The Sirindhorn International TGGS Thai-German Graduate School of Engineering

Industry-Oriented Graduate Education and Research in Thailand based on the RWTH Aachen Model

KMUTNB

Undergraduate (Bachelor) Student Handbook

The Sirindhorn International
Thai-German Graduate School of Engineering

August 2025

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ACADEMIC CALENDAR

General Information:

Activity	First Semester	Second Semester	Summer Semester
1. Regular Registration Period (Student ID 59 – 68)			
1. Submitting a leave of absence request **Note:** Students who have already retained their student status are not eligible to submit a leave of absence request. 2. Submit a request for deferment of tuition fee or student status retention fee payment. The student is responsible for paying a late registration penalty fee of 200 THB, not exceeding 400 THB in any case. **Note:** Students may request a deferment of tuition fee payment, allowing the payment deadline to be extended up to one month after the regular registration period. Students must clearly specify the intended payment date and provide a valid reason for the deferment request. However, approval of such requests is at the sole discretion of the university, based on the reasons presented and the circumstances of each case.	14 – 18 July 2025	1-8 December 2025	-
Consultation with TGGS Program Coordinator, TGGS Advisor, or Head of Department regarding: 1. Course Registration 2. Retaining Student Status 3. Leave of Absence Fee	31 July 2025	22 December 2025	29 May 2026
*** Date for which bank payments can be made.**	1 August 2025	23 December 2025	30 May 2026
2. Study Time			
2.1 First Day of Class	4 August 2025	5 January 2026	8 June 2026
2.2 Last Day of Class	21 November 2025	1 May 2026	19 July 2026
2.3 End of Semester	4 December 2025	15 May 2026	19 July 2026
3. Enrollment and Reinstatement			
3.1 Period for Late Registration with Late Fee	4 - 18 August 2025	5 - 19 January 2026	-
3.3 Period for Reinstatement of Student Status (Only for the student that has been retired from the program because he/she does not complete the registration during the specified period.)	19 August – 2 September 2025	20 January – 3 February 2026	-

Activity	First Semester	Second Semester	Summer Semester
3.4 Formal Request for Credit Transfer in the Bachelor's Degree Program	4 - 18 August 2025	5 – 19 January 2026	-
3.5 Period to Add Courses	4 - 25 August 2025	5 - 26 January 2026	-
3.6 Period to Withdraw Courses * Official course withdrawal period without credit inclusion in GPA computation	4 August – 27 October 2025	5 January – 30 March 2026	8 - 22 June 2026
4. Examination (The Academic Affairs would like to inform you that examinations are not permitted to be conducted after the official end of the semester)			
4.1 Mid-Term Examination Period	29 September – 3 October 2025	2 – 6 March 2026	-
4.2 Final Examination Period	24 November – 4 December 2025	5 – 15 May 2026	19 July 2026
4.3 Last Day for Submission of Application for Thesis/ Dissertation Qualifying, Proposal and Progress and Examination (Master and Doctoral Degree)	31 October 2025	31 March 2026	29 May 2026
4.4 Last Day for Submission of Application for Thesis/ Dissertation Defense Examination and Approval of Graduation (Master and Doctoral Degree)	10 November 2025	24 April 2026	26 June 2026
4.5 Last Day for Submission of Thesis/Dissertation Book / International Conference or Journal / English Test and any requirements for graduation	19 December 2025	29 May 2026	27 July 2026
4.6 Last Day for Submission of Bachelor Internship	19 January 2026	29 June 2026	25 August 2026
5. Evaluation and Grade Approval			
5.1 Course Evaluation and Evaluation of Student Achievement	27 October – 4 December 2025	30 March – 15 May 2026	22 June – 19 July 2026
5.2 Grade Approval	19 December 2025	29 May 2026	27 July 2026

Activity	First Semester	Second Semester	Summer Semester
5.3 Official Grade Announcement in the Reg KMUTNB system	29 December 2025	9 June 2026	7 August 2026
5.4 The date for changing the grade for graduate levels and Changing Incomplete Grades (I) to F or U for Undergraduate and Graduate Levels: is within 30 days from the date of approval of the academic results	19 January 2026	29 June 2026	25 August 2026

Other activities:

	Semester 1/2025	Semester 2/2025
TGGS New Undergraduate (Bachelor) Student Orientation and KMUTNB Campus Tour Day	16 Jul. 2025 (On-Site)	
TGGS New Graduate (Master and Doctoral) Student Orientation Day	23 Jul. 2025 (On-Line)	
TGGS First Day of Class	4 Aug. 2025	
KMUTNB Campus Tour for Graduate Students	6 Aug. 2025 (1.00p.m.-4.00p.m.)	
TGGS Tour for Undergraduate Students	6 Aug. 2025 (1.00p.m.-4.00p.m.)	
TGGS Registration Day **(via KMUTNB REG System)**	31 Jul. 2025 (On-Line only from 8:00 AM to 6:00 PM, Thai time.)	22 Dec. 2025 (On-Line only from 8:00 AM to 6:00 PM, Thai time.)
KMUTNB Inter-Culture **(Only for International Students)**	TBA	
The wreath laying ceremony at the royal shrine dedicated to King Rama IV. (Science week)	18 Aug. 2025	
KMUTNB International Sport Day	17 Sep. 2025	
The wreath laying ceremony at the royal shrine dedicated to King Rama IV. (the Memorial day birthday demise)	18 Oct. 2025	
TGGS Convocation Day	20 Oct. 2025 (To be confirmed later.)	
KMUTNB Commencement Day **(for Academic Year 2024)**	28-29 Oct. 2025	
- **Rehearsal at KMUTNB**	(To be announced later.)	
- **Group Photo**	(To be announced later.)	
- **Rehearsal at BITEC**	(To be announced later.)	
KMUTNB and TGGS Open House	7-8 Nov. 2025	
KMUTNB Colloquium	12 Nov. 2025 (Hybrid)	24 Apr. 2026 (To be confirmed later.)
KMUTNB International Day		28 Jan. 2026
National University Sport Day		Jan. 2026 (To be announced later.)
KMUTNB Anniversary Ceremony Day		18 Feb. 2026
TGGS Cultural Excursion	(To be announced later.)	(To be announced later.)

	Semester 3/2025
KMUTNB Basic Shop Training	Jun. or Jul. 2026

(Only for Undergraduate Students)	(To be announced later.)
RWTH Summer School **(Only for Undergraduate Students)**	Jun. - Jul. 2026 (To be announced later.)
KMUTNB Annual Teacher's Day Ceremony	Jul. 2026 (To be announced later.)
KMUTNB Oath-taking Ceremony and Welcome Ceremony for Red Paduak Tree (Bai Sri Su Khwan Ceremony)	Jul. 2026 (To be announced later.)
Welcoming Party and Other Student Activities **(Organized by TGGS Student Club)**	Jul. – Aug. 2026 (To be announced later.)

Remarks:

*TGGS Academic Calendar is available on our website: **https://tggs.kmutnb.ac.th/academic-calendars**.*

TGGS Administration/Useful Contacts

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GENERAL INFORMATION

About TGGS

The Sirindhorn International Thai-German Graduate School of Engineering (TGGS) is a public-private partnership established with strong support from the Thai and German government for engineering education, technology, innovation, and business development in Thailand and South-East Asia. Its industry-oriented engineering master and doctorate education concept combines teaching and research based on the successful model of RWTH-Aachen University, Germany, one of Europe's leading technical university.

Vision (2022-2027)

National Frontier Engineering Graduate School with strong orientation to industry and international collaboration.

Mission (2022-2027)

M1 Industry-Oriented Engineering Education and HR development

M2 Academic Excellence through R&D service

M3 International and Industry collaboration

M4 Efficiency-Oriented Organization

Philosophy (2022-2027)

Industry-Oriented Education and Research

Follows the Industry-Oriented Education Model of RWTH-Aachen University

Values (2022-2027)

- Promoting Industry Collaboration in Education and Research, Entrepreneurship and Collaboration Mindset
- Emphasize Efficiency Over Complex Process

Culture (2022-2027)

- Emphasize Efficiency Through Functional Relationships
- Focus on Employee Engagement
- Transparency in Organizational Information Presentation

History

Following more than 60 years of Thai-German cooperation in King Mongkut's University of Technology North Bangkok (KMUTNB), TGGS is now the living continuation of this long-lasting partnership. KMUTNB, the partner to the Rheinisch-Westfaelische Technische Hochschule Aachen (RWTH Aachen University) in developing TGGS, has over many years adopted elements of the German system and has grown up to be a university since 1986. Today, KMUTNB is one of the larger technical universities in Thailand with more than 30,000 students. TGGS is an autonomous International Graduate School of Engineering within KMUTNB (Teaching in English) and has its own autonomous Thai-German administration.

Location

TGGS is located inside the King Mongkut's University of Technology North Bangkok (KMUTNB) main campus in Bangkok, Thailand. The TGGS building is the first building near the main gate of campus.

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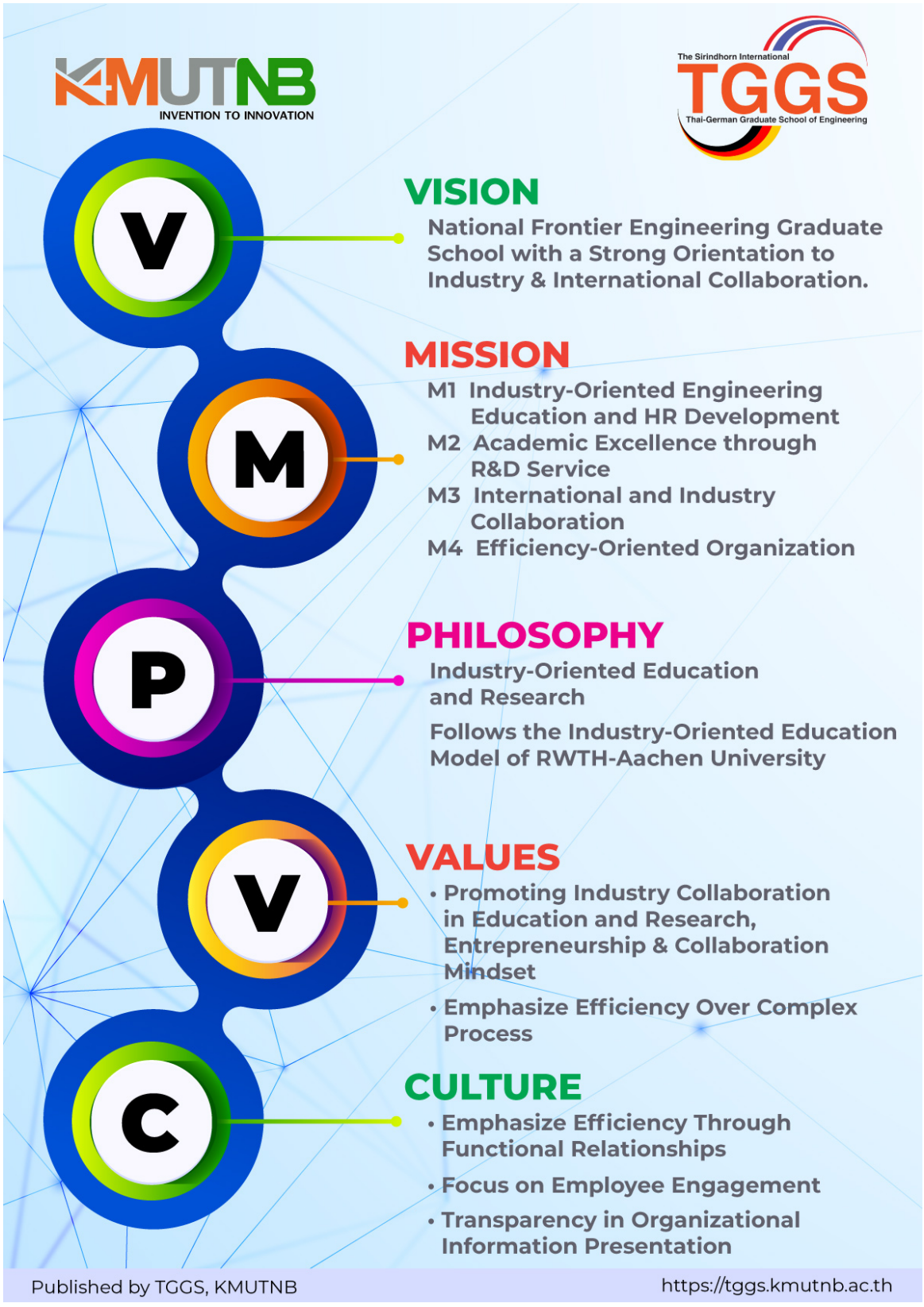
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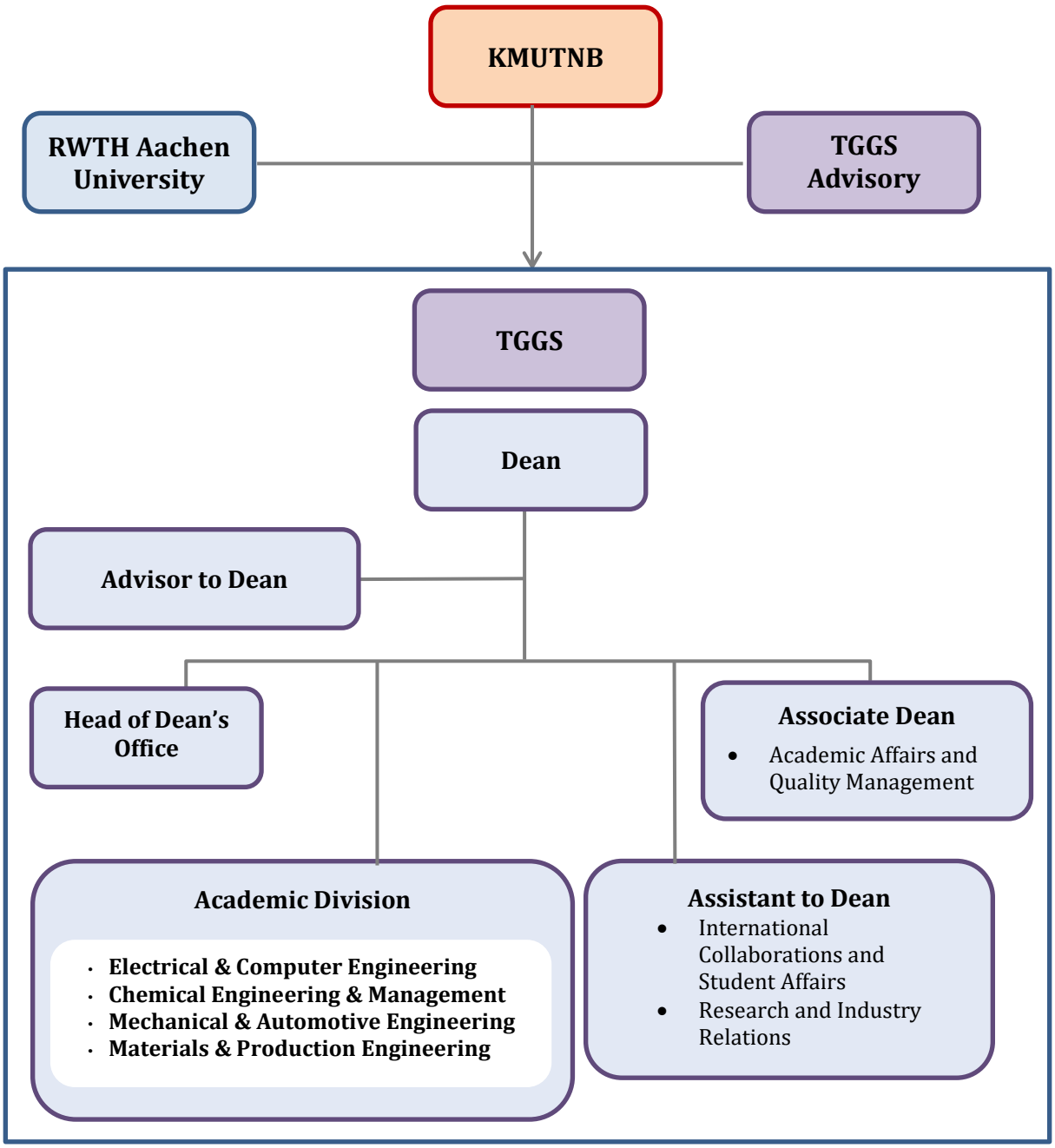
Administrative Board of Management

TGGS is headed by the TGGS Advisory Board (formerly known as TGGS Council), established on June 9, 2008, as its supervisory body which ensures the autonomy of TGGS. The TGGS Advisory Board is equally driven by its two partners with a balanced Thai-German representation from the TGGS network of industry, industry associations and government organizations.

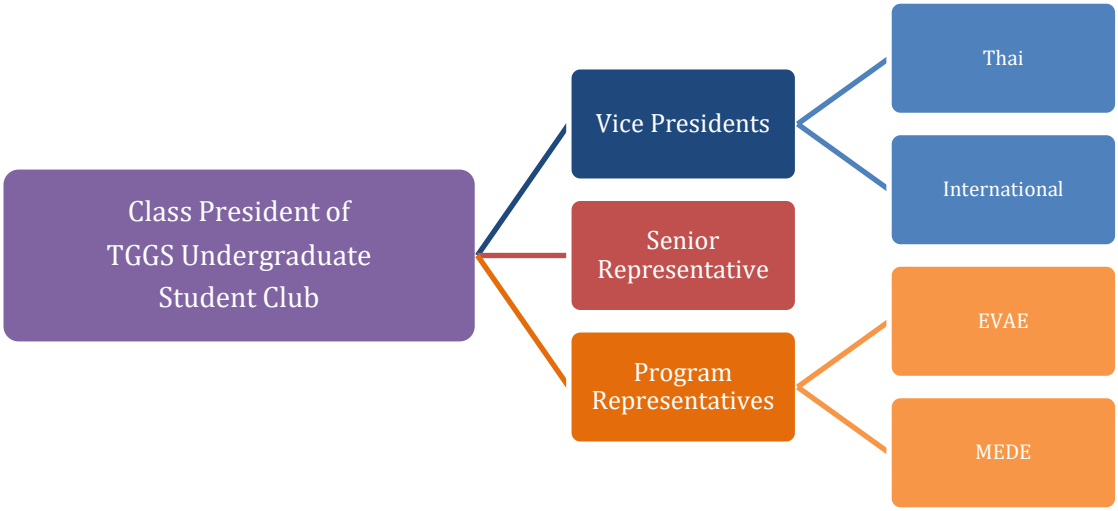
In the Administrative Board of Management, Prof. Dr.-Ing. Nisai Fuengwarodsakul is the TGGS Dean, Assoc. Prof. Dr. h. c. Banleng Sornil is the TGGS Advisory to TGGS Dean, Assoc. Prof. Dr. Tawiwan Kangsadan is the TGGS Associate Dean for Academic Affairs and Quality Management, Dr. Ampol Likitchatchawankun is the Assistant to Dean for International Collaborations and Student Affairs, Assoc. Prof. Dr. Peerawatt Nunthavarawong is the Assistant to Dean for Research and Industry Relations and Dr. Sarinrat Sabua is the Head of TGGS Dean Office.



TGGS Undergraduate Student Club

The TGGS Undergraduate Student Club is an organization that consists of representatives from study undergraduate programs at TGGS. Its function is to initiate and support activities that will of benefit to fellow students, faculty and the university. TGGS Undergraduate Student Club also acts as a communication channel between students and the TGGS Administration. Last but not least, it gives an opportunity for students from different study programs and nationalities to meet, exchange ideas and to share their common interests.

The following chart shows the structure of the TGGS Undergraduate Student Club:



THE THAI-GERMAN GRADUATE SCHOOL

Thai-German Relation

TGGS has established an academic cooperation with RWTH Aachen to send master students to do internship and thesis in Germany. Each year selected students are eligible for internships and thesis in German industry or in related institutes and laboratories of RWTH Aachen under the care of RWTH professors while most doctoral students are going to RWTH Aachen for one year to develop their research and thesis and come back to TGGS to conclude the research and thesis.

Furthermore, the cooperation among the professors in various research institutes of RWTH Aachen and the professors and lecturers of KMUTNB are also formed. This includes the research collaboration, exchange of post graduate students as well as the regular block lectures given by the German professors.

Industry-Oriented Engineering Education

The essence of the industrial oriented engineering education is the closely linkage between the school and the industry professors and experts from industry and RWTH Aachen are invited as lecturers and all students must pass an internship in the industry to raise their level of experiences and to bring in problems from the industry to research under the care of the supervisors. This education model can help solving problems from the industry and can lead to innovation as well.

