Program specifications of
Doctor of Engineering in Electrical and Computer Engineering
(revised April 2021)

Degree awarding Institute King Mongkut's University of Technology North Bangkok

Facutly 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 week
4.3	Regular study period	3 years for Plan 1.1, 4 years for Plan 1.2
4.4	Maximum allowable study period	6 years for Plan 1.1, 8 years for Plan 1.2

4.5 Language used in 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 7th semester (plan 1.1) or 9th semester (plan 1.2), only registration fees for maintaining the student status of 20,000THB is charged. (but not more than six years for plan 1.1 or eight years for plan 1.2)

5. Programme 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
Disseration	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
Disseration	72	228

6. Admission

6.1 Admission requirement

- Master degree (for study plan 1.1) or Bachelor degree (for study plan 1.2) 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/admission-info

6.2 Application documents

The fundamental applications documents are in the following,

1. Completion of application form
2. Evidence of qualifications (certificates or transcripts)
3. Evidence of English Language Proficiency test

4. Two Letters of Recommendations in sealed envelopes
5. Curriculum Vitae (CV) or Resume
6. A copy of your identification card or passport
7. Finanical statement (only for international student with self-support)

Note that the requirement of application documents is subject to changed.

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 selections.

In the first step, the application will be assessed on the basis of the submitted evidence by the recruitment committee, consisting of the lecturers of each programs.

In the second step, the selected applicants will be scheduled for personal interview by the recruitment committee. For international students, the interview by phone or video call can be arranged. The final selection will be done 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 requirments

1. Pass all required courses within 6 years (for plan 1.1) or 8 years (for plan 1.2) with GPA not lower than 3.00

   English proficiency test score , please check the announcement by the academic affairs on the TGGS website https://tggs.kmutnb.ac.th/graduation
2. Two publication in internation journal
3. 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, lecturer, literature review, research collaboration with industry and Doctoral thesis. The lecturers are encouraged to conduct research projects serving the industry. Additional activities such as 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 involve with the research activities following the industry's needs. This education model can help solving problems from the industry and can lead to innovation as well.

11. Expected Learning Outcomes of Curriculum (ELOs)

The curriculum of Doctor of Engineering in Electrical and Computer Engineering was revised in 2021 and first used in the academic year 2021. The ELOs for the Doctor of Engineering in Electrical and Computer Engineering are listed in the following:

Plan 1.1 and 1.2
Subjected Specific ELOs
1. Explain **advance** phenomena in Electrical and Computer Engineering by referring theories in Electrical and Computer Engineering
2. Analyze and find reasons to explain relationships between **research** experimental results and theory in Electrical and Computer Engineering
3. Apply stem knowledge (science, technology, engineering and mathematics) for **solving advance problems, conducting research and building new knowledge** in Electrical and Computer Engineering
4. Build or adapt models for solving **complicated** problems including conducting research and **building new knowledge** in Electrical and Computer Engineering
5. Design and build electrical circuits, systems, or software using specific knowledge in Electrical and Computer Engineering that are applicable **and used in research work**, follows safety principles in Electrical and Computer Engineering and relevant industry standards

Generic ELOs
6. Demonstrate self-reliance **and project management skill** for defining and solving specific problems in Electrical and Computer Engineering
7. Demonstrate skills of interpersonal communication, **in order to convey advanced technique or novel idea,** and presenting works in Electrical and Computer Engineering to publics
8. **Read, review, and comprehend including synthetic analysis contents in literature** in Electrical and Computer Engineering
9. Indicate and show good attitude and professional ethics in Electrical and Computer Engineering **and research conduct**