

## Program Specifications of Doctor of Engineering in Electrical and Computer Engineering (revised April 2025)

**Degree awarding Institute** King Mongkut's University of Technology North Bangkok  
**Faculty** The Sirindhorn International Thai-German Graduate School of Engineering (TGGS)

### 1. Curriculum name

Thai: หลักสูตรวิศวกรรมศาสตรดุษฎีบัณฑิต สาขาวิชาวิศวกรรมไฟฟ้าและคอมพิวเตอร์  
(หลักสูตรนานาชาติ)  
English Doctor of Engineering in Electrical and Computer Engineering  
(International Program)

### 2. Degree title

Full (Thai): วิศวกรรมศาสตรดุษฎีบัณฑิต (วิศวกรรมไฟฟ้าและคอมพิวเตอร์)  
Abbr. (Thai): วศ.ด. (วิศวกรรมไฟฟ้าและคอมพิวเตอร์)  
Full (English): Doctor of Engineering (Electrical and Computer Engineering)  
Abbr. (English): D.Eng. (Electrical and Computer Engineering)

### 3. Program credits

Plan 1.1 : 54 Thai CHE credits (research-oriented program without coursework)  
Plan 1.2 : 78 Thai CHE credits (research-oriented program)

### 4. Program details

- |     |  |  |
|-----|--|--|
| 4.1 | Number of semesters in one academic year | 2 semesters  |
| 4.2 | Number of weeks per semester             | 16-18 weeks  |
| 4.3 | Regular study period                     | 3 years for Plan 1.1,<br>4 years for Plan 1.2  |
| 4.4 | Maximum allowable study period           | 6 years for Plan 1.1,<br>8 years for Plan 1.2  |
| 4.5 | Language used in the program             | English  |
| 4.6 | Tuition fees                             |  |
|     | Thai/International student               | 100,000 THB per semester (for 6/8 semesters)   |
|     |  | 100,000 THB per semester x 6 semesters = 600,000THB for Plan 1.1 (three-year study period) |
|     |  | 100,000 THB per semester x 8 semesters = 800,000THB for Plan 1.2 (four-year study period)  |

For further prolonged study from the 7<sup>th</sup> semester (plan 1.1) or 9<sup>th</sup> semester (plan 1.2), only registration fees for maintaining the student status of 20,000THB are charged. (but not more than six years for plan 1.1 or eight years for plan 1.2)

## 5. Program structure

### 5.1 Study Plan 1.1

Doctor of Engineering in Electrical and Computer Engineering Plan 1.1			
Semester	1.	Dissertation	9 credits (30 ECTS credits)
	2.	Dissertation	9 credits (30 ECTS credits)
	3.	Dissertation	9 credits (30 ECTS credits)
	4.	Dissertation	9 credits (30 ECTS credits)
	5.	Dissertation	9 credits (30 ECTS credits)
	6.	Dissertation	9 credits (30 ECTS credits)
Total			54 credits (180 ECTS credits)

#### Course outlines

	Thai credit	ECTS credit
Total required credit	54	180
Dissertation	54	180

## 5.2 Study Plan 1.2

Doctor of Engineering in Electrical and Computer Engineering Plan 1.2			
Semester	1.	Dissertation (6 credits)	9 credits (30 ECTS credits)
		Seminar in ECE (3 credits)	
	2.	Dissertation (6 credits)	9 credits (30 ECTS credits)
		Industrial Research Methodology (3 credits)	
	3.-8.	Dissertation	10 credits (30 ECTS credits)
Total			78 credits (240 ECTS credits)

### Course outlines

	Thai credit	ECTS credit
Total required credit	78	240
Taught course	6	12
Core course	6	12
Dissertation	72	228

## 6. Admission

### 6.1 Admission requirements

- Master or Bachelor degree in engineering or science in relevant fields of Electrical and Computer Engineering
- Good English proficiency, please check the announcement by the academic affairs on the TGGS website <https://tggs.kmutnb.ac.th/grad-admission-info>