Besides, Master of Engineering (M.Eng.) and Doctor of Engineering (D.Eng.) degrees, The Thai-German Graduate School also offers Bachelor of Engineering (B.Eng.) starting the academic year of 2025 to support the electric vehicles and semiconductor industries along with the policy of government. The bachelor program is designed along the philosophy of TGGS and guiding our undergraduate students to continue their education to the master level with an additional one year. Moreover, students will gain the working experience at the industry via conducting the industry internship for one semester in the last semester of the study plan.

Undergraduate Degrees Offered

The Thai-German Graduate School offers Bachelor of Engineering (B.Eng.) degree in the following international programs.

- Electric Vehicle and Automation System Engineering (EVAE)
- Microelectronics Design and Semiconductor Engineering (MEDE)

Study Plan (Coursework and Industrial Internship)

Degree awarded: Bachelor of Engineering (B.Eng.) Program Duration: four years | Language of instruction: English					
Bachelor	Semester	1 2	Sport, English, Basic Courses in Mathematics and Science and Engineering Fundamentals	Summer	Basic Shop Training (Optional)
		3 4	Core Technology Courses	Summer	Summer School Abroad or Other Extra Curricular of Student Choice
		5 6	Applied Learning Courses and Master Courses	Summer	Summer School Abroad or Other Extra Curricular of Student Choice
		7	Advanced Applications and Master Courses	Summer	Extension of Industrial Internship or Starting Master Research Work (Optional)
		8	Industrial Internship or Research Work Abroad		
	Total		129 Credits		
Optional					
Master	Semester	9	5 Master Courses	Summer	Additional Master Research Time (Optional)
		10	Master Thesis		

Graduate Degrees Offered

The Thai-German Graduate School offers Master of Engineering (M.Eng.) and Doctor of Engineering (D.Eng.) degrees in the following international programs.

TGGS M.Eng. programs

The International TGGS M.Eng. programs originate from the same international Master courses (taught in English) offered at RWTH Aachen University. They are similar in content but adapted to the Thai education system in terms of credits and in the number of modules. The TGGS courses have been developed to better meet the industrial needs in Thailand through practical training in industry (mandatory project-oriented internships and industry-oriented Master theses). The direct participation of RWTH professors, contributing by block lectures in Bangkok, and by building up industry links, makes sure that the teaching contains elements of advanced engineering practice and research.

For outstanding students, opportunities are provided to experience an internship in Germany and to write the Master thesis in Germany as well under the supervision of RWTH Aachen University professors.

Currently, TGGS offers the following international M.Eng. programs in the order of establishment:

- Electrical and Computer Engineering Program (ECE)
  - Minor: Electrical Power and Energy Engineering (EPE)*
  - Minor: Communication and Smart System Engineering (CSE)*
  - Minor: Computer Engineering (COM)
  - Minor: Smart Grids Engineering (SGE)
  - Minor: Smart and Microelectronics (MIE)
- Mechanical and Automotive Engineering Program (MAE)
  - Minor: Mechanical Engineering Simulation and Design (MESD)
  - Minor: Automotive Safety and Assessment Engineering (ASAE)
- Chemical Engineering and Management Program (CEM)
- Materials and Production Engineering Program (MPE)

*Remark: * Option for qualified students.* ***Dual Degree*** *awarded: Master of Science in Electrical Engineering Information Technology and Computer Engineering from Faculty of Electrical Engineering and Information Technology, RWTH Aachen University.*

Study Plan 1 Academic 1.1 (Research Only, External Master, equivalent to M.Phil.)

Degree awarded: Master of Engineering (M.Eng.) Program duration: two years | Language of instruction: English			
Semester	1	**Master Thesis** (6 months)	**12 Credits** (30 ECTS credits)
	2	**Master Thesis** (6 months)	**12 Credits** (30 ECTS credits)
	3	**Master Thesis** (6 months)	**12 Credits** (30 ECTS credits)
	4	**Master Thesis** (6 months)	**10 Credits** (30 ECTS credits)
		Total	**46 Credits** (120 ECTS credits)

Study Plan 2 Academic 1.2 (TGGS Original: Coursework, Internship and Thesis)

Degree awarded: Master of Engineering (M.Eng.) Program duration: two years | Language of instruction: English			
Semester	1.	**Coursework** Core courses and elective courses (total 5 courses)	**15 credits** (30 ECTS credits)
	2.	**Coursework** Core courses and elective courses (total 5 courses)	**15 credits** (30 ECTS credits)
	3.	**Industrial internship** (at least 18 weeks)	**4 credits** (30 ECTS credits)
	4.	**Master thesis** (6 months)	**12 credits** (30 ECTS credits)
		Total	**46 credits** (120 ECTS credits)

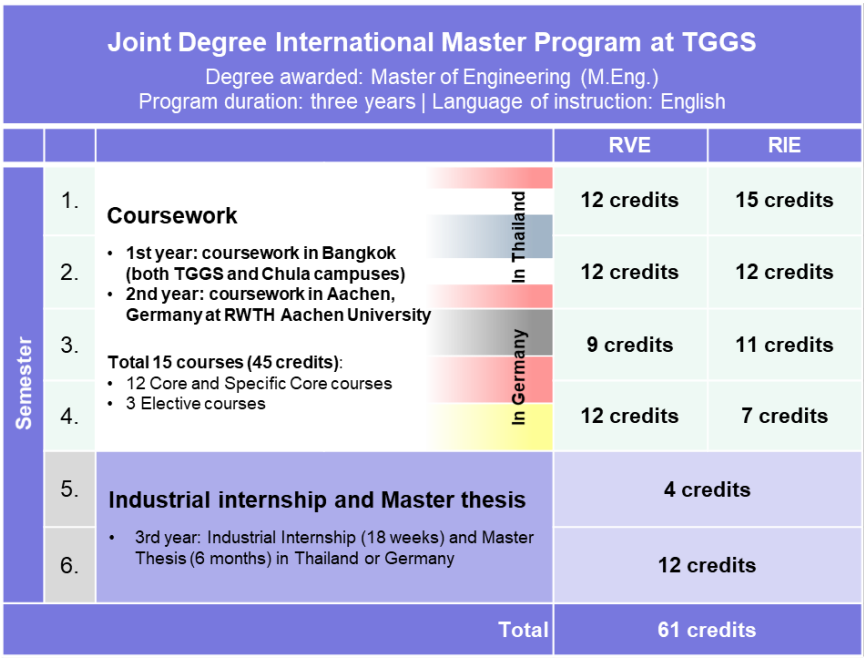
Study Plan 2 Professional (Coursework, Internship and Master Project, No Thesis)

Degree awarded: Master of Engineering (M.Eng.) Program duration: two years | Language of instruction: English			
Semester	1.	**Coursework** Core courses elective courses (total 5 courses)	**15 Credits** (30 ECTS credits)
	2.	**Coursework** Core courses elective courses (total 5 courses)	**15 Credits** (30 ECTS credits)
	3.	**Industrial internship** (at least 18 weeks)	**4 Credits** (30 ECTS credits)
	4.	**Coursework** Elective courses (total of 2 courses)	**6 Credits** (15 ECTS credits)
	5.	**Master Project/Independent Study**	**6 Credits** (15 ECTS credits)
		Total	**46 Credits** (120 ECTS credits)

- **Joint-Degree with Chulalongkorn University**
  - Railway Vehicles and Infrastructure Engineering Program (RVIE)
    - Minor: Railway Vehicles Engineering Program (RVE)
    - Minor: Railway Infrastructure Engineering Program (RIE)

Remark: Joint-Degree awarded from both Faculty of Engineering, Chulalongkorn University and The Sirindhorn International Thai-German Graduate School of Engineering, King Mongkut's University of Technology North Bangkok.

Study Plan A2 (3 Years Program: Coursework, Internship and Thesis)



TGGS D.Eng. programs

The TGGS Doctor of Engineering (D.Eng.) Programs provide opportunities for doctoral work under the Thai advisor with possibility of joint supervision of German RWTH or International MoU University professor and Thai advisor. TGGS has encouraged doctoral candidates to participate in one-year research stay at RWTH Aachen or International MoU University. For high-level doctoral work, to a large extent conducted on industry-oriented research projects, RWTH Aachen, International MoU University, and/or TGGS provides excellent boundary conditions in terms of experienced research supervisors, advanced technology equipment and project funding. The D.Eng. degree obtained at TGGS is a Thai degree within the framework of CHE, the Commission of Higher Education.

Currently, TGGS offers the following international D.Eng. programs in the order of establishment:

- Electrical and Computer Engineering[2] (ECE) [formerly known as Electrical and Software Systems Engineering (SSE)]
- Mechanical and Automotive Engineering[1] (MAE)
- Chemical Engineering and Management[1] (CEM) (Formerly known as Chemical and Process Engineering[1] (CPE))
- Materials and Process Engineering[1] (MPE)

Remark: *1. Available only for Study Plan 1.1*
2. Available for both Study Plan 1.1 and 1.2 starting in the academic year of 2021

Degree awarded: Doctor of Engineering (D.Eng.) International program with language of instruction: English		
Study Plan (Research Only)	1.1 (Original) (Candidate with M.Eng. Degree)	1.2 (Candidate with B.Eng. Degree)
Program Duration	3 Years	4 Years
Semester 1-2	Dissertation (9 Credits/Semester)	Dissertation + Coursework (6 Credits + 3 Credits /Semester)
Semester 3-4	Dissertation (9 Credits/Semester)	Dissertation (10 Credits/Semester)
Semester 5-6		
Semester 7-8	-	
Total	54 Credits	78 Credits

ADMISSION TO TGGS

Admission Requirements

TGGS B.Eng. programs

Qualifications:

(1) International students from Foreign Education Systems/Bilingual Programs/English Programs/International Programs/Regular Programs

1) Applicants who are currently in their final year or have graduated from high school (Grade 12) with a focus on Mathematics, Science, and Technology, having completed a minimum of 30 credits in Mathematics, Science, and Technology subjects combined. Applicants must have a cumulative GPA of no less than 2.75 out of 4.00 from Grade 10 to the first semester of Grade 12, or

2) Applicants who are currently in their final year or have graduated with a Vocational Certificate (Voc. Cert.) in Industrial Program in the fields of Electrical Machines/Civil/Electronics/ Industrial Technology with a focus on Science-based programs or related fields. Applicants must have a cumulative GPA of no less than 2.75 out of 4.00 from Year 1 to the first semester of Year 3.

3) The applicant must have test scores in all three areas: English language, Mathematics, and Science (Physics and Chemistry), which are internationally recognized. The test results must meet the following requirements:

English proficiency test score (choose one of the following options):

- IELTS Not lower than 4.5
- TOEFL (iBT) Not lower than 45
- TOEFL (PBT) Not lower than 450
- TOEFL (CBT) Not lower than 130
- CU-TEP Not lower than 45
- TU-GET (PBT) Not lower than 400
- TU-GET (iBT) Not lower than 32
- SAT (Reading and Writing) Not lower than 400
- ACT (English and Reading) Not lower than 20
- IGCSE (English) Not lower than C
- A-Level (English) Not lower than C
- AS (English) Not lower than C
- AP (English) Not lower than 3
- IB (English) Not lower than 4
- Examinations with CEFR Level results Not lower than B1
- English subject GPA, with a cumulative GPA from Grade 10 to the first semester of Grade 12 or from Year 1 to the first semester of Year 3 of vocational education, not lower than 2.75 out of 4.00 for Thai Applicants or not lower than 2.50 out of 4.00 for International Applicants.

Mathematics proficiency exam results (choose one of the following):

- CU-AAT (Mathematics) Not lower than 450
- SAT (Mathematics) Not lower than 600
- ACT (Mathematics) Not lower than 20
- IGCSE (Mathematics) Not lower than C
- A-Level (Mathematics) Not lower than C
- AS (Mathematics) Not lower than C
- AP (AB or BC) (Mathematics) Not lower than 3
- IB (Mathematics) Not lower than 4
- Mathematics subject GPA, with a cumulative GPA from Grade 10 to the first semester of Grade 12or from Year 1 to the first semester of Year 3 of vocational

education, not lower than 2.75 out of 4.00 for Thai Applicants or not lower than 2.50 out of 4.00 for International Applicants.

Science proficiency exam results (choose one of the following):

- CU-ATS (Science) Not lower than 750
- ACT (Science) Not lower than 20
- IGCSE (Science) Not lower than C
- AS (Science) Not lower than C

In cases where the science proficiency exam is divided into two subjects, namely Physics and Chemistry, the scores for Physics and Chemistry should be submitted separately as follows:

Physics proficiency exam results (choose one of the following):

- A-Level (Physics) Not lower than C
- AP (Physics) Not lower than 3
- IB (Physics) Not lower than 4
- Physics subject GPA, with a cumulative GPA from Grade 10 to the first semester of Grade 12 or from Year 1 to the first semester of Year 3 of vocational education, not lower than 2.75 out of 4.00 for Thai Applicants or not lower than 2.50 out of 4.00 for International Applicants.

Chemistry proficiency exam results (choose one of the following):

- A-Level (Chemistry) Not lower than C
- AP (Chemistry) Not lower than 3
- IB (Chemistry) Not lower than 4
- Chemistry subject GPA, with a cumulative GPA from Grade 10 to the first semester of Grade 12 or from Year 1 to the first semester of Year 3 of vocational education, not lower than 2.75 out of 4.00 for Thai Applicants or not lower than 2.50 out of 4.00 for International Applicants.

4) Good reading, writing, and communication skills in English

5) Other qualifications as per the regulations of King Mongkut's University of Technology North Bangkok regarding undergraduate studies.

6) In cases where the applicant does not meet the requirements specified in items 1, 2, and 3, the decision shall be at the discretion of the committee responsible for the program, subject to approval by the committee of the Sirindhorn International Thai-German Graduate School of Engineering (TGGS).

For more information, please visit https://tggs.kmutnb.ac.th/undergraduate.

Admission Procedure

Responsible and Contact Persons:

TGGS Academic Affairs:

- Miss Thanunpon Songmuangsuk (Coordinator to KMUTNB and Thai Students)
- Miss Piyatida Rakangthong (International Students)
- Ms. Penthip Jirapinnusorn (International MoUs, Quality Assurance and Student Activities)

Program Secretaries:

- Miss Pattama Mookhiruntana (CSE, EPE, COM, SGE and RVIE)
- Miss Arpawan Petang (ASAE, CEM, MESD and MPE)

E-mail: admissions-thai@tggs-bangkok.org (Thai Applicants)

admissions-inter@tggs-bangkok.org (International Applicants)

Website: https://tggs.kmutnb.ac.th/admission

The TGGS Application Form can be obtained at the TGGS Academic Affairs Office or simply download them from our website: https://tggs.kmutnb.ac.th/apply-now

*Summary procedure for Admission Process: Enrollment in First Semester (August to December)**

Step	Approximated Period	Task	Remark
Application			
1	September - June	Call for applications via TCAS System for 4 Rounds (TCAS 1 – 4)	Application Documents: 1. Completion of the Application Form at https://admission.kmutnb.ac.th/ 2. One page of Motivation Letter 3. Curriculum Vitae (CV) or Resumé 4. Official copy of final transcript 5. Official copy of English, Mathematics and Science Proficiency test results 6. Copy of your identification card (for Thai Students) or passport (for International Students)
Selection process			
2	1 week after the submission deadline for each round	Review the applications with supporting documents	TGGS Admission Committee reviews the applications and selects the candidates for the interview. The interview list will be announced on the TGGS Website. TGGS Admission Committee for each program: - Program Coordinator - Program Lecturers/Researchers
3	2 weeks after the submission deadline for each round	Interview applicants	TGGS Admission Committee for each program: Program Coordinator Program Lecturers/Researchers
		List of candidates	Submitted to TGGS Committee to be approved.
		Official Announcement of TGGS New Students (Candidates)	List of candidates who is eligible to TGGS will be announced on the TGGS Website. Students will confirm the right to admission via TCAS system at https://student.mytcas.com
Tuition Fee Payment Process			
4	3-4 weeks after the submission	Pay Fees and Tuition Fees according to University Regulations	https://reg.kmutnb.ac.th/registrar/applogin

Step	Approximated Period	Task	Remark
	deadline for each round		
Enrollment Process or New Student Registration Process			
5	June - July	Enrolling as a new students in the	https://reg.kmutnb.ac.th
Course Registration Process			
6	Wednesday 3rd week of July	TGGS New Students Orientation Day	
7	Thursday/Friday 5th week of July	Register courses	https://reg.kmutnb.ac.th
8	1st week of August	TGGS First Day of Class	

More information on Admission process go to https://tggs.kmutnb.ac.th/admission.

Oral Interview by the TGGS Admission Committee

The admission to the program will be decided through oral interview. The applicants will be interviewed by the TGGS admission committee to evaluate their background knowledge and attitudes including problem solving skills, motivation, leadership, IQ and EQ, etc. In case of foreign applicants, the interview may be conducted by video conference.

STUDENT LIFE AT TGGS

Housing

KMUTNB Student Dormitory

The accommodation center for learning and recreation (student dormitory), KMUTNB at Bangkok, has been servicing the accommodation for vocational certificate student level and bachelor's degree level who are from remote provinces since the academic year 2009. Besides, there is the accommodation serviced for foreign students.

The student dormitory was built to be the good quality accommodations with welfare, living atmosphere and proper environmental condition which facilitate quality of living and an academic quality. Furthermore, the student dormitory is also a development mechanism for the students to experience lifelong learning, living skills, social skills, sharing and generosity which are beneficial for living together with others. There are two building where are able to be served for 960 students; the 240 rooms-male dormitory and the 240 rooms-female dormitory. Each room is set for two students. The first priority would be for the undergraduate students.

Facilities provided

The common area:

- 2 elevators for each dormitory
- Keycard and fingerprint scanner systems
- Security guards for 24 hrs.
- CCTV
- Bike lot
- First- aid room and ambulance
- Food and beverage kiosk
- Washing machine and vending machine

The personal room:

- Room with or without air conditioner for foreign student
- Bunk bed, wardrobe, desk, and chair
- Wet room (including sanitary ware)

Open:	Mon – Fri	8.30 – 11.30 and 12.30 – 19.00
	Sat – Sun	9.30 – 16.00
Phone:	+66 2555 2000 ext. 1812, 1813, 1814	

Student Services

Language Center

A "German Centre" was established at TGGS in cooperation with Goethe Institute Bangkok in November 2007 to offer German Language Education to KMUTNB and TGGS students, particularly those who plan to do their internship and master thesis in Germany.

German courses

- Intensive courses in March and April (40 Units)
- Extensive courses: evening classes from June to August (40 Units)
- Extensive courses: evening classes from November to January (40 Units)

Besides German language courses, we also have cultural programs such as "Afternoon-Film", "Info-Day of studying in Germany" etc.

Location:	Office on 5th floor of the TGGS Building
Open:	Tue and Thu 14.00 to 16.30
Email:	*panupong.chantawat@bangkok.goethe.org*

German Academic Exchange Service (DAAD)

The DAAD Information Center provides free and comprehensive counseling on all matters related to study and research in Germany such as graduate and postgraduate courses, admission requirements, application procedures, scholarships, etc.

Location:	Office on 5th floor of the TGGS Building
Open:	Mon, Wed, and Fri 10.00 to 16.00
Email:	*info@daad.or.th*

Cafeteria and Dining

Our canteens provide ready-made and cooked-to-order food, bakery, beverage and ice cream. They are located in several areas, such as the 40th anniversary building, the Suan Palm building, the Faculty of Technical Education building etc.

Location:	2nd floor of the 40th Anniversary Building 2nd floor of the Building No. 46 1st Floor of the Faculty of Technical Education Building
Open:	Mon – Fri 08.00 – 19.00 Sat 09.00 – 18.00

Sport Facilities

Sports facilities at KMUTNB include a gymnasium for basketball, volleyball, badminton, tennis, table-tennis, and a stadium for soccer and a fitness center.

Location:	3rd and 7th floor of the 40th Anniversary Building
Open:	Mon – Fri 08.00 – 20.30 Sat 09.00 – 16.00
Phone:	+66 2555 2000 ext. 1135

KMUTNB Health Center

Primary health care services, including clinical consultations, health education & physical and mental consulting, medication, first-aid, and physical check-up, are provided to all staff and students. Furthermore, the institute provides accident insurance for all full-time students.

Location:	1st floor of the KMUTNB Staff Club Building
Open:	Mon – Fri 08.00 – 19.30 Sat 08.00 – 16.00
Phone:	+66 2555 2000 ext. 1126

Post Office

KMUTNB post office provides all mailing services as well as many bill/payment services.

