chulalongkorn University Test of English Proficiency): 80

TOEIC: 670

#### 4. Course Schedule and Description

Table 1: Timetable for Courses of ISE Summer School, July 2-20, 2018.

Time	Course	Dept.	Course Description
09.00 - 12.00	2301107 Calculus I	Math	Limit, continuity, differentiation and integration of real-valued functions of a real variable and their applications; techniques of integration; improper integrals.
	2301108 Calculus II	Math	Mathematical induction; sequences and series of real numbers; Taylor series expansion and approximation of elementary functions; numerical integration; vectors, lines and planes in three dimensional space; calculus of vector valued functions of one variable; calculus of real valued functions of two variables; introduction to differential equations and their applications.
	2143489 IoT Foundations & Applications	ISE	Internet of Things (IoT), network evolution, requirements, standardization, architecture, communication, protocols, planning procedures, performance and security, problem solving and numerical computation, IoT wireless networks, selected applications of IoT. <b>Instructor: Dr. K. Sandy, Visiting Lecturer at Chulalongkorn University</b>
	2145481 Introduction to UAV	ISE	UAV payload, communication system and data link, aircraft design process and initial sizing, basic aerodynamics of small UAVs, propulsion and flight control system for small UAV, structural design and basic detailed design, UAV construction, flight test. <b>Instructors: Prof. Ben Parslew, The University of Manchester, UK, Khristopher Kabbabe, Peter Hollingsworth</b>
13.00 - 16.00	2304153 Physics for Engineers	Phys	Mechanics of particles and rigid bodies; properties of matter; fluid mechanics; heat; vibrations and waves; elements of electromagnetism; optics; modern physics.
	2304154 Physics and Electronics for Engineers	Phys	Electricity; DC circuits; AC circuits; basic electronics; solid state devices; electrical actuators.
	2143488 Big Data and Artificial Intelligence	ISE	Introduction to data science, basic concepts and application of data science, data types, scale of measurement, life-cycle of data science project, modelling, evaluation and deployment, exploratory data analysis, summary statistics, presentation and visualisation, unsupervised methods, k-means, association rules, clustering evaluation, supervised methods, ensemble methods, classifiers evaluation and comparison, statistical modelling and machine learning methods. <b>Instructor: Prof. Philippe Lenca, IMT Atlantique, France</b>
	2143495 Introduction to cryptography and cryptocurrencies	ISE	Primitives, cryptosystems, protocols, cryptographic hash functions, public-key cryptography and digital signatures, public-key infrastructures, advanced topics in cryptography and cryptanalysis, blockchains and merkle trees, the Nakamoto consensus protocol & bitcoin, smart contracts & ethereum, labs: smart contract-based Bitcoin exchanges, zerocoin, zerocash, and beyond, the economics of cryptocurrencies, final project presentation and demo. <b>Instructor: Prof. Chen-Mou CHENG, Osaka University, Japan</b>

16.00 - 18.00	3900115 Sport Activity Muay Thai	Sport Sci	Knowledge, culture, and principles of MuayThai; skills and techniques in MuayThai; punching, kicking, thrusting, elbow striking, and knee kicking; applications of skills and techniques in MuayThai through sport science principles.
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## Notes:

- Courses of Physics and Calculus I & II will be opened only if a minimum of participants have registered. Otherwise, these courses will not be offered.
- Muay Thai class will be opened to a maximum of 30 students and scheduled from 16.00-18.00. This course covers two credits which would be included in the credit transfer. There will be no extra charge.
- Learning outcomes and more details on each syllabus will be provided on arrival, or upon request if needed before arrival.

### 5. Credit transfer

Courses will be opened for eligibility to 3 credit transfer at the home institution of the attendees.

The approval of credit transfer is up to the home institution of the attendee. To ask for a credit transfer students will have to fill the form 'Request for transcript'. Within one month after the end of ISE summer school, students will get their official transcripts by mail. One copy will be sent to the student and another one to the home institution of each student.

### 6. Scholarship for students from Cambodia, Laos, Myanmar, and Vietnam

Students coming from Cambodia, Laos, Myanmar, or Vietnam (CLMV) are eligible to apply a scholarship waiving 100% of the fees and on campus accommodation.