### 6.2 Application documents

The fundamental applications documents are as follows,

1. Completion of the application form
2. Evidence of qualifications (certificates or transcripts)
3. Evidence of English Language Proficiency test
4. Two Letters of Recommendation in sealed envelopes
5. Curriculum Vitae (CV) or Resume
6. A copy of your identification card or passport
7. Financial statement (only for international students with self-support)

Note that the requirements of the application documents are subject to change. For the most up-to-date required documents, please check the announcement by the academic affairs on the TGGS website

<https://tggs.kmutnb.ac.th/admission/apply-now/>

### 6.3 Admission process

There are two steps of selection. In the first step, the application will be assessed based on the submitted evidence by the recruitment committee, consisting of the ECE lecturers. In the second step, the selected applicants will be scheduled for a personal interview by the recruitment committee. For international students, the interview by phone or video call can be arranged. The final selection will be made after the interview process. For the most up-to-date admission process, please check the announcement by the academic affairs on the TGGS website

<https://tggs.kmutnb.ac.th/admission/apply-now/>

## 7. Academic collaboration with other international institute

Rheinisch-Westfaelische Technische Hochschule (RWTH) Aachen University, Germany

## 8. Accreditation standard

AUNQA assessment

## 9. Graduation requirements

1. Pass all required courses within 6 years (for study plan 1.1) or 8 years (for study plan 1.2) with a GPA not lower than 3.00
2. English proficiency test score, please check the announcement by the academic affairs on the TGGS website  
<https://tggs.kmutnb.ac.th/graduation>
3. Two publications in an international journal
4. Pass the thesis defense examination and submit the complete thesis

## 10. Education philosophy

The educational philosophy of the D.Eng.ECE curriculum is the industrial-oriented engineering education, which emphasizes on the close linkage between the school and the industry. This linkage between the school and the industry must be presented in all elements in the curriculum, i.e., students, lecturers, literature review, research collaboration with industry, and Doctoral thesis. The lecturers are encouraged to conduct research projects serving the industry. Additional activities, such as a public seminar, can be created to promote the link to the industry. Experts from industry and RWTH Aachen University are invited as to co-supervise the doctoral students as well. Students will be assigned to be involved in the research activities following the industry's needs. This education model can help solve problems in the industry and can lead to innovation as well.

## 11. Program Learning Outcomes of Curriculum (PLOs)

The curriculum of the Doctor of Engineering in Electrical and Computer Engineering was revised in 2025 and first used in the academic year 2025. The PLOs for the Doctor of Engineering in Electrical and Computer Engineering are listed in the following:

Plan 1.1 and 1.2	
Specific PLOs	
1.	Analyze advanced and complex phenomena in Electrical and Computer Engineering by referring to in-depth theories in Electrical and Computer Engineering
2.	Criticize, analyze, and find reasons to explain relationships between complex research experimental results and advanced theory in Electrical and Computer Engineering
3.	Apply advanced STEM knowledge (science, technology, engineering, and mathematics) for solving complicated industrial problems in Electrical and Computer Engineering
4.	Design and build tools for solving complicated industrial problems in Electrical and Computer Engineering, including conducting research toward creating new knowledge that is applicable and following safety principles and relevant industry standards
5.	Conduct research toward innovating new referenceable knowledge and write research articles in Electrical and Computer Engineering
Generic PLOs	
6.	Demonstrate self-reliance, independent thinking, critical thinking, and project management skills for defining and solving specific problems in Electrical and Computer Engineering
7.	Demonstrate skills in interpersonal communication conveying advanced techniques or novel ideas and presenting works in Electrical and Computer Engineering to the public
8.	Synthesis contents in international academic books, documents, and research articles in Electrical and Computer Engineering
9.	Indicate and show good attitude and professional ethics in Electrical and Computer Engineering and research conduct