Location:	1st floor of Anake-Prasong Building
Open:	Mon – Fri 08.30 – 16.30
Phone:	+66 2555 2000 ext. 1315

Bangkok Bank

Location:	1st floor of the 40th Anniversary Building

FACILITIES AND ACADEMIC SUPPORT

TGGS Academic Affairs

The TGGS Academic Affairs support the academic mission of TGGS by providing service to our current and former students, staff, and administration. These services include maintaining and protecting the integrity and security of the official academic record, registration, degree verification, scheduling and reporting. Our specific services include but are not limited to:

- Enrollment and degree verification
- Transcripts
- Course and room scheduling
- Academic and enrollment reporting
- Grade collection, reporting and changes

Location:	3rd floor of TGGS Building
Open:	Mon – Fri 09.00 – 16.00
Office Hour:	Tues 08.30 – 16.30 Thurs 08.30 – 16.30
Phone:	+66 2555 2000 ext. 2931

KMUTNB Library

To support studying and teaching activities as well as research and development and to provide the best academic environment for students, the central library of KMUTNB provides access to electronic resources and other library services and includes academic service and facilities such as borrowing and returning books, interlibrary loan and copying, printing etc. The central library provides academic information resources to all faculty, staff and students, as well as to the general public. It holds more than 200,000 books, a variety of audio-visual aids including CD-ROMs, databases for research, and access via internet to all Thai university libraries and to international libraries. A modern electronic library management system, including many online services and electronic book inventories, is employed to provide the best and most effective services.

Location:	2nd – 7th floor of the Academic Service Building
Open:	Mon – Fri 08.00 – 20.00 Sat 09.00 – 16.00
Website:	*http://library.kmutnb.ac.th/en/*
Email:	*info@lib.kmutnb.ac.th*
Facebook:	*www.facebook.com/Central.Library.Kmutnb*
Phone:	+66 2555 2000 ext. 2147

Institute of Computer and Information Technology

The Institute of Computer and Information Technology is responsible for providing computer information services to students, teaching staff and other personnel at KMUTNB and for offering computing resources for education, research and administrative purposes.

The Institute of Computer and Information Technology provides services to students and personnel both inside and outside the institute as follows:

- Minicomputer CPU time for teaching, learning, training and researching by students and staff as well as academic support.
- Engineering Workstation under UNIX application system, including compiler, multimedia system, CAD/CAM/CAE/CAI applications such as electronics, mechanical and civil engineering for the purposes of design, analysis, manufacture, synthesis and prototype.
- The provision of internet and e-mail services for research work and communication. This also includes WWW servers both on KMUTNB campuses or via modem at home.

- Computer systems and other facilities services for internal and external organizations.
- Training services for both internal and external personnel and organizations.
- Pradoodang Net, KMUTNB's campus network is also provided by ICIT for learning and teaching administration and internal communication.

Location:	3rd floor of Anake-Prasong Building
Open:	Mon – Fri 08.00 – 22.00 Sat 08.00 – 16.00
Website:	*www.icit.kmutnb.ac.th* *http://icit.kmutnb.ac.th/privilege_student*
Email:	*icit_admin@kmutnb.ac.th*
Facebook:	*www.facebook.com/ICIT.KMUTNB*
Phone:	+66 2555 2000 ext. 2205

KMUTNB International Cooperation Centre

The International Cooperation Centre administered by the Student Affairs foster and facilitate international education and research at KMUTNB. They have responsibilities to develop and to make readiness for international students to become good graduates and good residents who are perfectly in physical, mind, intelligence, and society and they are promptly to alteration and plays important role in country development in a future.

Location:	10th floor of Anake-Prasong Building
Website:	http://www.icc.kmutnb.ac.th/
Remark:	Contact via TGGS Academic Affairs – International Affairs

IASTE Thailand

The International Association for the Exchange of Students for Technical Experience was founded in 1948 at Imperial College, London. Imperial College Vacation Work Committee headed by Mr. James Newby initiated a meeting with national organizations from 10 European countries in a post war effort to promote better understanding between countries and cultures.

Since 1948, the association has grown to include more than 93 countries world-wide and has exchanged in excess of 300,000 students. This means that yearly IAESTE exchanges around 6000 students playing a key role in the development of technical undergraduates able to make their mark in a global economy.

Location:	Room 1003 on 10th floor of Anake-Prasong Building
Website:	*http://www.iaeste-thailand.org/*
Email:	iaeste@kmutnb.ac.th sdcp@kmutnb.ac.th web@iaeste-thailand.org
Phone:	+66 2555 2000 ext. 1025, 1193, 1194

REGISTRATION

General Registration Requirements

To remain active in their degree program, students must register and pay tuition fees continuously each semester. Failing to register and pay tuition fees will result in the loss of student status. The registration must be completed via KMUTNB REG System at *https://reg.kmutnb.ac.th/registrar/home*. The registration procedure will be sent via email by registration@tggs.kmutnb.ac.th prior the registration period in each semester. The student is responsible for consulting with this procedure and following the instructions.

Late Registration and Reinstatement

Students must complete their registration and pay tuition fees by the deadline specified in the Academic Calendar. Students who fail to complete their registration during this time will be assessed a late registration fee or a reinstatement fee according to the university announcement.

Late Registration with Late Fee or Study Leave of Absence

1. In case that the student cannot register during the Regular Registration Period (as indicated in the academic calendar), the student can submit Request for Registration to TGGS Academic Affairs during the Late Registration Period but the student is obligated to pay the Late Registration Fee of 200 THB for the first week and 400 THB for the second week via KMUTNB REG System https://reg.kmutnb.ac.th and pay the tuition fee via KMUTNB REG System according to the student status listed in Tuition Fee Section.
2. In case that the student cannot register in person, the student can give the authorization to the friend or the family member to act on his/her behave and must notify TGGS Academic Affairs in writing using the attached form (KMUTNB 01).

Reinstatement of Student Status

1. In case that the student cannot register during the Late Registration Period (as indicated in the academic calendar), the student can submit Request for Registration to TGGS Academic Affairs during the Reinstatement of Student Status Period but the student is obligated to pay the Reinstate Student Status Fee of 1,500 THB and the tuition fee according for the tuition fee according to the student status listed in Tuition Fee Section by transfer to KASIKORNBANK Bank Account.

   Document submission process:

   1) Send a request for Reinstatement of Student Status to your advisor via email for the advisor to approve to the request (e-signature).
   2) Send a request form that has been approved by your advisor via email at registration@tggs.kmutnb.ac.th and cc to the corresponding program secretary:
      arpawan.p@tggs.kmutnb.ac.th (CEM (CPE), MPE, ASAE, MESD and EVAE programs)
      pattama.m@tggs.kmutnb.ac.th (RIE, RVE, COM, CSE, EPE, SGE, MIE and MEDE programs)
   3) TGGS Academic Affairs will then notify students of the approval results via email.
   4) Once approved, students must pay the reinstatement fee through Thai bank account and immediately send the bank transfer slip or proof of transfer to their program secretary via email at
      arpawan.p@tggs.kmutnb.ac.th (CEM (CPE), MPE, ASAE, MESD and EVAE programs) or
      pattama.m@tggs.kmutnb.ac.th (RIE, RVE, COM, CSE, EPE, SGE, MIE and MEDE programs)
      and cc to the following personal
      academic@tggs.kmutnb.ac.th (for international students)
      or thanunpon.s@tggs.kmutnb.ac.th (for Thai students).
   5) After that, students can proceed to register and pay for the tuition fee or maintain the student status on the Reg KMUTNB system.
2. In case that the student cannot register in person, the student can give the authorization to the friend or the family member to act on his/her behave and must notify TGGS Academic Affairs in writing using the attached form (KMUTNB 01).
3. In the case that the Request for Registration and the payment are not submitted to TGGS Academic Affairs by Noon on the deadline (as indicated in the academic calendar), TGGS will refuse to complete the registration procedure for the student and TGGS is not obligated to request for the refund or transfer back the payment on the student's behave. The student must request the refund with KMUTNB Registrar Office in person.

4. In case that the student cannot register during the Reinstatement of Student Status Period, TGGS cannot reinstate the student status in any case and the student status will be automatically terminated.

Important Remarks

1. KMUTNB Authorization Letter for Registration Procedure (KMUTNB 01 Form):

a. The student must complete the KMUTNB 01 Form and provide the photocopy of the valid official identification card (certified as an original copy with signature). If the student is living outside of Thailand, the student must submit KMUTNB 01 Form along with the request documents stated in KMUTNB 01 Form via email at academic@tggs.kmutnb.ac.th.

b. The authorized person must submit KMUTNB 01 Form along with the request documents stated in KMUTNB 01 Form with he/she in order to complete the registration procedure on the student's behave. In addition, the authorized person must show the valid official identification card.

2. Payment:

"Payment via KMUTNB REG SYSTEM"

The student must pay the tuition fee and other related fees via KMUTNB REG SYSTEM Payment at https://reg.kmutnb.ac.th at TGGS Academic Affairs.

"STUDENTS ARE REQUIRED TO COMPLETE THE PAYMENT PROCESSES BY TRANSFERRING MONEY INTO THE UNIVERSITY BANK ACCOUNT VIA THAI BANK ACCOUNT ONLY!", the system does not support money transferred from overseas bank accounts.

If the student does not transfer fees via a Thai bank account, the transferred amount will be VOID and the student must retransfer fee(s) via a Thai account again.

If the student fails to complete the payment by the registration period specified in the academic calendar, the student is required to pay fines and/or student reinstatement fees.

In the event students transfer money from overseas bank accounts or other channels that are not Thai bank accounts and would like to get the money back, they must file a request with the university through TGGS Academic Affairs. The university can transfer that money back to the student with THE ACCOUNT THAT THE STUDENT TRANSFERRED MONEY TO THE UNIVERSITY ONLY, and it takes "6-9 MONTHS OR MORE", and the transfer fee (approximately 1,000 - 3,000 THB) will be deducted from the student money. This means that the student will not be refunded in the full amount.

"Bank Transfer" Payment:

For the student living outside of Thailand and cannot complete the registration procedure in person, the student can transfer the tuition fee, late registration fee or reinstate student status fee, the transfer fee (approximately 1,000 THB) and "Cashier Cheque" fee (20 THB) to the KMUTNB University Bank Account.

Bank Name:	KASIKORN BANK
Account Name:	King Mongkut's University of Technology North Bangkok
Account Number:	033-1-00226-7

The international bank transfer from the foreign country to Thailand may take from 4-10 working days depending on the policies of the individual country. The student must consult the bank transfer policy in that country. It is recommended to transfer the payment 2-4 weeks in advance.

KMUTNB is not responsible for the bank transfer fee and the differences in the currency exchange rate. If the tuition fee along with late registration fee or reinstate student status fee in the currency of THB are not transferred to KMUTNB Bank Account in Full, the registration procedure will not be completed. This may result in further delay of 1-2 months and the student registration is not completed by the specified period. The student status will be automatically terminated.

After the payment is transferred, please immediately send the bank transfer slip or proof of transfer to a program secretary via email at

arpawan.p@tggs.kmutnb.ac.th (CEM (CPE), MPE, ASAE, MESD and EVAE programs)
or pattama.m@tggs.kmutnb.ac.th (RIE, RVE, COM (SSE), CSE, EPE, SGE, MIE and MEDE programs) and cc
academic@tggs.kmutnb.ac.th (for International students)
or thanunpon.s@tggs.kmutnb.ac.th (for Thai students).

Please be informed that this process with KMUTNB Registrar will take 2-4 weeks to complete the registration procedure. After the payment has been verified, TGGS Academic Affairs will purchase "Cashier Cheque" on your behalf. Without the bank transfer slip or proof of transfer, KMUTNB cannot verify the payment and TGGS cannot complete the registration procedure for the student. This may result in further delay of 1-2 months and the student registration is not completed by the specified period. The student status will be automatically terminated.

3. Completion of Registration Procedure

The student will receive the completion of registration status only when the following conditions have been fulfilled:

a. The Request for Registration and the payment (tuition fee and other fees) via Bank Transfer with QR Code generated by REG system are submitted to REG System by the deadline.
b. In the case that the student cannot complete the registration via REG system, the Request for Registration and the payment (tuition fee and other fees) in Cash or Cashier Cheque are submitted to TGGS Academic Affairs by the deadline.
c. The Request for Registration is submitted to TGGS Academic Affairs and the payment (tuition fee and other fees) by the bank transfer has been verified by KMUTNB Finance Division by the deadline.

4. Summer Semester Registration

To be eligible for the summer semester registration, the student must have one of the following conditions for the graduation requirement during that summer semester:

a. The student fails any courses and needs to retake those courses.
b. The student can register for courses with no more than 9 credits.

Please consult **TGGS Registration Procedure*** for the updated information, procedure and deadlines at https://tggs.kmutnb.ac.th/registration.

TUITION FEES

Bachelor Program

Thai Students:	55,000 THB per semester*
International Students:	65,000 THB per semester*
Accident Insurance:	350 THB per academic year

First Enrollment (one-time fee):

New Student Registration Fee:	1,000 THB
Student Card Fee:	200 THB
Property Damage Insurance:	1,000 THB

Other Expenses (if applicable):

Expenses for doing research work at RWTH Aachen University in Germany or other universities in Europe:	About 750-900 EUR per month
KMUTNB Shop Training in the summer semester of the first-year:	2,000 THB
RWTH Summer School by RWTH International Academy (https://www.academy.rwth-aachen.de/en/programs/short-courses)	Consult the website
Additional fees for retaining student status after four years of program but not more than eight years:	20,000 THB per semester

Important Note:

For the student enrolled in Academic Year 2025 and 2026, KMUTNB University Council granted the special rate for tuition fee of 45,000THB per semester for 8 semesters.

Please consult **TGGS Registration Procedure*** for the updated information, procedure and fees at https://tggs.kmutnb.ac.th/registration.

*Remark: * TGGS Registration Procedure is subject to change in corresponding to the launch of KMUTNB New Registration Online System REG https://reg.kmutnb.ac.th/registrar/home.*

GRADUATION

Graduation Requirements

To graduate, students must be registered during the term in which they complete their program and fulfil the following requirements:

Required English Proficiency Test

English Proficiency Test	Admission	Graduation
TOEFL (PBT)	450+	525+
TOEFL (ITP)		525+
TOEFL (CBT)	130+	196+
TOEFL (iBT)	45+	69-70+
IELTS (Academic Module)	4.5+	5.5+
IELTS Indicator (Academic Module)	4.5+	5.5+
CU-TEP (120 Score)	45+	69-70+
TU-GET (PBT)	400+	
TU-GET (iBT)	32+	
TEST with CEFR LEVEL	B1	

The student whose has the English proficiency test result from a Language Testing Center that does not meet the admission criteria in the above table, they must study and pass the Elementary English and Intermediate English courses, which the TGGS will continue to provide to students.

The student whose has the English proficiency test result from a Language Testing Center that does not meet the graduation criteria in the above table can submit a request for consideration to take two KMUTNB English Courses and must pass the courses with the stated score as shown in the below table:

English Course	Course Score
KMUTNB Graduate English I	70%+
KMUTNB Graduate English II	70%+

Required Digital Literacy Test

Students are required to take two digital competency tests throughout their course of study under the following conditions:

(1) First Entry Testing: All new undergraduate students are required to take a digital competency test during their first semester of study.

(2) Pre-Graduation Testing: Students enrolled in a 4-year program must take the test after completing at least 6 semesters of study, excluding the summer semester.

More detail, consult: King Mongkut's University of Technology North Bangkok Announcement on Digital Competency Test for Undergraduate Students (2024).

Required Coursework

TGGS Bachelor Degree

	EVAE	**MEDE**
General Education Courses	24 credits	24 credits
Core Courses	50 credits	48 credits
Compulsory Courses	37 credits	30 credits
Technical Electives	6 credits	15 credits
Free Electives	6 credits	6 credits
Pre-Co-operative Education (Credit is not accounted toward graduation.)	1 credit*	1 credit*
Industrial Internship (or Co-operative Education) or International Research and Development Project (8th Semester)	6 credits	6 credits
Total	**129 credits**	**129 credits**

Industrial Internship (or Co-operative Education) or International Research and Development Project

The student must complete at least 18 weeks of industrial internship at the industry or international research and development project abroad with 6 KMUTNB credits. The evaluation/assessment result of the industrial internship or international research and development project is in the form of Letter Grade as S or U. If the student cannot submit the report within one month after the ending date of industrial internship work or international research and development project, the student will receive Ip.

Assessment	Performance's Quality
S	Pass / Satisfactory
U	Fail with inadequate achievement / Unsatisfactory
Ip	Incomplete / In-progress

Cumulative GPA

To graduate, students must complete all coursework with a minimum cumulative GPA of 2.00 out of 4.00 scale according to the regulations set forth by the Commission of Higher Education (CHE).

Qualification for Class Honors:

a. Complete the coursework and study within 4 academic years in the regular semesters.
b. Never receive F, FE, FA or U in any courses.
c. Never repeat any courses.
d. Cumulative GPA more than 3.60 out of 4.00 scale will be awarded with First-Class Honors
e. Cumulative GPA more than 3.25 out of 4.00 scale will be Second Class Honors.

Additional information, please consult King Mongkut's University of Technology North Bangkok Regulations on Undergraduate Study (RUS).

Procedure for Issuing Transcript

Responsible and Contact Persons

TGGS Academic Affairs:

- Miss Thanunpon Songmuangsuk
  (Official KMUTNB Transcript and Unofficial TGGS Transcript)

Program Secretaries:

- Miss Pattama Mookhiruntara (CSE, EPE, COM, SGE, MIE, RVIE, and MEDE)
- Miss Arpawan Petang (ASAE, CEM, MESD, MPE, and EVAE)

Summary procedure for Unofficial TGGS Transcript

Step 1: The student submits the TGGS Request Form for Student Certification and Unofficial TGGS Transcript (TG93) to the TGGS Academic Affairs Office.

Step 2: TGGS Academic Affairs will check the curriculum, course structure, study plan, course list and grades to ensure that the student meets all graduation requirement. Verification is done by TGGS Academic Affairs officer, program coordinator and TGGS Associate Dean for Academic Affairs.

Step 3: TGGS Academic Affairs will issued Student Certification and Unofficial TGGS Transcript.

This process takes 3-5 working days. In the case with the Official KMUTNB Transcript, additional steps are processed.

Summary procedure for Official KMUTNB Transcript

Step 1: After the completion of Unofficial TGGS Transcript, it will be sent to KMUTNB Academic Services. All signatures of the program coordinator and TGGS Associate Dean for Academic Affairs on Unofficial TGGS Transcript will verify that all the grades sending to the KMUTNB Academic Services are correct.

Step 2: TGGS Dean will sign the Official KMUTNB Transcript and the KMUTNB Academic Services will notarize the document.

This process takes at least 15 working days. Delay can be expected in the case that the student status is not correct.

The official KMUTNB Transcript can be issued after all the graduation requirement is completed. As for the degree certificate, the student will receive the degree certificate from the hand of HRH Princess Maha Chakri Sirindhorn **one year** after the completion from the study program during the commencement day which is typically scheduled in November every year. All the graduation documents: KMUTNB Degree Certificate along with the pin and TGGS Certification Letter will not be available until after the commencement day due to the Royal House Regulations. These documents must be handed to the class graduates first by HRH Princess Sirindhorn, then the unattended graduates can receive these documents. Please understand all the circumstances.

Termination of TGGS Student Status (For Graduation)

After completed with all graduation requirement, the student must submit TGGS Request Form for Termination of Student Status (TG100) to the TGGS Academic Affairs Office. Moreover, the student must follow KMUTNB procedure and submit KMUTNB Request Form for Termination of Student Status to KMUTNB Registrar Office.

Please consult **TGGS Graduation Procedure** for the updated information, procedure, fees and deadlines at https://tggs.kmutnb.ac.th/graduation.

KMUTNB REGULATIONS AND PROCEDURES

King Mongkut's University of Technology North Bangkok Regulations for Undergraduate Study (RUS) (2009) and Amendments

To manage undergraduate level education appropriately, it is deemed necessary to set Regulations on Undergraduate Study 2009.

Empowered by Article 22 (2) of King Mongkut's University of Technology North Bangkok Act 2007 and resolution of University Council meeting no. 6/2009 on 25th November 2009, Regulations are hereby proclaimed:

Item 1. Regulations are titled "King Mongkut's University of Technology North Bangkok Regulations on Undergraduate Study (2009)."

Item 2. Regulations become effective from Academic Year 2009 onward. For students who had studied before Academic Year 2009, Regulations on Undergraduate Study 1991 and amendments apply.

Item 3. Regulations on Undergraduate Study 1991 and amendments are revoked. Any regulations/announcements contrary to current regulations are not applicable.

Item 4. Definition:

"University" means King Mongkut's University of Technology North Bangkok.

"President" means President of King Mongkut's University of Technology North Bangkok.

"Faculty/College" means an organization in charge of teaching and learning.

"Department " means an organization under Faculty or College.

"Dean/Director" means Head of organization responsible for teaching and learning of Undergraduate Level Education.

"Student" means person taking undergraduate study and has been registered as student.

"Curriculum completion" means student having completed all course credits required in curriculum including receiving grade of incomplete (Ip) special project or thesis or cooperative education courses (internship). [King Mongkut's University of Technology North Bangkok Regulations on Undergraduate Study No. 5 (2018)]

Item 5. Student must strictly follow other guidelines, orders, rules and regulations of Faculty, College and University, which are not in conflicts with current regulations.