To apply to this scholarship, please submit the following:

- The ISE summer school application for admission
- The Application ISE Summer School Scholarship for CLMV Students with the required documents described in the announcement of summer school scholarship for CLMV students

All documents must be in English and submitted via email by May 15, 2018. ISE will notify the **admission and scholarship results on June 1, 2018.**

### 7. Fees and Payment

*Table 2: Fees per category of students*

Category	Tuition/Program Fees
<b>Thai and Foreign Chula students</b>	Please refer to Chula's rate of tuition and program fee
<b>Thai Non Chula students*</b>	37,625 THB
<b>Foreign Non Chula students*</b>	59,188 THB
<b>Students with ISE summer school scholarship for CLMV</b>	1,000 THB**

Note: \*Students with ISE summer school scholarship for CLMV shall pay a deposit fee of 1,000 THB

Students shall pay the fees by **SWIFT transfer** to Faculty of Engineering, Chulalongkorn University.

<b>Account Name:</b> Educational Fund of Engineering Chula <b>Account Number:</b> 045-2-91244-7 <b>Name of Bank:</b> Siam Commercial Bank, Sapha Kachat Thai Branch <b>Bank's Address:</b> 1873 Henry Dunant Rd., Pathumwan, Bangkok 10330 Thailand <b>SWIFT CODE:</b> SICOTHBK A/C
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**Due payment must be made by June 15, 2018.** Once students have made the payment, please send a scan of the wired payment receipt to [Supaphan.p@chula.ac.th](mailto:Supaphan.p@chula.ac.th), [Sasiwipa.p@chula.ac.th](mailto:Sasiwipa.p@chula.ac.th)

#### 8. Visa for foreign students

Foreign students will need to apply for a student visa, **ED Visa**, in their home country prior their arrival to Thailand. The following process requires about one month.

- Confirm the admission of ISE summer school after receiving a notification of admission result.
- ISE issues a letter for a study purpose in Thailand.
- ISE sends a hard copy of this letter to each foreign student.
- Foreign students apply at the Thai Embassy near their homes for ED Visa.

Note: Student will have to cover costs for flight tickets and other transportation related costs. ISE will give advice on the transportation from the main airports. There will be no airport pickup of attendees.

#### 9. Accommodation for foreign students

Chulalongkorn University offers an on-campus hall of residence called '**CU iHouse**' for foreign students. CU iHouse is a 26-storey building with 846 units for international students and visiting international faculty. Rooms are fully furnished with air conditioning, modern conveniences, 24-hour security and safety systems, and free WIFI internet access. The residence provides a shuttle bus service to faculties within Chulalongkorn University.

For further information, please visit [www.chula.ac.th/en/prospective-student/accommodation](http://www.chula.ac.th/en/prospective-student/accommodation).

##### Monthly Room Rates

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|----------------------|------------------|-------------|
| • Studio 25 sq.m.    | Single Bed       | 14,000 THB* |
| • Studio 25 sq.m.    | Twin Single Beds | 14,000 THB* |
| • 1 Bedroom 50 sq.m. | Single Bed       | 22,000 THB* |

*\*Please note that utility bills are not included in these rates.*

*\*\*Two-month room deposit and one-month rental fee must be paid either in advance or before checking in.*

If participants have required assistance to find an accommodation, ISE will be in touch with them as soon as they are notified of their admission.

#### 10. Lunch services

During the summer school from July 2-20, 2018, lunch will be provided by ISE. Other meals will not be covered by ISE. Chulalongkorn University has many canteens around the campus where students can take meals with international or local food.

#### 11. Cultural activities

After three weeks of Summer School, there will be an opportunity for participants to explore Thai culture by joining one-week discovery trip from July 23-30, 2018. This trip is organized and managed by a local travel agency. All expenses will be borne by students themselves as it is optional. ISE does not guarantee the availability for this trip.

#### 12. Contact information

Summer School Program Coordinator

International School of Engineering, Faculty of Engineering, Chulalongkorn University

Room 107, Engineering 2 Building, 254 Phayathai Road, Pathumwan, Bangkok 10330, Thailand

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