Item 6. President is authorized to enforce regulations as well as to set rules, announcements, or orders to implement regulations. In case of doubts or interpretation problems, President makes final judgment.

Section 1

Admission

Item 7. Student candidate must possess following qualifications: [King Mongkut's University of Technology North Bangkok Regulations on Undergraduate Study No. 7 (2023)]

(1) Must sincerely support Democracy with King as Head of State.

(2) Must complete senior high school (grade 12) or equivalent, or Vocational/Higher Vocational Certificate set by University Academic Council.

(3) Studying for a second-degree, students must have completed a bachelor's degree or its equivalent from a university or other higher education institution in order to enter a bachelor's degree program in an additional field of study as specified by each program.

(4) Must be neat, gentle, and strictly follow University rules and regulations.

(5) Applicant must not concurrently be a student in any institution/university except Open University.

(6) Must not serve time in prison for criminal cases except petty offence or negligence.

(7) Applicant must not have any infectious disease, mental disorders, and other ailments that hinder study.

(8) Must have parents or guardians who can pay all fees, tuitions throughout study period.

(9) Must be a legal resident in Thailand.

(10) Other qualifications to be prescribed by University.

If it is later known that applicant lacks any qualification as stated in (1) – (10), student candidate will not be allowed to take entrance examination. If applicant is already a registered student, student status will be immediately terminated.

Item 8. Admission:

Applicant must pass prescribed entrance examination to be announced prior to each occasion. In case of necessity, University may enact specific procedure to select applicant with qualifications (Item 7) to be special student who may not pursue graduate certificate or wish to transfer study credits to original university.

Item 9. Fees payment and student registration:

Applicant passing entrance examination or eligible to study and wanting to become student must pay all fees within prescribed date and time. Then applicant must bring payment receipts and related documents to register as student on prescribed date and time.

Item 10. University may allow a degree holder to register to study in another degree program with similar curriculum if approved by Faculty Committee. Department will prescribe courses and study time.

Item 11. Cross-university enrollment:

Student may apply to enroll in courses at other state university with approval from both faculty committees and university presidents. Criteria to be considered:

(1) Courses are not available at home university in that semester/year for some reasons.

(2) Courses offered at other university have similar and comparable contents; at least three-quarters of content are covered.

(3) Credits earned through cross-institution enrollment count toward degree completion.

(4) Student is responsible for paying registration fees and other charges specified by destination university.

(5) Student is required to maintain student status in case of not taking any course at home university.

Section 2

Education System and Registration

Item 12. Teaching and learning system:

(1) University adopts semester system: first and second semester of academic year. One semester comprises at least 15 weeks of teaching and learning. If there is summer semester (6 weeks), number of course hours is equal to regular semester.

(2) Credit means academic course status/condition based on following criteria:

a. Coursework – Instruction/discussion with a total of at least 15 hours per semester is equal to one credit.

b. Workshop – Practice/lab with a total of at least 30 hours per semester is equal to one credit.

c. Training or internship – Total of at least 45 hours per semester is equal to one credit.

d. Assigned academic activities – Total of at least 45 hours per semester is equal to one credit.

Item 13. Registration:

(1) Registration day in each semester is according to University announcement. If the student fails to register, student cannot take examination (mid-term and finals) for that semester.

(2) Student must register following courses:

a. Credit courses that count toward grade point average.

b. Non-credit courses required by curriculum.

c. Non-credit courses required by University.

d. Credit courses with either "S" (Satisfactory) or "U" (Unsatisfactory) grade. The courses earn credits toward certificate completion but are not included to calculate grade point average.

(3) In each regular semester, the student must register:

a. Workshop course according to required credits.

b. Coursework and workshop courses between 9 to 22 credits for regular programs, 6 to 18 credits for special programs (evening).

c. Student can register fewer than required course credits as stated in Item 13 (3) b if there are fewer credits to complete curriculum.

(4) Register to maintain student status.

If there is no course to register in regular semester, student must register and pay fees to maintain student status within 15 days of semester start. Failure to do so will result in student status termination according to Item 26 (9). Maintaining student status period counts toward total study time allowed for graduation.

(5) Student can register no more than 9 credits in summer semester. [King Mongkut's University of Technology North Bangkok Regulations on Undergraduate Study No. 7 (2023)]

(6) Students who register for special projects, theses, or cooperative education courses but are unable to evaluate within the semester in which they registered must do the following: [King Mongkut's University of Technology North Bangkok Regulations on Undergraduate Study No. 5 (2018)]

a. Let the Student Registration and Statistics Office record the evaluation of special projects, theses or in-progress cooperative education courses at the end of the course and conduct semester-by-semester academic evaluations and classify student status as usual without taking the credits of courses that have recorded the measurement of special projects, theses or cooperative education courses that have not yet been completed (In-progress) into account in calculating the semester grade.

b. Evaluation of special projects, theses, or cooperative education courses for which the measurement of special projects, theses, or cooperative education courses has not yet been completed (In-progress) at the end of the course, the evaluation and approval of academic results must be made in the semester in which the scores are submitted.

c. In case of registering for all courses according to the curriculum, students must register to maintain the status of special projects, theses or cooperative education courses in the next regular semester or the summer semester in which they are expected to graduate.

Item 14. Add, change and withdraw from courses:

(1) Student wanting to change or add course must apply within 3 weeks of semester start. Dropped courses do not count toward grade point average.

(2) Student can drop course within first 12 weeks of regular semester or within 2 weeks of summer semester. If student fails to do so within deadline, withdrawn course appears as "W" in academic transcript.

Item 15. Credits transfer: [King Mongkut's University of Technology North Bangkok Regulations on Undergraduate Study No. 7 (2023)]

(1) Qualifications:

The University will approve the transfer of academic results from formal education, non-formal education, and/or informal education only for those who have the following qualifications:

a. Student with qualifications as stated in Item 7. According to King Mongkut's University of Technology North Bangkok Regulations on Undergraduate Study No. 7 (2023).

b. Having passed University entrance examination and enrolled as student.

c. At least C grade or 2.00 or equivalent is eligible for credit transfer.

d. Transcript or evidence to prove knowledge and experiences from non-formal education system must not exceed 8 years after completing transferred course.

e. Having received permission to transfer course credits before official announcement of current course grades.

(2) Credit transfer procedure:

Student who would like to transfer course credits must:

a. Submit course credits transfer request to Student Registration and Statistics Office, Academic Services Division within 15 days of transfer semester.

b. Contact former institution to directly send academic results such as transcript as well as syllabus and course information to University.

c. Student submits proof of knowledge and experiences from non-formal education system to related Department.

(3) Credit transfer from formal education system: King Mongkut's University of Technology North Bangkok Regulations on Undergraduate Study No. 7 (2023)

a. Credit transfer of student who used to study in University.

1. The original courses that are requested for transfer must have the same content and the same amount or not less than the courses in the new curriculum and must have been studied for no more than 8 academic years.

2. Students may transfer no more than three-quarters of the total number of credits for the entire program.

b. Credit transfer of student presently studying in different university or institution.

1. Student must have studied at former university for at least 2 regular semesters, excluding dropped semester, and cumulative GPA must be at least 2.50.

2. There are courses that have been studied from the original higher education institution that are comparable to the courses in the university according to the study plan of the transferred field of study. They must be transferred to study in the same field of study as the field of study currently being studied at the original higher education institution or a similar field of study with approval from the Faculty/College Committee.

3. Transferred credit course must cover at least three-quarters course content in new program.

4. Student cannot transfer more than half of total credits to new program.

5. Faculty/College Committee shall determine the evaluation schedule, the duration of the evaluation, and inform students of the evaluation results by issuing a faculty/college announcement.

c. Transfer for Second Degree:

Students who have received a bachelor's degree or equivalent and are enrolled as students for a second degree at the university must register for no less than 42 additional credits in the new major program. The total accumulated credits for graduation must be in accordance with the new curriculum.

(4) Credit transfer from non-formal education.

a. Student must pass examination in course requested for credit transfer organized by faculty/college or by university-approved institution. Or student may be graded from portfolio, knowledge, experiences and interviews.

b. Learning credit results can be reported using following guideline:

Standardized test results are recorded with "CS" (Credits from standardized test). Non-standardized test results are recorded with "CE" (Credits from examination). Evaluation of Non-sponsored training results are recorded with "CT" (Credits from training), and student portfolio results are recorded with "CP" (Credits from portfolio).

c. Faculty/College shall appoint a committee of experts in the course or group of courses for which the student requests to transfer credits. The academic results shall be considered and the results shall be submitted as a grade level for the faculty/college committee to approve.

d. Academic Council Committee shall consider and approve the transfer of academic results, allowing the transfer of academic credits to study no more than the year and semester in which the student is permitted to study according to the approved curriculum.

e. The transfer of courses shall not exceed half of the total number of credits of the transferred program, except for the following programs, in which the transfer of courses shall not exceed three-quarters of the total credits of the entire program. [King Mongkut's University of Technology North Bangkok Regulations on Undergraduate Study No. 6 (2019)]

1. Bachelor of Business Administration Program for those who have completed a Higher Vocational Certificate (Vocational Certificate) and have worked in a business for at least 2 years and completed a training course for advanced technologists or operators according to university standards or an equivalent training course certified by the university.

2. Bachelor of Industrial Technology Program for those who have completed a Higher Vocational Certificate (Vocational Certificate) in a field of study as specified by each program who have experience working in the industrial sector and have other qualifications as specified by the curriculum, depending on the consideration of the faculty committee.

3. Bachelor of Industrial Education Program for those who have completed a Higher Vocational Certificate (Vocational Certificate) with a cumulative grade point average of at least 2.00 in the fields of study as specified by each program or in other fields of study as approved by the faculty committee and passed the advanced teacher and technician development training course according to university standards or equivalent training course certified by the university.

(5) Counting study time.

Student allowed credits transferred can study no more than twice study time in new program. If student transfers from institution, study time from former university is included.

(6) Calculating credits and grade point average.

Transferred course credits count toward cumulative credits in new program, but will not be included in calculating cumulative GPA.

(7) Honors certificate.

Transferred student cannot obtain honors certificate.

(8) Payment.

Student must pay charges/transfer fees as stated in University regulations.

Item 16. Class time:

(1) Student attending class less than 80% of class hours cannot take examination, and is given "Fa" grade (fail, attendance). Course credit "Fa" grade is used to calculate GPA.

(2) Student not taking examination without acceptable reasons is given "Fe" (fail, examination). Course credit "Fe" grade is used to calculate GPA.

Section 3

Evaluation and Student Status

Item 17. Evaluation system:

(1) Evaluation system is represented by a set of English alphabets and each alphabet expresses different point or value: [King Mongkut's University of Technology North Bangkok Regulations on Undergraduate Study No. 5 (2018)]

Alphabet	Point	Meaning
A	4.0	Excellent
B+	3.5	Very good
B	3.0	Good
C+	2.5	Above average
C	2.0	Average
D+	1.5	Below average
D	1.0	Poor
F	0	Fail
Fa	0	Fail, Insufficient Attendance
Fe	0	Fail, Absent from Examination
Ip	–	In-progress, evaluation of special project/thesis/cooperative course
I	–	Incomplete
S	–	Satisfactory
U	–	Unsatisfactory
W	–	Withdrawal

(2) There should be one final examination and one mid-term examination.

(3) Faculty/College Committee shall consider the results of the academic evaluation every semester, with the Dean/Director signing to approve the academic evaluation results and considering submitting them to the University Council for degree approval.

(4) Faculty/College keep answer papers for at least one semester after grades announcement. After that, Dean/Director can order destruction.

Item 18. Calculation of grade point average:

(1) Number of credits is multiplied by point obtained for each course, and results of all courses are combined, then divided by total number of course credits. Two decimal digits are used without rounding to display grade point average. Any repeated course or substituted course is also used for grade point average calculation.

(2) Grade point average (GPA) is classified into two types:

a. GPA for each semester is obtained from grade point average of courses taken in that semester.

b. Cumulative GPA is overall grade point average calculated from first year's first semester to current semester.

Item 19. Retaking course:

(1) Students who fail a course must repeat that course or choose to study a course approved by the department according to the specified criteria.

(2) Students whose grades in a course are lower than satisfactory (C or 2.00) may request to repeat that course with approval from the department before registering for the course. Credits and grades of all courses including repeated course count toward cumulative GPA.

Item 20. Giving "I" (Incomplete):

(1) "I" can be given for following cases:

a. A student has completed the required study time as stated in Item 16 (1) but is unable to take the examination in some or all subjects because he or she is ill before the examination and has correctly complied the conditions stated in Item 28 (1) a and the Dean/Director considers the approval from the instructor of that course and sees fit to approve because the student's study lacks only a small amount of content.

b. A student who falls ill during an examination and is unable to take the examination in a particular course or all of them must have correctly complied with Item 28 (1) (b) and received approval from the Dean/Director.

c. A student who is absent from exams due to unavoidable circumstances and approved by the Dean/Director.

d. A student does not complete work assignments and the instructor deems it appropriate to wait for the results of the study. The instructor will give the grade of I (incomplete) together with the results of the other students registered for that course.

(2) Student with "I" must change "I" within 30 days of semester grades announcement. If student fails to do so, "I" will automatically be replaced by "F" or "U" (Unsatisfactory).

Item 21. Audit course:

(1) Student may request advisor to register special course not in curriculum on audit basis, i.e. with no grade or credit. Course instructor's permission is required.

(2) Student must pay tuition fees for auditing course and specify in registration form which course is not to be graded. Student cannot later change auditing course to regular one, except change in study program and auditing course is included in new curriculum.

(3) Registration for auditing course is done during adding course schedule. Auditing course credit is included in maximum course credits allowed in each semester, but not included in compulsory minimum course credits.

(4) Auditing course without credit and grade is recorded as "AU" (Audit) in transcript after course instructor confirms that student has studied with good attention and completed class as stated in Item 16, and instructor gives "AU" in grade report.

Item 22. Student status:

There are two types: regular and probationary student.

(1) Regular student is student who just enrolls in first semester or who gets cumulative grade point average at least 2.00.

(2) Probationary student is one who gets cumulative grade point average under 2.00.

Students on academic probation must report to the department to be informed of their academic probation and register for no more than 3/4 of their total credits in the following semester or at the department's discretion. Students on academic probation will be released from academic probation when they receive a cumulative grade point average of at least 2.00.

Item 23. Student academic year status: [King Mongkut's University of Technology North Bangkok Regulations on Undergraduate Study No. 7 (2023)]

The determination of a student's academic year status shall be based on the period specified in the curriculum or the period that the curriculum is used.

Item 24. Length of study:

Students must study for no more than twice the duration of the study plan specified in the program of study. The study period is counted from the time of enrollment, first semester. This includes the study period, summer semester, study leave, or study suspension.

Item 25. Punishment:

(1) Examination fraud.

If student is engaged in activities against regulations in Midterm or Final examination, Faculty or College Committee may:

a. Fail student in cheated course.

b. Fail student in cheated course and suspend student at least one semester, starting the next semester.

c. Fail student in cheated course, not grade other registered courses in that semester, and suspend student at least one semester, starting the next semester.

d. Terminate student status.

(2) For other misconducts, University impose disciplinary punishment against offending student on case-by-case basis.

(3) Suspension time counts toward study time.

(4) Suspended student is required to pay fees to maintain student status every semester within specified period. If fees are not paid, student status is terminated.

Item 26. Termination of student status when: [King Mongkut's University of Technology North Bangkok Regulations on Undergraduate Study No. 2 (2011)]

(1) Death.

(2) Complete curriculum study and graduate with a degree as stated in Item 34.

(3) Allowed to resign by Dean/Director.

(4) Student status is terminated as stated in 25.

(5) Not complete study within specified study time.

(6) For 4-year and 5-year Undergraduate programs, student status is terminated when:

a. Earn GPA less than 1.25 in the first semester.

b. Earn cumulative GPA less than 1.50 in the second semester.

c. Earn cumulative GPA less than 1.75 for two consecutive semesters, starting from the third semester of enrollment.

d. Earn cumulative GPA less than 2.00 for 4 consecutive semester from the third semester of enrollment, except having completed all required course credits and earning cumulative GPA at least 1.80. Student is allowed to continue studying but must not exceed specified study time.

(7) For 2-3 year Continuing and Transfer Undergraduate Program, student status is terminated when:

a. Earn GPA less than 1.50 in the first semester.

b. Earn cumulative GPA less than 1.75 for 2 consecutive semesters, starting from the first semester of enrollment.

c. Earn cumulative GPA less than 2.00 for 4 consecutive semesters, starting from the first semester of enrollment, except having completed all required course credits and earning cumulative GPA at least 1.80. Student is allowed to continue studying but must not exceed specified study time.

(8) Complete all required course credits, but cumulative GPA less than 1.80.

(9) Not register for courses in regular semester, nor maintain student status within 15 days of semester start as stated in Item 13 (4).

Item 27. Student reinstatement status:

(1) Student losing student status as stated in Item 26 (8) can appeal for reinstatement within 15 days after notification.

(2) Approval from Department Head, Dean/Director and President is required for reinstatement.

(3) Student must pay student status reinstatement fees according to University regulations.

(4) When approved, student status is restored as before termination. Termination time counts toward maximum specified study time as stated in Item 24.

Section 4

Leaves and Re-entry of Study

Item 28. Sick leave

Sick leave is categorized into two types:

(1) Sick leave before examination means student becomes sick before examination and continues until examination period. Request for leave must be submitted within first week of being sick together with medical certificate from public or private hospital recognized by government.

(2) Sick leave during examination means student absents during examination due to illness. Request for leave must be submitted immediately to Dean or Director together with medical certificate from public or private hospital recognized by government.

Item 29. Personal leave:

(1) If student wants to take leave during class hours, student must request for leave from the class instructor.

(2) If student wants to take leave for one day or more, must submit request for leave before the leave date with reasons and endorsement of parent or guardian.

Item 28. Study leave:

(1) Student can apply for study leave to Dean or Director in following cases:

a. Military conscription or training.

b. Scholarship for overseas training or site visit.

c. Prolonged sickness for more than 20% of study time. Required medical certificate from public or private hospital recognized by government.

d. Personal reasons but must have studied at least one semester.

(2) Student can apply for only one semester of study leave per request, except the study leave as stated in Item 30 (1) a. and Item 30 (1) b.

(3) Study leave time counts toward total study time except the study leave as stated in Item 30 (1) a.

(4) Once the request is approved, student must pay fees to maintain student status within 15 days of the first day of semester for every semester of study leave. If not, student status is terminated. Student does not need to pay study leave fees if academic and tuition fees have already been paid.

Item 31. Re-entry of study.

(1) Student having taken study leave must submit the request for re-entry of study to advisor for approval from Dean or Director before semester date registration. Once the request is approved, the student will remain in the same status as before the approval for study leave was granted.

(2) Suspended student must report to Department when suspension period is over. Student must submit the request for re-entry of study to advisor for approval from Dean or Director before semester date registration. When approved, the student will remain in the same status as before suspension.

Section 5

Graduation

Item 32. Student eligible for Undergraduate degree must have following qualifications:

(1) Complete all courses and credits required in curriculum. For retaking or replacement courses, only pass grade counts toward curriculum completion.

(2) Obtain cumulative GPA at least 2.00.

(3) Possess honors and dignity stated in Item 34.

Item 33. Honors of Graduates:

Graduates with honors must have following qualifications:

(1) Complete studies in regular semester within specified study time.

(2) Never obtain “Fail” grade (F, Fe Fa) or Unsatisfactory (U) in any course.

(3) Never repeat any course to change grade point average.

(4) Student with grade point average at least 3.60 is awarded First Class Honors.

(5) Student with grade point average between 3.25 – 3.59 is awarded Second Class Honors.

Section 6

Student's Honor and Dignity Criteria

Item 34. To be eligible for degree, student must maintain dignity and honor. Student must have the university's desired graduate characteristics including being polite and courteous, preserving University honor, complying with rules, orders and regulations. Additionally, student must maintain appropriate behavior and conduct:

(1) Must not be medically diagnosed as having mental disorders and must not be ruled by court as incapacitated or quasi-incapacitated person.

(2) Never serve prison sentence nor presently being prosecuted for crime except petty offence or negligence.

(3) Not commit evil, lacking morality, rogue behavior, excessive alcohol consumption, heavily in debt, gambling addiction, extramarital affairs leading to scandals.

(4) Not engaged in intra, inter-University quarrels with other students.

(5) Not demonstrate aggressive behaviors, nor disrespect Faculty and staff.

(6) Not interfere with administration of University.

(7) Not intentionally damage, or severely damage University property.

(8) Not owe debt to University.

Item 35. Student lacking qualifications stated in Item 34 is deemed as having no honor and dignity, not deserving to obtain degree from University. Accordingly, University may consider:

(1) Not nominate student to receive degree.

(2) May postpone degree nomination for 1–3 years depending on offense type.

Item 36. When student has completed all required courses and credits but does not possess all qualifications of desirable graduate stated in Item 34, Faculty or College Committee shall consider the student's honor and dignity and present its opinion to the university for consideration without delay.

Item 37. The meeting of the Faculty/College Committee to consider the honor and dignity of students must have at least 3/4 of the total number of committee members present at the meeting. The chairperson of the committee has the authority to invite any person involved in the case to explain and request copies of documents from any agency for consideration. The committee may or may not summon the student to testify. The decision of the meeting shall be based on a majority vote. In the event of an equal number of votes, the chairperson of the meeting shall cast deciding vote.

Item 38. When investigation reveals that there is other student from other Faculty/College involved in misbehavior, Committee chairperson must immediately notify in writing to inform Dean/Director of the student who is involved in the misbehavior so that the Faculty/College can consider taking further action.

Item 39. Any student who is deemed by the Faculty/College Committee not to be nominated for a degree, if it is believed that he/she has been treated unfairly, has the right to appeal to the President by submitting one letter with his/her signature and one certified copy in person to Dean/Director within 15 days of non-nomination notice.

The person receiving the appeal shall forward the appeal together with his/her explanation, if any, to the University within 7 days from the date of receipt of the appeal in accordance with Item 39.

Item 40. When University receive appeal, President or person assigned by President acts as chairperson of appeal meeting. Dean/Director of Faculty or College are members. Director of Education Service Division is member and secretary. Appeal meeting is held within 30 days of receiving appeal. Three-fourths of committee members must be present to form quorum. Majority rule is used. In case of equal votes, chairperson casts deciding vote.

If committee reject appeal, decision is deemed final. If committee side with appeal, it is sent to University Council Chairman to make final ruling and informs the council for acknowledgement.

Announced on 25th November 2009 (B.E. 2552)

Professor Dr. Kasem Suwannagul

University Council Chairman

King Mongkut's University of Technology North Bangkok Announcement on Criteria for Re-registering Courses in Failed Courses for Undergraduate Students

Whereas it is appropriate to establish criteria for re-registering courses for undergraduate students who have failed the courses in order to create greater clarity.

Empowered by Item 6 and 19 of King Mongkut's University of Technology North Bangkok Regulations on Undergraduate Study (2009) and resolution of Academic Council Committee meeting no. 2/2019 on 25th February 2019, regulations are hereby proclaimed:

Item 1. Definition:

"University" means King Mongkut's University of Technology North Bangkok.

"President" means President of King Mongkut's University of Technology North Bangkok.

"Faculty" means a faculty or college in charge of teaching and learning.

"Department " means a department or organization or unit with another name that has equivalent status to a department that offers bachelor's degree programs.

"Student" means person taking undergraduate study and has been registered as student.

"Failed course" means course with evaluation results as F, Fa, Fe or U

Item 2. Right to re-register for courses in failed courses.

In the case where a student re-registers for another course instead of the course that he/she failed, the student must submit a request to the department and have the faculty consider approving it before re-registering for the course.

Item 3. Registration criteria for repeat course:

(1) Re-register for a course in the General Education course category.

a. Compulsory courses: Students must re-register for courses that they have failed.

b. Elective courses: Students can re-register for courses that they have failed or choose to register for other elective courses in the same course category.

(2) Re-register for a course in the Core course category.

a. Core and professional compulsory courses: Students must re-register for courses that they have failed.

b. Elective courses: Students can re-register for courses that they have failed or choose to register for other elective courses in the same course category.

(3) Re-register for a course in the Free elective course category.

Students can re-register for courses that they have failed or choose to register for other elective courses in the same course category.

Item 4. In the event that there is a change in the curriculum and the original course that the student failed is no longer offered for teaching and learning, the department that owns the curriculum can transfer the course to the revised curriculum or the new curriculum by receiving approval for transfer from the department and faculty before registration.

Item 5. In the event of any problems in the diagnosis or interpretation in order to comply with this announcement, the President shall have the authority to make a final decision.

Effective from Semester 1 Academic Year 2018 onwards

Announced on 25th February 2019 (B.E. 2562)

Professor Dr.-Ing. habil. Suchart Siengchin

President

King Mongkut's University of Technology North Bangkok Announcement on Digital Competency Test for Undergraduate Students (2024)

Whereas it is appropriate to establish criteria on the digital competency test for undergraduate students at King Mongkut's University of Technology North Bangkok to be in line with the university policy that promotes and supports students to have competence, skills and understanding, and use of digital technology, which is the development of graduate quality to have competence according to professional standards in the 21st century.

Empowered by Article 31 (3) of King Mongkut's University of Technology North Bangkok Act 2007 and resolution of Academic Council Committee online meeting no. 8/2024 on 19th August 2024, regulations are hereby proclaimed:

Item 1. Definition:

"University" means King Mongkut's University of Technology North Bangkok.

"President" means President of King Mongkut's University of Technology North Bangkok.

"Faculty" means a faculty, college or university unit with another name that has equivalent status to a faculty in charge of teaching and learning including the university unit assigned by the Council of King Mongkut's University of Technology North Bangkok to organize teaching and learning.

"ICIT" means Institute of Computer and Information Technology, King Mongkut's University of Technology North Bangkok.

"Student" means undergraduate students at King Mongkut's University of Technology North Bangkok.

Item 2. ICIT shall be responsible for organizing the digital competency test. The test will be organized in every regular semester and shall be responsible for issuing certificates certifying the results of the digital competency test, which are signed by the President and the ICIT Director.

Item 3. Students are required to take two digital competency tests throughout their course of study under the following conditions:

(1) First Entry Testing: All new undergraduate students are required to take a digital competency test during their first semester of study.

(2) Pre-Graduation Testing:

a. Students enrolled in continuing education or transfer programs must take the test after completing at least 6 semesters of study, excluding the summer semester.

b. Students enrolled in a 4-year program must take the test after completing at least 6 semesters of study, excluding the summer semester.

c. Students enrolled in a 5-year program must take the test after completing at least 4 semesters of study, excluding the summer semester.

Item 4. The University will support the cost of digital competency testing at the time of first entry and at the time of pre-graduation. However, if students wish to take additional digital competency tests during their studies, they must be responsible for the costs of the digital competency tests themselves.

In the event that a student is unable to take the digital competency test at the time specified in Item 3, the student must be responsible for the cost of the test by himself/herself.

The cost of digital competency testing shall be at the rate determined by the University.

Item 5. The results of the digital competency test must be valid for no more than 3 years from the date of announcement of the test results.

Item 6. Students who will graduate from Semester 2/2024 onwards must take the competency test in the areas required before graduation within the period specified by the university.

Item 7. In the event of any problems in the diagnosis or interpretation in order to comply with this announcement, the President shall have the authority to make a final decision.

Effective from Semester 1 Academic Year 2025 onwards

Announced on 19th August 2024 (B.E. 2567)

Professor Dr.-Ing. habil. Suchart Siengchin

President

King Mongkut's University of Technology North Bangkok Regulations on Cooperative (CWIE) Program for Undergraduate Students

This regulation is under revision and will be announced later.

King Mongkut's University of Technology North Bangkok Regulations on Student Discipline (2024)

This regulation is under translation to English and will be included in this student handbook later. The Thai version is available in KMUTNB Student Handbook Version 2025 (B.E. 2568) on page 237-247 and 255-257.

TGGS REGULATIONS AND PROCEDURES

TGGS Regulations on Bachelor's degree Combined with Master's Degree Program (4+1) (2025)

This regulation is still under discussion and being issue and will be announced later.

Internship Guidelines and Procedures for the TGGS International M.Eng. Courses in Engineering following the RWTH Aachen Model

The following guidelines are based on the common set of rules for engineering internships on the graduate level in the leading German Technical Universities (TU 9 Group) and approved by the standing conference of the Faculties of Engineering in the German system (Technical Universities).

- First Revision: August 2005, R.H. Jansen –
- Second Revision: March 2014, TGGS Committee –
- Third Revision: July 2019, TGGS Committee –

Please note: All documentation for the internship file has to be prepared in English.

Introduction

In the context of developing industry-oriented engineering education on the Master's level in Thailand, the internship has to be an integral part of the course of study in the respective field of engineering. With the main focus on engineering innovation, science driven technology development and learning towards engineering leadership, engineering students have to be educated to come along with enhanced problem solving capability. In general, this kind of internship is aimed to widen the subject-related theoretical knowledge of the student through its practical application in a company, to achieve this by contributing to the solution of engineering problems in the workplace environment and to learn to understand the timing, economic and organizational boundary conditions for such work in a company. Because of this orientation of the internship and because of the benefits which participating companies should obtain from this, it is placed into the final year of the education just before the master thesis. In order to achieve the outlined objectives, the Master's level internship must build on an undergraduate internship or individual professional experience by which the student has obtained already a first industrial training. Further, in this graduate level internship, the student will be backed-up by his university supervisor (and his RWTH Aachen counterpart, if necessary) regarding technical know-how in the respective engineering field, by which mechanism, university – industry links in Thailand will be strengthened as a side effect.

In detail, the students have to conduct technical work with duration of at least 18 weeks under supervision of suitable engineering staff (industry mentors) in the hosting company in order

- to become acquainted with the activities of engineers in enterprises in different areas, in particular development, production and applications-oriented research, equipment and production optimization as well as project planning, acquisition and organization
- to get insight into the structure, organization and operation of enterprises considering aspects of quality, economy, ecology, acceptance of products by the market and adherence to delivery dates,
- to learn to contribute to the development, production and quality assurance of goods, components and systems in the field of study,
- to become acquainted with company cultures, social structures (among other things team work, hierarchy, social situation) and safety at work, from the point of view of a higher level employee.

Furthermore, the internship is aimed to develop the students' own initiative and problem solving capability, taking into account the boundary conditions under which industry operates. Apart from these educational aspects, it offers to the student the opportunity to analyze possible professional career perspectives and eases for him/her and the hosting company a later transition into firm employment. Enterprises in return, should take an active role in helping to qualify students in the field of engineering. Doing so, they will further raise interest in the issues the enterprise is dealing with to their own benefit. In due course, the company gets into contact with talented students, which could be recruited after completion of their study. Such recruitment has (in Germany) proven to be a rather effective knowledge transfer mechanism from university to industry which in Thailand is expected to support technology upgrading and competitiveness of the enterprises.

By joint supervision of the internship by a member of both the enterprise (industry mentor) and TGGS (university supervisor), links between those are developed, which may lead to co-operation in areas of mutual interest (joint projects in development and industry-oriented research, mutual exchange of experience and expertise, as well as advanced training of employees). After a well-conducted and successful internship, the hosting industry mentor and the university supervisor should envisage a follow-

up master thesis project, which fits to the enterprises needs, but gives also room for science-based creativity on the graduate student side.

Content

In contrast to the basic internship during undergraduate studies, the graduate level internship during the last part of the Master's study serves to make the student familiar with career-specific and advanced engineering activities in an enterprise.

The list of specific qualifying internship activities depends on the field of study and is part of the prevailing internship regulations for each course. This list may be supplemented by individual agreement between the prospective industry mentor and the university supervisor, if activities shall be covered which are not listed as standard topics. Such non-standard topics have to be approved in writing by the TGGS course coordinator

Supervision

The internship should be supervised carefully in order to be as effective as possible. For this purpose, the university (the course coordinator) as well as the company nominate a supervising staff member/mentor responsible for the student's guidance and performance.

The industry mentor in the respective enterprise should be an experienced engineer preferably with at least having a Master's degree him/herself. Since currently the South East Asian industry will not yet employ engineering masters to a sufficient extent, an industry mentor with a Bachelor's degree, 5-10 years of experience in the respective technical field and with engineering development background is acceptable as a transitional alternative. This person serves as an advisor and point of contact for any problem arising within the enterprise. He is responsible there for the fulfillment of the internship guidelines and for issuing the final reference letter.

The university supervisor should be a professor actively engaged in the respective engineering field of study and qualified to supervise the master thesis (must have a Ph.D. degree in engineering). He is the contact person for the industry mentor if a problem with the student and his internship arises. At the end of the internship, the industry mentor has to issue a written approval statement and brief judgement of the student's performance. The TGGS Academic Affairs for Industrial Internship in conjunction with Program Coordinator and Department Office then is responsible for a final check of the internship record (report with list of daily activities, company reference letter, and supervisor's technical judgement), for completeness and formal correctness and will then give the final approval signature and stamp for the acceptance of the internship as part of the studies.

Enterprises

Because of its important role in cooperative education on the master's level, the enterprise for an internship should be chosen carefully. The focus group is engineering-and technology-related industry with a sufficient number of engineers (minimum of 5). In the respective branch/department selected for the students internship work; SMEs with less than 50 employees qualify only under exceptional circumstances (e.g. if the SME is an entrepreneurial high-tech company) to be recorded in writing by the university supervisor. These enterprises should typically provide opportunities to get acquainted with development and industry-oriented research, simulation and design (in particular CAD, Computer-aided Design), conceptual planning, construction, production, assembly, machine operation, maintenance and testing.

Trade companies, computer shops are not suited and do not qualify for the prevailing internships. Enterprises owned or managed by a student's family member do not fulfill the requirements either, unless exceptionally approved by the TGGS Committee.

Government research centers and research labs at university abroad (MoU university with TGGS) are possible if the internship project is a part of or related to the industrial project. However, it must be approved by TGGS Committee prior starting the industrial internship. Only the internship at RWTH-Aachen University is accepted without the approval from TGGS Committee.

Reporting

During the internship, two reports have to be prepared: A technical report (TGGS Industrial Internship Report) and a daily list of activities as work record (TGGS Internship Weekly Report).

The technical report (like a mini thesis with introduction, technical content, results and summary) has to be written by the student him/herself to document the engineering work, problem solving and development results of the internship in order to learn to present technical facts. It can describe processes, facilities, tools, etc. and include notes about his experiences and activities. Sketches, workshop drawings and circuit diagrams are often more descriptive than a longer text. The use of photocopies and company brochures as well as other imported material should be avoided. If necessary and unavoidable, such material should be included into a separate appendix of the technical report. The text (maximum of 30 pages) should mainly refer to the activities that the author has carried out by him/herself.

In addition to the technical report, a list of the daily activities carried out (e.g. summarized each month day by day in an excel table) and the time used to conduct them has to be filed and is a necessity for the evaluation of the internship. The total work record should be comprehensive, precise and clear.

At completion of the internship, the industry mentor in the respective company should sign the technical report and complete list of daily activities, then issue and sign the final company internship reference and judgement letter (ca. 1 page length). When later looking for qualified employment, the company reference letter also will be a useful document for the student's job applications.

Internship Reference Letter and Final Approval

As outlined already, in order to recognize the internship activity of the student as part of his master studies, a reference from the enterprise (the responsible industry mentor) is required. This reference letter must contain

- personal information of the student (first name, family name, date and place of birth)
- name of the company, the department and the company location
- time and overall duration of the internship and the number of days absent
- short description and duration of the student's internship tasks
- a brief evaluation and judgement of the student's work and of the content of the technical report.

The internship as an integral part of the TGGS Master's course will only be accepted and approved if the following requirements are fulfilled:

- it is related to the engineering field of study and can be related to the specific list of topics relevant for the course
- it is performed as full time work (part-time internships are not accepted)
- the company fulfils the minimum requirements as defined in these guidelines
- the number of days absent are less than 3% of the internship duration (even caused by illness of the student), otherwise the internship has to be extended to compensate for the time absent
- the technical report, daily activities list as work record, and the company reference letter have been checked and countersigned by the university supervisor
- the student has given a 20 min. presentation on his internship activities, time and location to be agreed with his supervisor (e. g. in the frame of a seminar in the respective TGGS technical group to promote soft skills)
- the TGGS Academic Affairs for Industrial Internship in conjuction with Program Coordinator and Department has made the final check for completeness and formal correctness of the internship documents.

Contract

TGGS and the companies participating in the Co-operative Engineering Education program will usually confirm their mutual responsibilities in a brief letter of agreement, unless the enterprise is a proven TGGS partner anyway (who is already familiar with this internship system).

Alternatively or additionally, the relations between the company and the student during the internship may be regulated by a specific internship employment contract, which determines all rights and duties of the student and the company.

On the demand of the enterprise, confidentiality regarding sensitive company issues like Intellectual Property should be agreed upon in a separate Nondisclosure Agreement (NDA) to be signed by the company, the university supervisor and the internship student.

Insurance

With respect to insurance, the legal status of the student may be of importance. Since the practical activity during the internship in a company is a firm part of the Master's level curriculum, he/she maintains the legal status of a student for which a medical insurance, accident insurance and third-party liability insurance is part of the university registration.

Additional health and/or accident insurance during internship may be provided by the enterprise as part of the employment situation (or specific contract) into which the internship student enters.

Miscellaneous

As some of the Master's students may have passed a phase of professional engineering employment already following their Bachelor's degree, the recognition of this professional experience-instead of conducting the Master's level internship as outlined here – can be considered as an exception. In such case it is the responsibility of the university supervisor to check the equivalency and consistency of this previous professional experience with the guidelines. In order to approve such an exception, the supervisor has to evaluate in detail the company references (profile of the company, employment references of the student, etc.) forwarded by the student, have an interview on this with the student and justify the exception in a detailed written statement to the TGGS Academic Affairs for Industrial Internship in conjunction with Program Coordinator and Department Office. In order to develop or improve soft skills, the student should give an oral presentation about his/her work experience in a TGGS seminar to his/her supervisor and the other students in his/her Master course. This statement of equivalency will become part of the student's study file to serve as a substitute for the usual internship documentation.

The TGGS Academic Affairs for Industrial Internship in conjunction with Program Coordinator and Department Office continually updates and keeps a list of companies qualifying for internships as defined in these guidelines. Based upon this and upon consultation with his prospective university supervisor, the student is responsible him/herself to choose and find an adequate company, enter into the internship and fulfill the internship regulations and requirement as outlined here. The university staff engaged in the TGGS Master courses will provide their support for this, if necessary. In case the student proposes to his supervisor a company of his own choice willing to accept him/her, he has to provide the necessary company profile and information material, which allows the TGGS Academic Affairs for Industrial Internship in conjunction with Program Coordinator and Department Office in consultation with the supervisor to decide whether the chosen company is qualified as an internship partner and will be listed as such by the TGGS Academic Affairs for Industrial Internship in conjunction with Program Coordinator and Department Office.

Internship Timing Schedule

- In order to acquire additional theoretical background on the Master's level, the student must have completed the lectures (have passed the examinations) of the first and second semester, before entering into the internship.
- Generally, internships can be conducted in the August term or in the January term, depending on the start term of the respective TGGS Master's course and on the student's progress.
- Before the end of the semester preceding the internship semester (i.e. ca. 2 months before the start of the internship), the student should make him/herself familiar with the internship guidelines at the TGGS Academic Affairs for Industrial Internship in conjunction with Program Coordinator and Department Office, should select his favorite field(s) of technical activity and consult on this with one of the TGGS university supervisors.
- The university supervisor recommends one or more suitable qualified companies and, if necessary, supports the student's internship application(s) to these companies. However, it is finally the student's responsibility to choose and find a qualified company.
- One month before the start of the internship, the firm approval of the respective company should have been obtained and an industry mentor should have been nominated by that company in accordance with the guidelines.
- During this month, the university supervisor and the industry mentor will meet (preferably in the company) or at least communicate to discuss and define in more detail the internship activity (Internship Project), write down a brief note on this to be kept in the student's internship file and hand out a copy of this to the student.

- During the 18 weeks internship itself, technical progress is reported and the daily list of activities is filed as outlined in the guidelines. Ca. 2 – 4 weeks after the start of the internship, the student has to see his university supervisor to give him/her a feedback on how his technical work picked-up is moving on and if there are any problems seen. Later, closer to the end of the internship, the university supervisor will at least make one visit to the company and consult with the industry mentor on the status and finalization of the internship activities. This is the time also to discuss a possible follow-up Master's thesis project. At the end of the student's 18 weeks stay, the industry mentor provides his company reference and judgement letter after having checked and initialed the internship technical report and list of activities (work record).
- Close to the end of the internship, the student fixes with his university supervisor the date/location for his internship presentation to be given in the frame of a seminar in his TGGS Master's course. Immediately after the internship, the student delivers his technical report, list of daily activities and company reference letter to the university supervisor.
- Within two weeks after the end of the internship, the supervisor provides his judgement and approval statement (or disapproval) and passes on the internship file to the TGGS Academic Affairs for Industrial Internship in conjunction with Program Coordinator and Department Office which will check the file and issue the final approval sheet, if all conditions are met.
- Successful completion of the internship is a prerequisite for starting the Master's thesis project. The topic and task description for the Master's thesis project will not be handed out to the student (and thus the thesis work cannot be started) before the internship file has been closed (final approval sheet) by the TGGS Academic Affairs for Industrial Internship in conjunction with Program Coordinator and Department Office.

Note that the Brief TGGS Internship Outline for Industry Mentors for the TGGS International M.Eng. Courses in Engineering following the RWTH Aachen Model will be sent to industry mentors directly.

Since the TGGS Organization has been restructured so that departments are replaced with programs, so wherever the "Department Office" has been mentioned, it is meant the "Program Office".

Summary of Internship Procedure

Step 1: The student prepares his/her CV.

Step 2: The student consults with a TGGS lecturer to find an interest internship company. Note that the qualification of company according to the guideline procedure of TGGS must be satisfied. The student sends an application for the internship to the company. If the company accepts the student, the student and the lecturer discuss the scope and description of the internship project with the company's supervisor. When the company and the student have met an agreement, the internship can be started.

Step 3: Before starting the internship, the student must submit the TGGS Request Form for Internship Application and Delivery Letter (TG71) to Program Secretary. Then, the student takes the delivery letter issued by TGGS Academic Affairs to the company.
(See the TGGS Request Form for Internship Application and Delivery Letter (TG71). The request form basically consists of TGGS application letter and CVs, more documents can be attached if needed. The signature of the TGGS advisor is considered as a confirmation that the company has offered the internship place. If the student needs a letter for applying VISA to do the internship abroad, please tick the option in the form.)

Step 4: The student performs the internship at the assigned company for a given period and follows the internship guideline. Along to the internship, the student prepares the weekly task report to be attached with the final report. During the internship, additional process, e.g. progress report, can be implemented depending on the TGGS lecturer.

Step 5: The student must submit the TGGS Request Form for Internship Report Submission and Access Restriction (TG73) and the internship report (hard copy along with soft copy) including other required documents as stated in the form when returning back to Program Secretary within two months.
(See the TGGS Request Form for Internship Report Submission and Access Restriction (TG73), TGGS issues an appreciation letter and sends it to the company.)

** Note that internship in research center and university abroad must be approved by TGGS Committee prior starting the industrial internship. Only the internship at RWTH-Aachen University is accepted without the approval from TGGS Committee.

Related documents for internship

1. TGGS internship guidelines
2. CVs (prepared by student)
3. Internship application and delivery form → Application letter (TGGS)
   → Delivery letter and VISA application letter (TGGS)
4. Internship report template
5. Internship report submission form → Appreciation letter (TGGS)
6. Internship report including weekly work record and evaluation sheet

Important Remark:

The student must complete at least 18 weeks of industrial internship with 4 KMUTNB credits or 30 ECTS. The evaluation/assessment result of the industrial internship is in the form of Letter Grade as S or U. If the student cannot submit the report within two months after the ending date of industrial internship work, the student will receive Ip.

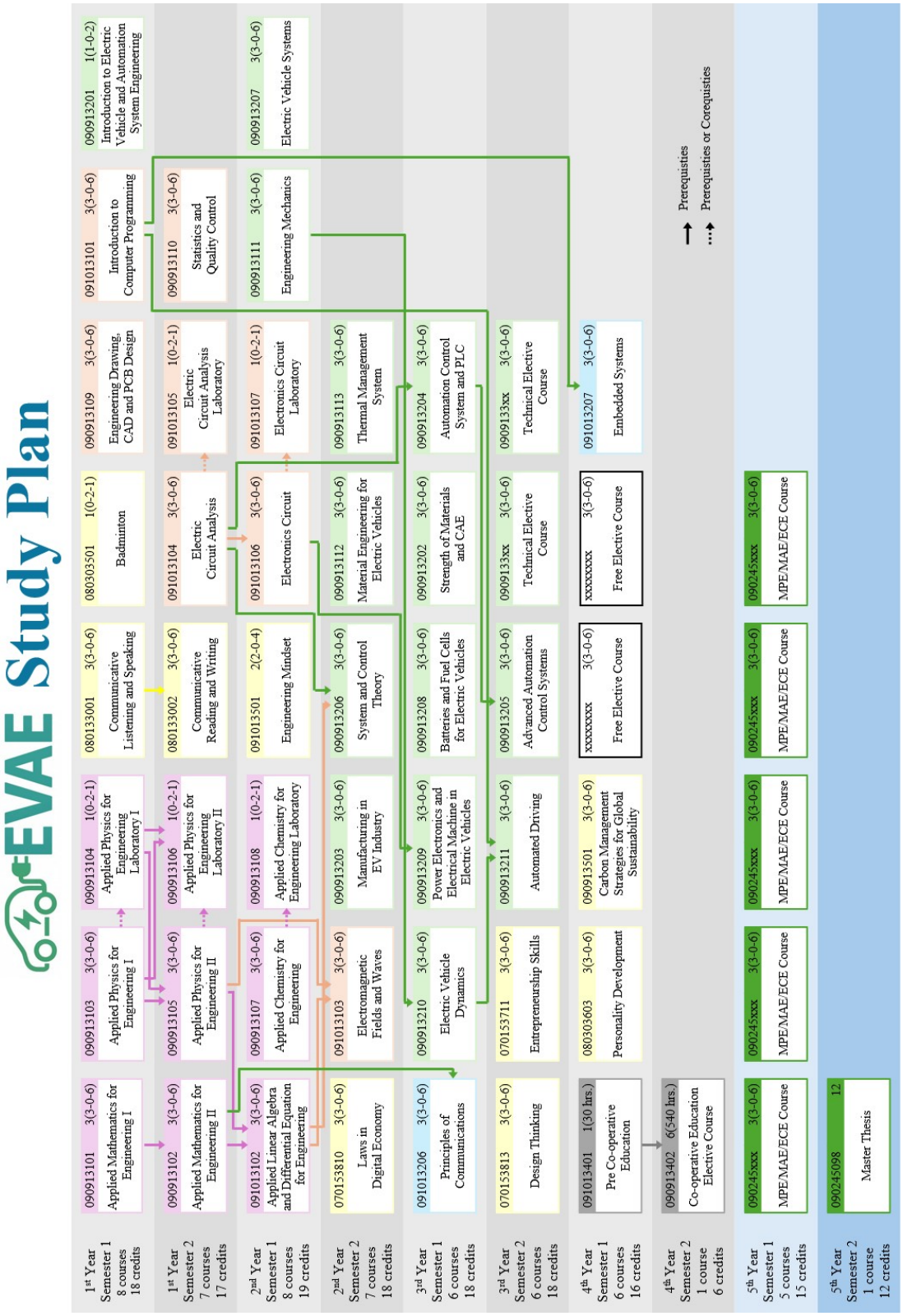
Assessment	Performance's Quality
S	Pass / Satisfactory
U	Fail with inadequate achievement / Unsatisfactory
Ip	Incomplete / In-progress

The student must submit the internship report (hard copy along with soft copy) after the ending date of industrial internship work within two months. Therefore, the student must submit TGGS Request Form for Internship Report Submission (TG73) along with the following documents:

(1) Internship Report; (2) Weekly Report; (3) Evaluation Form; and (4) Internship Reference Letter.

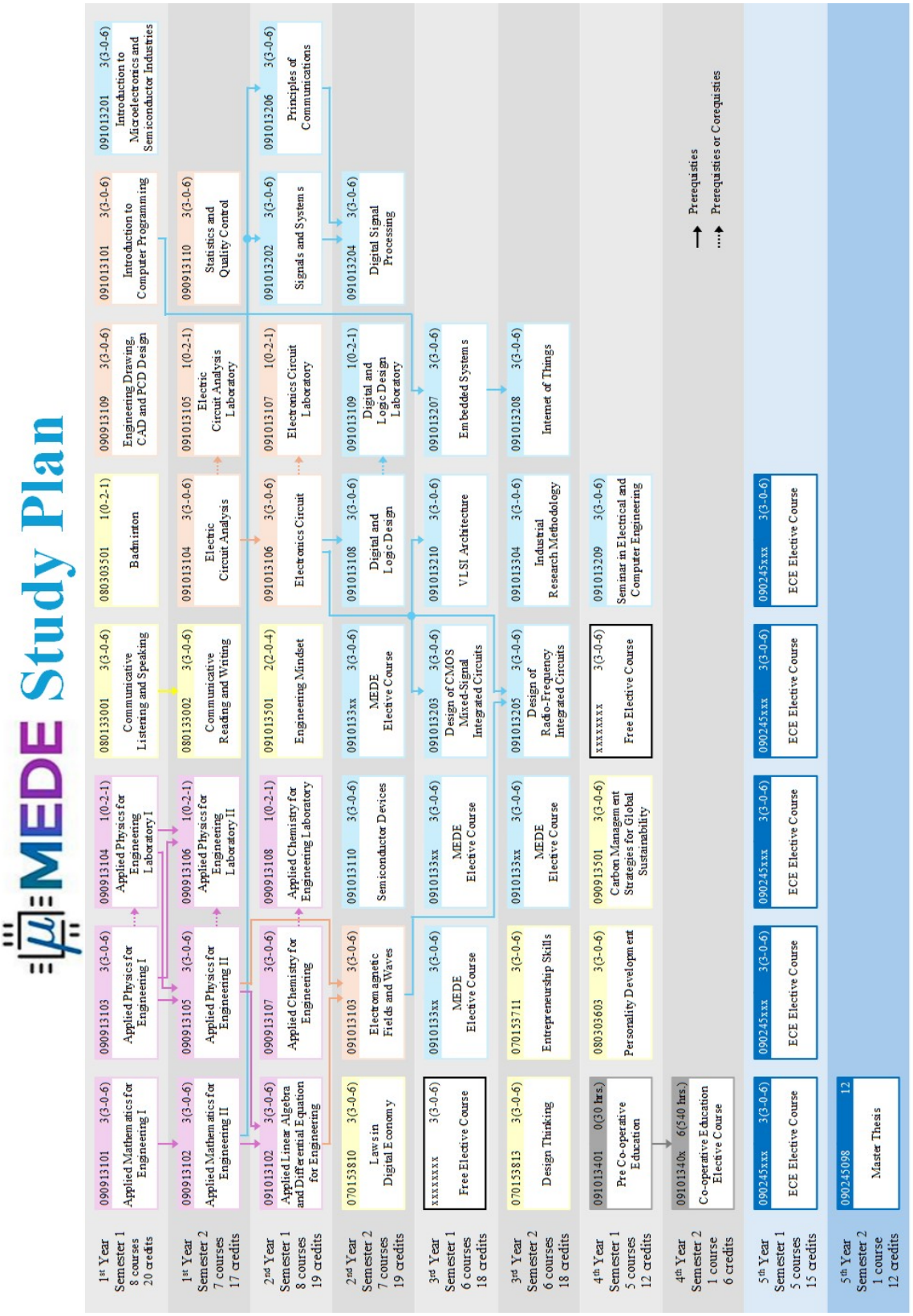
BACHELOR STUDY OVERALL PROCESS FLOW PLAN

EVAE Study Plan with Coursework and Industrial Internship (Student ID 68 onward)



The complete document is available at https://tggs.kmutnb.ac.th/wp-content/uploads/2025/07/EVAE-Study-Plan.pdf.

MEDE Study Plan with Coursework and Industrial Internship (Student ID 68 onward)



The complete document is available at https://tggs.kmutnb.ac.th/wp-content/uploads/2025/07/MEDE-Study-Plan.pdf.

BACHELOR DEGREE PROGRAMS AND DESCRIPTION OF COURSES

Electric Vehicle and Automation Engineering Program (EVAE 2025)

Website: https://tggs.kmutnb.ac.th/evae

Program Overview

Start your journey with the **Bachelor of Engineering International Program in Electric Vehicle and Automation System Engineering**. This program is designed to address the needs of rapidly evolving industries, equipping students with the knowledge and skills to thrive in the transformative fields of electric vehicle (EV) technology and industrial automation.

Students gain a comprehensive education in core areas such as electric power systems, battery technology, vehicle dynamics, autonomous vehicle control, and robotics. The curriculum is further enriched with advanced topics in EV manufacturing, automation, embedded systems

, artificial intelligence (AI), and Internet of Things (IoT) integration, preparing graduates to tackle future challenges with confidence.

Key Highlights of the Program:

- **Career Opportunities**: Build your pathway to success in fast-growing and transformative industries.
- **Global Collaboration**: Learn from RWTH Aachen University, Germany—a globally recognized leader in engineering and technology education.
- **Industry-Relevant Expertise**: Gain cutting-edge knowledge and practical skills tailored to meet current and future industry demands.
- **Future Pathways**: Seamlessly transition to a Master's degree with just one additional year of study.

Practical Learning

Students participate in hands-on learning experiences that connect theory to real-world applications, including:

- Designing and optimizing EV components for improved efficiency and performance.
- Developing intelligent control systems for autonomous and connected vehicles.
- Implementing innovative automation solutions to advance industrial productivity.

The program emphasizes sustainability by integrating clean energy technologies and fostering eco-friendly innovations. Students are prepared to contribute to the global transition toward a green economy by developing systems that minimize environmental impact, reduce carbon emissions, and enhance energy efficiency.

Aligned with both national and global sustainable development goals, the program equips graduates to lead transformative advancements in energy, transportation, and industrial systems, addressing critical environmental and economic challenges for a more sustainable future.

Contact:

Assoc. Prof. Dr.-Ing. Pruet Kowitwarangkul *EVAE Curriculum Chairman/EVAE and MPE Lecturer and Researcher*	Ext. 2918	*pruet.k@tggs.kmutnb.ac.th*

Plan of Study:

Course	Lecture hours	Lab hours	Assignment and self-study	KMUTNB Credits	Code
Academic Year 1					
Semester 1					
Communicative Listening and Speaking	3h x 15w		5h x 15w	3(3-0-6)	080133001
Sport and Recreation Elective Course		2h x 15w	1h x 15w	1(0-2-1)	080303xxx
Applied Mathematics for Engineering I	3h x 15w		5h x 15w	3(3-0-6)	090913101
Applied Physics for Engineering I	3h x 15w		5h x 15w	3(3-0-6)	090913103
Applied Physics for Engineering Laboratory I		2h x 15w	1h x 15w	1(0-2-1)	090913104
Introduction to Computer Programming	3h x 15w		5h x 15w	3(3-0-6)	091013101
Engineering Drawing, Computer-Aided Design and Printed Circuit Board Design	3h x 15w		5h x 15w	3(3-0-6)	090913109
Introduction to Electric Vehicle and Automation System Engineering	1h x 15w		2h x 15w	1(1-0-2)	090913201
				18	
Semester 2					
Communicative Reading and Writing	3h x 15w		5h x 15w	3(3-0-6)	080133002
Applied Mathematics for Engineering II	3h x 15w		5h x 15w	3(3-0-6)	090913102
Applied Physics for Engineering II	3h x 15w		5h x 15w	3(3-0-6)	090913105
Applied Physics for Engineering Laboratory II		2h x 15w	1h x 15w	1(0-2-1)	090913106
Electric Circuits Analysis	3h x 15w		5h x 15w	3(3-0-6)	091013104
Electric Circuits Analysis Laboratory		2h x 15w	1h x 15w	1(0-2-1)	091013105
Statistics and Quality Control	3h x 15w		5h x 15w	3(3-0-6)	090913110
				17	
Academic Year 2					
Semester 1					
General Education Elective Course	3h x 15w		5h x 15w	3(3-0-6)	09xxxxxx
Applied Linear Algebra and Differential Equation for Engineering	3h x 15w		5h x 15w	3(3-0-6)	091013102
Applied Chemistry for Engineering	3h x 15w		5h x 15w	3(3-0-6)	090913107
Applied Chemistry for Engineering Laboratory		2h x 15w	1h x 15w	1(0-2-1)	090913108
Electronics Circuit	3h x 15w		5h x 15w	3(3-0-6)	091013106
Electronics Circuits Laboratory		2h x 15w	1h x 15w	1(0-2-1)	091013107
Engineering Mechanics	3h x 15w		5h x 15w	3(3-0-6)	090913111
Electric Vehicle Systems	3h x 15w		5h x 15w	3(3-0-6)	090913207
				19	
Semester 2					
General Education Elective Course	3h x 15w		5h x 15w	3(3-0-6)	07xxxxxx
Material Engineering for Electric Vehicles	3h x 15w		5h x 15w	3(3-0-6)	090913112
Thermal Management System	3h x 15w		5h x 15w	3(3-0-6)	090913113
Manufacturing in Electric Vehicle Industry	3h x 15w		5h x 15w	3(3-0-6)	090913203
System and Control Theory	3h x 15w		5h x 15w	3(3-0-6)	090913206

Course	Lecture hours	Lab hours	Assignment and self-study	KMUTNB Credits	Code
Electromagnetic Fields and Waves	3h x 15w		5h x 15w	3(3-0-6)	091013103
				18	
Academic Year 3					
Semester 1					
Strength of Materials and Computer-Aided Engineering	3h x 15w		5h x 15w	3(3-0-6)	090913202
Automation Control Systems and Programmable Logic Controller	3h x 15w		5h x 15w	3(3-0-6)	090913204
Batteries and Fuel Cells for Electric Vehicles	3h x 15w		5h x 15w	3(3-0-6)	090913208
Power Electronics and Electrical Machines in Electric Vehicles	3h x 15w		5h x 15w	3(3-0-6)	090913209
Electric Vehicle Dynamics	3h x 15w		5h x 15w	3(3-0-6)	090913210
Principles of Communications	3h x 15w		5h x 15w	3(3-0-6)	091013206
				18	
Semester 2					
Entrepreneurship Skills	3h x 15w		5h x 15w	3(3-0-6)	070153711
Design Thinking	3h x 15w		5h x 15w	3(3-0-6)	070153813
Advanced Automation Control Systems	3h x 15w		5h x 15w	3(3-0-6)	090913205
Automated Driving	3h x 15w		5h x 15w	3(3-0-6)	090913211
Technical Elective Course	3h x 15w		5h x 15w	3(3-0-6)	0909133xx
Technical Elective Course	3h x 15w		5h x 15w	3(3-0-6)	0909133xx
				18	
Academic Year 4					
Semester 1					
General Education Elective Course	3h x 15w		5h x 15w	3(3-0-6)	08xxxxxxx
General Education Elective Course	3h x 15w		5h x 15w	3(3-0-6)	09xxxxxxx
Embedded Systems	3h x 15w		5h x 15w	3(3-0-6)	091013207
Free Elective Course	3h x 15w		5h x 15w	3(3-0-6)	xxxxxxxxx
Free Elective Course	3h x 15w		5h x 15w	3(3-0-6)	xxxxxxxxx
Pre Co-operative Education				1 (30 Hours)	090913401
				15	
Semester 2					
Co-operative Education Elective Course				6 (540 Hours)	09091340x
				6	
Total				**129**	

Description of Courses:

070153810 **Laws in Digital Economy** 3(3-0-6)

Prerequisite : None

Legal and regulatory issues related to information technology and the copyright of software; electronic transaction law and computer-related crime act; cybercrime and fraud; intellectual property law; digital governance; digital standard; compliance of law, policy and digital management standard.

070153711 **Entrepreneurship Skills** 3(3-0-6)

Prerequisite : None

Foundation of leadership and teamwork; team building and performance; team leadership; skills in effective and professional communication; conflict resolution; skills for running and exiting entrepreneurs; critical skills in business recovery; improvement of leadership and teamwork skills.

070153813 **Design Thinking** 3(3-0-6)

Prerequisite : None

Design thinking transformation for designers to develop products; services, and strategies to innovations; design thinking process; capstone value creation; morals and ethics for designers; startup idea for technopreneurship; team- working and working environment to support creativity and ideas.

080133001 **Communicative Listening and Speaking** 3(3-0-6)

Prerequisite : None

English for communication skills; listening and speaking skills; discussion and arguments on various topics.

080133002 **Communicative Reading and Writing** 3(3-0-6)

Prerequisite : 080133001 Communicative Listening and Speaking

Integrated English reading and writing skills for communication; expressing constructive opinion on current situations.

080103276 **German I** 3(3-0-6)

Prerequisite : None

Basic German competences; communicative tasks, i.e. greeting and good bye, self introduction, talking about job and student activities, using number, telling times, days and months, and asking for information; lexical competence of approximate 850 words from the basic German vocabulary in context of everyday activities, home, family, school, and job related; linguistic competences including articles, gender, pronoun subject verb agreement, simple sentences of affirmative, interrogative, negative, correct pronunciation of word level and sentence level, and ability to write correct simple sentences.

080103279 **Chinese I** 3(3-0-6)

Prerequisite : None

This is an introductory course to Chinese for beginners; students start learning elementary Chinese grammar, vocabulary and expressions, as well as recognize and comprehend Chinese for everyday uses; The fundamentals and four skills of Chinese language are focused and integrated for communicative purposes; Learners will be able to use Chinese for communication in daily lives and apply the fundamental knowledge of Chinese in their continuing study.

080303501 **Basketball** 1(0-2-1)

Prerequisite : None

History of basketball; techniques; rules; regulations; usage of proper equipment; practice in basic skills and applying the skills to play games; good sportsmanship and spectator.

080303503 **Badminton** 1(0-2-1)

Prerequisite : None

History of Badminton; techniques; rules; regulations; usage of proper equipment; practice in basic skills and applying the skills to play games; good sportsmanship and spectator.

080303603 **Personality Development** 3(3-0-6)

Prerequisite : None

Fundamentals of personality; psychological techniques for measuring self-awareness; personality assessment; mental health and adjustment; emotional intelligence development; assertive behavior; presentation personality; personality development; conformity to social etiquette; personality development for career success.

090913501 **Carbon Management Strategies for Global Sustainability** 3(3-0-6)

Prerequisite : None

Sustainability and corporate responsibility; principles and models of the circular economy; climate policy and global trade dynamics; carbon emissions and reduction strategies, carbon credits and carbon markets; achieving net-zero emissions; carbon border adjustment mechanism (CBAM); sustainable innovation and resource efficiency.

090913101 **Applied Mathematics for Engineering I** 3(3-0-6)

Prerequisite : None

Functions and models; limits and derivatives; differentiation rules; engineering applications of differentiation; integrals; techniques of integration; engineering applications of integration.

090913102 **Applied Mathematics for Engineering II** 3(3-0-6)

Prerequisite : 090913101 Applied Mathematics for Engineering I

Parametric equations and polar coordinates; infinite sequences and series; vectors and geometry of space; vector functions; partial derivatives; multiple integrals; vector calculus; engineering applications.

090913103 **Applied Physics for Engineering I** 3(3-0-6)

Prerequisite : None

Basics and mechanics of point particles; Newton's laws and applications; principles of work, energy, and energy conservation; momentum and collisions; circular motion; angular momentum; static equilibrium and elasticity; vibration; mechanical waves; fluid mechanics; law of thermodynamics; heat transfer; engineering applications.

090913104 **Applied Physics for Engineering Laboratory I** 1(0-2-1)

Prerequisite : 090913103 Applied Physics for Engineering I or co-requisite

Selected Physics laboratory exercises that support theoretical lecture of the course 090913103 Applied Physics for Engineering I.

090913105 **Applied Physics for Engineering II** 3(3-0-6)

Prerequisite : 090913103 Applied Physics for Engineering I, 090913104 Applied Physics for Engineering Laboratory I

Coulomb's law; electric fields; Gauss's law; electric potential; capacitance; current and resistance; direct current and alternating current circuit; magnetic fields; magnetic permeability; inductance; magnetism of matter; reflection and refraction; interference; diffraction; basic electrical, magnetic, and optical properties of materials; engineering applications.

090913106 **Applied Physics for Engineering Laboratory II** 1(0-2-1)

Prerequisite : 090913103 Applied Physics for Engineering I, 090913104 Applied Physics for Engineering Laboratory I, 090913105 Applied Physics for Engineering Laboratory II or co-requisite

Selected Physics laboratory exercises that support theoretical lecture of the course 090913105 Applied Physics for Engineering II.

090913107 **Applied Chemistry for Engineering** 3(3-0-6)

Prerequisite: None

Chemical bonding and solid-state chemistry; chemical reactions and stoichiometry; thermodynamics and energy concept; electrochemistry and electrochemical cells; acids, base, and electrolytes; materials chemistry; environmental and sustainable chemistry; applied chemistry in EV and automation; applied chemistry in microelectronics and semiconductor.

090913108 **Applied Chemistry for Engineering Laboratory** 1(0-2-1)

Prerequisite: 090913107 Applied Chemistry for Engineering or Co-requisite

Stoichiometry; chemical bonding; electrochemical cells; acids bases and electrolytes; thermodynamics; electrochemical diagnosis; energy storage devices; semiconductor characterization, materials chemistry applications.

090913109 **Engineering Drawing, Computer-Aided Design and Printed Circuit Board Design** 3(3-0-6)

Prerequisite: None

Purpose and use of drawing standards and computer-aided design (CAD); composition of engineering drawings using multiple views, section views and detail views; dimensional tolerances and fits; basic application of parametric 3D-CAD for part and assembly modeling and drafting; dimensioning for manufacturing drawings; threads and mechanical fasteners; mechanical elements of power-transmission; fundamentals of welding and representation of weld seams; electrical and electronics symbol; electrical circuit drawing; electronics circuit drawing; software for printed circuit board design.

090913110 **Statistics and Quality Control** 3(3-0-6)

Prerequisite : None

Statistical fundamentals; hypothesis formulation and testing; data analysis; analysis of variance; correlation analysis; regression equation analysis; methods for designing statistical experiments; principles of six sigma.

090913111 **Engineering Mechanics** 3(3-0-6)

Prerequisite : None

Force systems; equilibrium; structures; distributed forces; friction; dynamics of particles, kinematics of particles, kinetics of particles; dynamics of rigid bodies, plane kinematics of rigid bodies, plane kinetics of rigid bodies.

090913112 **Material Engineering for Electric Vehicles** 3(3-0-6)

Prerequisite : None

Principles of materials engineering for electric vehicles; fundamental microstructure, mechanical, thermal, and electrical properties and their effects on vehicle performance; lightweight materials: composites, polymers, and metal alloys for automotive structures; materials for thermal management and durability enhancement; surface coatings to reduce wear and extend service life; applications of 3D-printing in automotive manufacturing; material selection and design for electric vehicles, with a focus on sustainability and recyclability.

090913113 **Thermal Management System** 3(3-0-6)

Prerequisite : None

Components of electric vehicle thermal management system; common issues in electric vehicle thermal management; thermodynamics and heat transfer considerations; advanced automotive heating ventilation and air-conditioning system and control module; automotive integrated thermal management system.

090913201 **Introduction to Electric Vehicle and Automation System Engineering** 1(1-0-2)

Prerequisite : None

Introduction to Electric Vehicle and Automation Engineering program; overview of courses across the 4-year curriculum; history and evolution of electric vehicles; key electric vehicle components; market trends and adoption; automation in electric vehicle manufacturing; control systems in

electric vehicles; future trends in electric vehicle and industrial automation. Evaluation is on an S/U basis.

090913202 **Strength of Materials and Computer-Aided Engineering** 3(3-0-6)

Prerequisite : None

Stress; strain; deformation in various materials under different loading conditions; axial loads; bending; stress-strain relationship; principles with Finite Element Method (FEM); application of FEM for the analysis and optimization of engineering structures.

090913203 **Manufacturing in Electric Vehicle Industry** 3(3-0-6)

Prerequisite : None

Overview of traditional and modern manufacturing processes for fabricating electric vehicle parts; sheet stamping process; body-in-white casting process; forging process; machining process; additive manufacturing; welding technology for lightweight components; smart manufacturing in optimizing production; robot systems for assembly.

090913204 **Automation Control Systems and Programmable Logic Controller** 3(3-0-6)

Prerequisite : 091013104 Electric Circuits Analysis

Introduction to automation control systems in manufacturing; Programmable Logic Controllers (PLCs) programming; PLCs with sensors and actuators; Human Machine Interface (HMI) and Supervisory Control and Data Acquisition (SCADA) for industrial monitoring and control; PLCs applications in digital manufacturing systems; communication protocols; data management and database utilization; PLCs applications in Industrial Internet of Things (IIoT); introduction and basic applications of automation control systems in electric vehicles.

090913205 **Advanced Automation Control Systems** 3(3-0-6)

Prerequisite : 090913204 Automation Control Systems and Programmable Logic Controller

Principles and advanced techniques of automation control systems in manufacturing; advanced PLC programming and SCADA integration; real-time and networked control; robot and mobile robot control architectures in manufacturing; computer-based monitoring systems; data management and cloud-based IIoT platforms; smart maintenance; immersive technology (AR, VR, MR) in manufacturing; digital twin; sustainable and green manufacturing; industry 4.0 and cyber-physical systems; principles and advanced applications of automation and intelligent control systems in electric vehicles.

090913206 **System and Control Theory** 3(3-0-6)

Prerequisite : 091013102 Applied Linear Algebra and Differential Equation for Engineering, 091013104 Electric Circuits Analysis

Linear and nonlinear systems; mathematical modeling in mechanical and electrical systems; open-loop and closed-loop control; system response and stability; Laplace transform for system analysis; frequency domain analysis; digital control; industrial controllers; Proportional-Integral-Derivative control; fuzzy logic control.

090913207 **Electric Vehicle Systems** 3(3-0-6)

Prerequisite : None

Electric vehicle architecture; powertrain systems; battery management systems; charging systems; thermal management systems; concepts of alternative propulsion.

090913208 **Batteries and Fuel Cells for Electric Vehicles** 3(3-0-6)

Prerequisite : None

Types of fuel cell and batteries; electrochemical reactions in fuel cells and batteries; materials for fuel cell and battery components; performance characterizations for fuel cells and battery applications.

090913209 **Power Electronics and Electrical Machines in Electric Vehicles** 3(3-0-6)

Prerequisite : 091013104 Electric Circuits Analysis, 091013106 Electronic Circuits

Power electronics; power electronics in electric vehicles, chargers; power electronics devices; AC-DC converters; DC-DC converters; DC-AC converters; AC-AC converters; electrical machines, electrical machines in electric vehicles, DC machines, synchronous machines, induction machines.

090913210 **Electric Vehicle Dynamics** 3(3-0-6)

Prerequisite : 090913111 Engineering Mechanics

Overview of electric vehicles; tire dynamics; forces acting on vehicles; vehicle kinematics; multi-body dynamics; suspension systems; handling and stability analysis; battery and powertrain dynamics; energy consumption and efficiency; electric vehicle control systems; aerodynamics; simulation and testing.

090913211 **Automated Driving** 3(3-0-6)

Prerequisite : 090913210 Electric Vehicle Dynamics, 091013101 Introduction to Computer Programming

Fundamental of automated driving systems; probability theory; Lie groups and Lie algebras; advanced machine learning; optimal control; odometry, localization and mapping; object detection and tracking; trajectory prediction; trajectory planning; trajectory tracking; environmental modeling; data-driven driving; automated and connected vehicle technology; smart mobility; Robot Operating System (ROS 2) for automated driving.

090913301 **Research Fundamentals in Mechanical and Structure Engineering** 3(3-0-6)

Prerequisite : None

Research fundamentals; basic knowledge and skills required for research; research design and management in topics related to mechanical and structure engineering at master's degree level by conducting a small research project. Topics subjected to change each semester depending on the current situation.

090913302 **Standards and Regulations for Automotive Engineering** 3(3-0-6)

Prerequisite : None

Testing standards of vehicles for front, side, rear and rollover impacts; New Car Assessment Program (NCAP); fuel consumption testing standards; emission regulation for fuel losses from vehicles; emission control regulations for internal combustion engine.

090913303 **Aerodynamics for Electric Vehicles** 3(3-0-6)

Prerequisite : 090913111 Engineering Mechanics

Basic principles of aerodynamics; fluid dynamic equations; one-dimensional frictionless flow; dimensional analysis, high Reynolds number flows, definitions of aerodynamics; laminar boundary layer; high Reynolds number incompressible flow over bodies, automotive aerodynamics, examples of automotive aerodynamics.

090913304 **Industrial Management and Logistics** 3(3-0-6)

Prerequisite : None

Basic management concepts; plant design; forecasting; materials management; project management; investment evaluation; accounting principles; logistics management; key logistics activities; customer service; logistics information systems; inventory basic concept; inventory management; managing materials flow; transportation; warehousing; materials handling and packaging.

090913305 **Environmental Management in Electric Vehicle and Semiconductor Industries** 3(3-0-6)

Prerequisite : None

Environmental management; industrial pollution; sustainable development; environmental compliance; waste management; renewable energy; environmental laws; green technologies; energy conservation; pollution control.

090913306 **Electrical Drive Systems** 3(3-0-6)

Prerequisite : 090913209 Power Electronics and Electrical Machines in Electric Vehicles

Electrical drive systems; fundamental theory of mechanical motion; power electronics converters for electrical drives; DC drive system and its control; synchronous drive system and its control; induction drive system and its control; switched reluctance system and its control.

090913307 **Battery Storage Systems** 3(3-0-6)

Prerequisite : 090913208 Batteries and Fuel Cells for Electric Vehicles

Batteries in electromobility; fundamentals of electrochemistry; lead-acid battery; lithium-ion battery; supercapacitor; charging battery; battery pack; battery management system.

090913308 **Industrial Robotics** 3(3-0-6)

Prerequisite : None

Fundamentals of industrial robotics; robotic kinematics and control; programming for robotic systems; integration of robots with production

lines; applications across various industrial sectors; safety considerations and workstation design for improved productivity.

090913401 **Pre Co-operative Education** 1 (30 Hours)

Prerequisite : None

Knowledge in co-operative education; co-operative education related rules; special seminar and pre co-operative education preparation activity. Credit is not counted. Evaluation is on an S/U basis.

090913402 **Co-operative Education** 6 (540 Hours)

Prerequisite : 090913401 Pre Co-operative Education

Student does the internship at co-operative enterprises to apply electric vehicle and automation engineering knowledge in the real situation through the project to solve problems in the enterprises and to train for project management under the supervision of experts in the workplace and faculty advisors. Upon completion of the project, students must write a work report including a summary and presentation of the outcome of their work. The content will be presented to program faculty members, advisors, or committee representatives from the enterprises as deemed appropriate by the program.

090913403 **International Research and Development Project** 6 (540 Hours)

Prerequisite : 090913401 Pre Co-operative Education

Students participate in research activities at partner international academic institutions or research and development departments of international companies, applying electric vehicle and automation system engineering knowledge to as a training for advanced technology research and development. The research is supervised by international researchers and university advisors through online supervision, enabling students to develop research skills in an international environment. Upon completion of the project, students must write a report and present their research findings to program faculty members, advisors, and international research supervisors.

091013101 **Introduction to Computer Programming** 3(3-0-6)

Prerequisite : None

Fundamental techniques for solving computational problems; data types, integers, floating point numbers, strings; basic collections, arrays, dictionaries; statements and expressions; logics; conditional and control-flow; iterations; loops and recursions; functions; file processing; mechanics of object-oriented programming.

091013102 **Applied Linear Algebra and Differential Equation for Engineering** 3(3-0-6)

Prerequisite: 090913102 Applied Mathematics for Engineering II

Systems of linear equations; row reduction and echelon form; column space and nullspace; linear independence, basis and dimension; orthogonal bases and orthogonal projections; least-squares problems; determinants and their properties; diagonalization; symmetric matrices and definiteness of matrices; singular value decomposition; ordinary

differential equations; first-order ordinary differential equations and solution methods; higher-order ordinary differential equations and solution methods; Laplace transform; systems of ordinary differential equations; solutions of systems of ordinary differential equations; nonlinear systems and linearization; numerical methods for solving systems of ordinary differential equations.

091013103 **Electromagnetic Fields and Waves** 3(3-0-6)

Prerequisite : 091013102 Applied Linear Algebra and Differential Equation for Engineering, 090913105 Applied Physics for Engineering II

Electrostatics; electric fields; magnetic fields; Maxwell's equations; wave equation; propagation of electromagnetic waves; reflection and refraction of waves; materials under the influence of electromagnetic fields; applications of electromagnetic fields in various systems.

091013104 **Electric Circuits Analysis** 3(3-0-6)

Prerequisite : None

Fundamental of electric circuits; electrical units; characteristics of circuit components; resistors; capacitors; inductors; memristors; DC and AC circuit analysis; Ohm's law; Kirchoff's law; nodal and mesh analysis; Thevenin's and Norton's theories; linearity; superposition; resistor-capacitor circuits; resistor-inductor circuits; second-order circuits; transient analysis in first and second order circuits; sinusoidal steady-state response phasor concept for circuit analysis AC power and power factor power factor correction; three phase analysis.

091013105 **Electric Circuits Analysis Laboratory** 1(0-2-1)

Prerequisite : 091013104 Electric Circuits Analysis or Co-requisite

Laboratories that are practically related to the topics in Electric Circuits Analysis; fundamental of electrical measurement; safety; instrument classification; measurement analysis; wires; cables; terminal; sockets; connectors; measurement of DC and AC current and voltage using analog and digital meters and oscilloscopes; measurement of power; power factor and energy; measurement of resistance; inductance and capacitance; measurement of frequency and period/time interval; noise and shielding; calibration.

091013106 **Electronics Circuit** 3(3-0-6)

Prerequisite : 091013104 Electric Circuits Analysis

Semiconductor devices; current-voltage characteristics; frequency characteristic; design and analysis of semiconductor circuits; diode circuit; BJT and FET; BJT and FET bias; transistor and FET amplifier circuit; small signal amplifier circuit; operational amplifier (op-amp); oscillators.

091013107 **Electronics Circuit Laboratory** 1(0-2-1)

Prerequisite : 091013106 Electronics Circuit or co-requisite

Laboratories that are practically related to the topics in Electronics Circuit.

091013206 **Principles of Communications** 3(3-0-6)

Prerequisite : None

Communication systems; analog modulation; sampling theorem; quantization; encoding; Pulse Code Modulation (PCM); digital signaling and binary line coding; digital modulation; matched filter; signal space analysis; Gram–Schmidt process; Bit Error Rate (BER) in digital transmission; Error Vector Magnitude (EVM) in digital I-Q transmission; channel coding; information theory; entropy; channel modeling; channel capacity.

091013207 **Embedded Systems** 3(3-0-6)

Prerequisite : 091013101 Introduction to Computer Programming

Microcontroller hardware; digital and analog I/O; timer and counter; interrupts; communication protocols and interfaces; embedded C programming; examples of applications and case studies; design and development of embedded systems.

091013208 **Internet of Things** 3(3-0-6)

Prerequisite : 091013101 Introduction to Computer Programming, 091013207 Embedded Systems

Foundational concepts and architecture of IoT; embedded systems; communication and networking protocols; cloud services; data management, storage and visualization; IoT applications and case studies; design and development of IoT application.

091013305 **Introduction to Radar Technology** 3(3-0-6)

Prerequisite : 091013103 Electromagnetic Fields and Waves

Radar equation; wave propagation and reflection; radar cross section of a target; signal detection; antennas for radar systems; clutter; radar signal processing; radar tracking; high frequency circuits in radar systems.

091013313 **Data Engineering** 3(3-0-6)

Prerequisite : 091013101 Introduction to Computer Programming

Data modeling and schema design; database systems; data processing technologies; ETL processes; data acquisition; data pipelining; data quality; data governance; data exchange and data integration.

091013314 **Artificial Intelligence** 3(3-0-6)

Prerequisite : 091013101 Introduction to Computer Programming

Deep learning, classification model, regression model; reinforcement learning, application of AI for control system; convolution neural network, image recognition, object detection; generative adversarial network, diffusion model; natural language processing, word tokenization, large language model.

091013501 **Engineering Mindset** 2(2-0-4)

Prerequisite : None

Developing an engineering mindset; problem-solving skills; critical thinking; creative thinking; attention to detail; interdisciplinary teamwork and collaboration; adaptability; systematic thinking; workflow process

design; risk management; embracing failure; engineering ethics; social responsibility and sustainability.

Microelectronics Design and Semiconductor Engineering Program (MEDE 2025)

Website: https://tggs.kmutnb.ac.th/mede

Program Overview

The Microelectronics Design and Semiconductor Engineering program is an international program taught entirely in English, designed to prepare students for the global semiconductor industry and equip them with the skills needed to thrive in international work cultures and environments. This program focuses on the design of advanced microelectronic circuits, emphasizing analog, mixed-signal, and high-frequency circuits for cutting-edge applications, including high-speed digital communications, wireless communications, industrial and consumer IoT, embedded systems, sensor technology, power electronics, smart cities, and smart vehicles.

Students gain a solid foundation in semiconductor principles, complemented by an overview of fabrication technologies. The program's core emphasis lies in circuit design, preparing graduates to develop innovative, efficient, and high-performance solutions for today's and tomorrow's technological challenges.

Hands-on learning is integral to the program, with students gaining experience using industry-standard tools and technologies. They engage in the design, testing, and application phases of the semiconductor product development cycle, guided by collaborations with industry leaders. These collaborations provide invaluable opportunities to address real-world challenges and learn about the development of technologies that shape the future.

A unique feature of the program is the 4+1 Bachelor/Master pathway, which enables students to extend their studies and obtain a Master's degree for a deeper understanding of this rapidly advancing field. This pathway also offers the possibility of earning a dual degree in Electrical Engineering and Information Technology from RWTH Aachen University, one of Europe's most prestigious technical universities.

As the semiconductor industry continues to drive innovations in technologies like artificial intelligence, telecommunications, consumer electronics, smart cities, and automotive systems, this program positions graduates at the forefront of this fast-growing global sector. By fostering technical expertise and real-world experience, graduates are fully prepared for successful, dynamic careers in one of the most significant industries of the future.

Highlighted Subject in Microelectronics Design and Semiconductor Engineering

The curriculum covers a variety of essential courses including:

- Digital and Logic Design Laboratory
- Semiconductor Devices
- Signals and Systems
- Principles of Communications
- Design of CMOS Mixed-Signal Integrated Circuits
- Embedded Systems
- Design of Radio-Frequency Integrated Circuits
- Internet of Things
- Integrated-Circuit Testing and Design for Testability
- Antenna Technology for Smart Devices

- Advanced Wireless Communications and Metering Infrastructure
- VLSI Architecture
- Introduction to Integrated-Circuit Fabrication
- Data Science and Machine Learning
- Data Engineering
- Artificial Intelligence

See more course timeline >> Click here

Graduate Outcomes

Graduates from this program are equipped with advanced technical expertise, practical experience, and a global perspective, enabling them to:

- Innovate in the design of analog, mixed-signal, and high-frequency integrated circuits for cutting-edge technologies.
- Drive advancements in wireless communications, IoT systems, and smart technologies, including smart cities and vehicles.
- Contribute to the semiconductor product lifecycle, from design to testing and application, addressing real-world challenges.
- Lead in international work environments, leveraging a strong foundation in engineering and cross-cultural collaboration.

The Bachelor of Engineering International Program in Microelectronics Design and Semiconductor Engineering serves as a launchpad for impactful careers in industries shaping the future, such as telecommunications, consumer electronics, industrial automation, and artificial intelligence.

Contact:

Assoc. Prof. Dr.-Ing. Suramate Chalermwisutkul *MEDE Curriculum Chairman/MEDE and ECE Lecturer/Researcher/ RWTH-TGGS ECE Dual Degree Coordinator*	ext. 2910	*suramate.c@tggs.kmutnb.ac.th*

Plan of Study:

Course	Lecture hours	Lab hours	Assignment and self-study	KMUTNB Credits	Code
Academic Year 1					
Semester 1					
Communicative Listening and Speaking	3h x 15w		5h x 15w	3(3-0-6)	080133001
Sport and Recreation Elective Course		2h x 15w	1h x 15w	1(0-2-1)	080303xxx
Applied Mathematics for Engineering I	3h x 15w		5h x 15w	3(3-0-6)	090913101
Applied Physics for Engineering I	3h x 15w		5h x 15w	3(3-0-6)	090913103
Applied Physics for Engineering Laboratory I		2h x 15w	1h x 15w	1(0-2-1)	090913104
Introduction to Computer Programming	3h x 15w		5h x 15w	3(3-0-6)	091013101
Engineering Drawing, Computer-Aided Design and Printed Circuit Board Design	3h x 15w		5h x 15w	3(3-0-6)	090913109
Introduction to Microelectronics and Semiconductor Industries	3h x 15w		5h x 15w	3(3-0-6)	091013201
				20	
Semester 2					
Communicative Reading and Writing	3h x 15w		5h x 15w	3(3-0-6)	080133002
Applied Mathematics for Engineering II	3h x 15w		5h x 15w	3(3-0-6)	090913102
Applied Physics for Engineering II	3h x 15w		5h x 15w	3(3-0-6)	090913105
Applied Physics for Engineering Laboratory II		2h x 15w	1h x 15w	1(0-2-1)	090913106
Electric Circuits Analysis	3h x 15w		5h x 15w	3(3-0-6)	091013104
Electric Circuits Analysis Laboratory		2h x 15w	1h x 15w	1(0-2-1)	091013105
Statistics and Quality Control	3h x 15w		5h x 15w	3(3-0-6)	090913110
				17	
Academic Year 2					
Semester 1					
General Education Elective Course	3h x 15w		5h x 15w	3(3-0-6)	09xxxxxxx
Applied Linear Algebra and Differential Equation for Engineering	3h x 15w		5h x 15w	3(3-0-6)	091013102
Applied Chemistry for Engineering	3h x 15w		5h x 15w	3(3-0-6)	090913107
Applied Chemistry for Engineering Laboratory		2h x 15w	1h x 15w	1(0-2-1)	090913108
Electronics Circuit	3h x 15w		5h x 15w	3(3-0-6)	091013106
Electronics Circuits Laboratory		2h x 15w	1h x 15w	1(0-2-1)	091013107
Signals and Systems	3h x 15w		5h x 15w	3(3-0-6)	091013202
Principles of Communications	3h x 15w		5h x 15w	3(3-0-6)	091013206
				19	
Semester 2					
General Education Elective Course	3h x 15w		5h x 15w	3(3-0-6)	07xxxxxxx
Electromagnetic Fields and Waves	3h x 15w		5h x 15w	3(3-0-6)	091013103
Digital and Logic Design	3h x 15w		5h x 15w	3(3-0-6)	091013108
Digital and Logic Design Laboratory		2h x 15w	1h x 15w	1(0-2-1)	091013109
Semiconductor Devices	3h x 15w		5h x 15w	3(3-0-6)	091013110

Course	Lecture hours	Lab hours	Assignment and self-study	KMUTNB Credits	Code
Digital Signal Processing	3h x 15w		5h x 15w	3(3-0-6)	091013204
Technical Elective Course	3h x 15w		5h x 15w	3(3-0-6)	0910133xx
				18	
Academic Year 3					
Semester 1					
Design of CMOS Mixed-Signal Integrated Circuits	3h x 15w		5h x 15w	3(3-0-6)	091013203
Embedded Systems	3h x 15w		5h x 15w	3(3-0-6)	091013207
VLSI Architecture	3h x 15w		5h x 15w	3(3-0-6)	091013210
Technical Elective Course	3h x 15w		5h x 15w	3(3-0-6)	0910133xx
Technical Elective Course	3h x 15w		5h x 15w	3(3-0-6)	0910133xx
Free Elective Course	3h x 15w		5h x 15w	3(3-0-6)	xxxxxxxxx
				18	
Semester 2					
Entrepreneurship Skills	3h x 15w		5h x 15w	3(3-0-6)	070153711
Design Thinking	3h x 15w		5h x 15w	3(3-0-6)	070153813
Design of Radio-Frequency Integrated Circuits	3h x 15w		5h x 15w	3(3-0-6)	091013205
Internet of Things	3h x 15w		5h x 15w	3(3-0-6)	091013208
Technical Elective Course	3h x 15w		5h x 15w	3(3-0-6)	0909133xx
Technical Elective Course	3h x 15w		5h x 15w	3(3-0-6)	0909133xx
				18	
Academic Year 4					
Semester 1					
General Education Elective Course	3h x 15w		5h x 15w	3(3-0-6)	08xxxxxxx
General Education Elective Course	3h x 15w		5h x 15w	3(3-0-6)	09xxxxxxx
Seminar in Electrical and Computer Engineering	3h x 15w		5h x 15w	3(3-0-6)	091013209
Free Elective Course	3h x 15w		5h x 15w	3(3-0-6)	xxxxxxxxx
Pre Co-operative Education				1 (30 Hours)	091013401
				12	
Semester 2					
Co-operative Education Elective Course				6 (540 Hours)	09101340x
				6	
Total				**129**	

Description of Courses:

070153810 **Laws in Digital Economy** 3(3-0-6)

Prerequisite : None

Legal and regulatory issues related to information technology and the copyright of software; electronic transaction law and computer-related crime act; cybercrime and fraud; intellectual property law; digital governance; digital standard; compliance of law, policy and digital management standard.

070153711 **Entrepreneurship Skills** 3(3-0-6)

Prerequisite : None

Foundation of leadership and teamwork; team building and performance; team leadership; skills in effective and professional communication; conflict resolution; skills for running and exiting entrepreneurs; critical skills in business recovery; improvement of leadership and teamwork skills.

070153813 **Design Thinking** 3(3-0-6)

Prerequisite : None

Design thinking transformation for designers to develop products, services, and strategies to innovations; design thinking process; capstone value creation; morals and ethics for designers; startup idea for technopreneurship; team-working and working environment to support creativity and ideas.

080133001 **Communicative Listening and Speaking** 3(3-0-6)

Prerequisite : None

English for communication skills; listening and speaking skills; discussion and arguments on various topics.

080133002 **Communicative Reading and Writing** 3(3-0-6)

Prerequisite : 080133001 Communicative Listening and Speaking

Integrated English reading and writing skills for communication; expressing constructive opinion on current situations.

080103276 **German I** 3(3-0-6)

Prerequisite : None

Basic German competences on: communicative tasks; i.e. greeting and good bye, self introduction, talking about job and student activities, using number, telling times, days and months, and asking for something; lexical competence of approximate 850 words from the basic German vocabulary in context of everyday activities, home, family, school, and job related; linguistic competences including articles, gender, pronoun subject verb agreement, simple sentences of affirmative, interrogative, negative, correct pronunciation of word level and sentence level, and ability to write correct simple sentences.

080103279 **Chinese I** 3(3-0-6)

Prerequisite : None

This is an introductory course to Chinese for beginners. Students start learning elementary Chinese grammar, vocabulary and expressions, as well as recognize and comprehend Chinese for everyday uses. The fundamentals and four skills of Chinese language are focused and integrated for communicative purposes. Learners will be able to use Chinese for communication in daily lives and apply the fundamental knowledge of Chinese in their continuing study.

080303501 **Basketball** 1(0-2-1)

Prerequisite : None

History of basketball; techniques; rules; regulations; usage of proper equipment; practice in basic skills and applying the skills to play games; good sportsmanship and spectator.

080303503 **Badminton** 1(0-2-1)

Prerequisite : None

History of Badminton; techniques; rules; regulations; usage of proper equipment; practice in basic skills and applying the skills to play games; good sportsmanship and spectator.

080303603 **Personality Development** 3(3-0-6)

Prerequisite : None

Fundamentals of personality; psychological techniques for measuring self-awareness; personality assessment; mental health and adjustment; emotional intelligence development; assertive behavior; presentation personality; personality development; conformity to social etiquette; personality development for career success.

090913501 **Carbon Management Strategies for Global Sustainability** 3(3-0-6)

Prerequisite : None

Sustainability and corporate responsibility; principles and models of the circular economy; climate policy and global trade dynamics; carbon emissions and reduction strategies, carbon credits and carbon markets; achieving net-zero emissions; carbon border adjustment mechanism (CBAM); sustainable innovation and resource efficiency.

090913101 **Applied Mathematics for Engineering I** 3(3-0-6)

Prerequisite : None

Functions and models; limits and derivatives; differentiation rules; engineering applications of differentiation; integrals; techniques of integration; engineering applications of integration.

090913102 **Applied Mathematics for Engineering II** 3(3-0-6)

Prerequisite : 090913101 Applied Mathematics for Engineering I

Parametric equations and polar coordinates; infinite sequences and series; vectors and geometry of space; vector functions; partial derivatives; multiple integrals; vector calculus; engineering applications.

090913103 **Applied Physics for Engineering I** 3(3-0-6)

Prerequisite : None

Basics and mechanics of point particles; Newton's laws and applications; principles of work, energy, and energy conservation; momentum and collisions; circular motion; angular momentum; static equilibrium and elasticity; vibration; mechanical waves; fluid mechanics; law of thermodynamics; heat transfer; engineering applications.

090913104 **Applied Physics for Engineering Laboratory I** 1(0-2-1)

Prerequisite : 090913103 Applied Physics for Engineering I or co-requisite

Selected Physics laboratory exercises that support theoretical lecture of the course 090913103 Applied Physics for Engineering I.

090913105 **Applied Physics for Engineering II** 3(3-0-6)

Prerequisite : 090913103 Applied Physics for Engineering I, 090913104 Applied Physics for Engineering Laboratory I

Coulomb's law; electric fields; Gauss's law; electric potential; capacitance; current and resistance; direct current and alternating current circuit; magnetic fields; magnetic permeability; inductance; magnetism of matter; reflection and refraction; interference; diffraction; basic electrical, magnetic, and optical properties of materials; engineering applications.

090913106 **Applied Physics for Engineering Laboratory II** 1(0-2-1)

Prerequisite : 090913103 Applied Physics for Engineering I, 090913104 Applied Physics for Engineering Laboratory I, 090913105 Applied Physics for Engineering II or co-requisite

Selected Physics laboratory exercises that support theoretical lecture of the course 090913105 Applied Physics for Engineering II.

090913107 **Applied Chemistry for Engineering** 3(3-0-6)

Prerequisite : None

Chemical bonding and solid-state chemistry; chemical reactions and stoichiometry; thermodynamics and energy concept; electrochemistry and electrochemical cells; acids, base, and electrolytes; materials chemistry; environmental and sustainable chemistry; applied chemistry in EV and automation; applied chemistry in microelectronics and semiconductor.

090913108 **Applied Chemistry for Engineering Laboratory** 1(0-2-1)

Prerequisite : 090913107 Applied Chemistry for Engineering or co-requisite

Stoichiometry; chemical bonding; electrochemical cells; acids bases and electrolytes; thermodynamics; electrochemical diagnosis; energy storage devices; semiconductor characterization, materials chemistry applications.

090913109 **Engineering Drawing, Computer-Aided Design and Printed Circuit Board Design** 3(3-0-6)

Prerequisite : None

Purpose and use of drawing standards and computer-aided design (CAD); composition of engineering drawings using multiple views, section views

and detail views; dimensional tolerances and fits; basic application of parametric 3D-CAD for part and assembly modeling and drafting; dimensioning for manufacturing drawings; threads and mechanical fasteners; mechanical elements of power-transmission; fundamentals of welding and representation of weld seams; electrical and electronics symbol; electrical circuit drawing; electronics circuit drawing; software for printed circuit board design.

090913110 **Statistics and Quality Control** 3(3-0-6)

Prerequisite : None

Statistical fundamentals; hypothesis formulation and testing; data analysis; analysis of variance; correlation analysis; regression equation analysis; methods for designing statistical experiments; principles of six sigma.

090913305 **Environmental Management in Electric Vehicle and Semiconductor Industries** 3(3-0-6)

Prerequisite: None

Environmental management; industrial pollution; sustainable development; environmental compliance; waste management; renewable energy; environmental laws; green technologies; energy conservation; pollution control.

091013101 **Introduction to Computer Programming** 3(3-0-6)

Prerequisite : None

Fundamental techniques for solving computational problems; data types, integers, floating point numbers, strings; basic collections, arrays, dictionaries; statements and expressions; logics; conditional and control-flow; iterations; loops and recursions; functions; file processing; mechanics of object-oriented programming.

091013102 **Applied Linear Algebra and Differential Equation for Engineering** 3(3-0-6)

Prerequisite : 090913102 Applied Mathematics for Engineering II

Systems of linear equations; row reduction and echelon form; column space and nullspace; linear independence, basis and dimension; orthogonal bases and orthogonal projections; least-squares problems; determinants and their properties; diagonalization; symmetric matrices and definiteness of matrices; singular value decomposition; ordinary differential equations; first-order ordinary differential equations and solution methods; higher-order ordinary differential equations and solution methods; Laplace transform; systems of ordinary differential equations; solutions of systems of ordinary differential equations; nonlinear systems and linearization; numerical methods for solving systems of ordinary differential equations.

091013103 **Electromagnetic Fields and Waves** 3(3-0-6)

Prerequisite : 091013102 Applied Linear Algebra and Differential Equation for Engineering, 090913105 Applied Physics for Engineering II

Electrostatics; electric fields; magnetic fields; Maxwell's equations; wave equation; propagation of electromagnetic waves; reflection and refraction

of waves; materials under the influence of electromagnetic fields; applications of electromagnetic fields in various systems.

091013104 **Electric Circuits Analysis** 3(3-0-6)

Prerequisite : None

Fundamental of electric circuits; electrical units; characteristics of circuit components; resistors; capacitors; inductors; memristors; DC and AC circuit analysis; Ohm's law; Kirchoff's law; nodal and mesh analysis; Thevenin's and Norton's theories; linearity; superposition; resistor-capacitor circuits; resistor-inductor circuits; second-order circuits; transient analysis in first and second order circuits; sinusoidal steady-state response phasor concept for circuit analysis AC power and power factor power factor correction; three phase analysis.

091013105 **Electric Circuits Analysis Laboratory** 1(0-2-1)

Prerequisite : 091013104 Electric Circuits Analysis or Co-requisite

Laboratories that are practically related to the topics in Electric Circuits Analysis; fundamental of electrical measurement; safety; instrument classification; measurement analysis; wires; cables; terminal; sockets; connectors; measurement of DC and AC current and voltage using analog and digital meters and oscilloscopes; measurement of power; power factor and energy; measurement of resistance; inductance and capacitance; measurement of frequency and period/time interval; noise and shielding; calibration.

091013106 **Electronics Circuit** 3(3-0-6)

Prerequisite : 091013104 Electric Circuits Analysis

Semiconductor devices; current-voltage characteristics; frequency characteristic; design and analysis of semiconductor circuits; diode circuit; BJT and FET; BJT and FET bias; transistor and FET amplifier circuit; small signal amplifier circuit; operational amplifier (op-amp); oscillators.

091013107 **Electronics Circuit Laboratory** 1(0-2-1)

Prerequisite : 091013106 Electronics Circuit or co-requisite

Laboratories that are practically related to the topics in Electronics Circuit.

091013108 **Digital and Logic Design** 3(3-0-6)

Prerequisite : 091013106 Electronics Circuit

Digital signal and circuit; binary numeral system; logic gates; combination circuit analysis and design; adder; encoder; decoder; multiplexer; demultiplexer; flip-flops; synchronous and asynchronous sequential circuit analysis and design; register; counter.

091013109 **Digital and Logic Design Laboratory** 1(0-2-1)

Prerequisite : 091013108 Digital and Logic Design or co-requisite

Lab practices and projects related to Digital and Logic Design.

091013110 **Semiconductor Devices** 3(3-0-6)

Prerequisite : Curriculum Permission

Semiconductor crystals properties; energy band and charge carriers in semiconductors; carrier transport mechanisms in semiconductors; p-n junctions; metal-semiconductor junctions; structure operation and electronic properties of semiconductor devices; diode; bipolar junction transistors (BJT); metal-oxide-semiconductor field-effect transistors (MOSFET); thermoelectric Peltier device; piezoelectric device; optoelectronic devices; photovoltaic device.

091013201 **Introduction to Microelectronics and Semiconductor Industries** 3(3-0-6)

Prerequisite : None

Overview of semiconductor industry; industry value chain and ecosystem; fundamentals of integrated circuit design; categories of electronic circuits; power electronics; wireless circuits; analog circuits; digital circuits; mixed-signal circuits; wafer fabrication; integrated circuit manufacturing processes; electronic packaging; integrated circuit testing; modern semiconductor technologies; real-world experience presentations by industry experts.

091013202 **Signals and Systems** 3(3-0-6)

Prerequisite : 090913102 Applied Mathematics for Engineering II

Definition of signal and system; classification of signal and system; examples of various signals and systems; signal and system analyzed by Fourier series; Fourier transform and inverse Fourier transform; Laplace transform and inverse Laplace transformation of continuous time signal and linear time invariant system; linear time invariant system architecture sampling and sampling theorem; discrete-time signals and systems; Z-transformation and its inverse; examples of signal and system in electronics and telecommunications.

091013203 **Design of CMOS Mixed-Signal Integrated Circuits** 3(3-0-6)

Prerequisite : 091013106 Electronics Circuit

Signals and linear systems; sampling and aliasing; analog and digital filters; switched-capacitor circuits; signal-to-noise ratio in data converters; nyquist-rate; A/D and D/A converters; noise-shaping data converters.

091013204 **Digital Signal Processing** 3(3-0-6)

Prerequisite : 091013202 Signals and Systems, 091013206 Principles of Communications

Digital signal processing and processors; design languages: VHDL, C/C++, Matlab; implementation technologies: ASICs, FPGAs, and processors.

091013205 **Design of Radio-Frequency Integrated Circuits** 3(3-0-6)

Prerequisite : 091013103 Electromagnetic Fields and Waves, 091013106 Electronics Circuit

Basic concepts in RF IC design; analysis of distributed effects, transmission line modeling, s-parameters, and Smith chart; important concepts in communication systems; transceiver architecture; low-noise amplifiers; mixers; oscillators; power amplifiers; frequency synthesizers.

091013206 **Principles of Communications** 3(3-0-6)

Prerequisite : 090913102 Applied Mathematics for Engineering II

Communication systems; analog modulation; sampling theorem; quantization; encoding; Pulse Code Modulation (PCM); digital signaling and binary line coding; digital modulation; matched filter; signal space analysis; Gram–Schmidt process; Bit Error Rate (BER) in digital transmission; Error Vector Magnitude (EVM) in digital I-Q transmission; channel coding; information theory; entropy; channel modeling; channel capacity.

091013207 **Embedded Systems** 3(3-0-6)

Prerequisite : 091013101 Introduction to Computer Programming

Microcontroller hardware; digital and analog I/O; timer and counter; interrupts; communication protocols and interfaces; embedded C programming; examples of applications and case studies; design and development of embedded systems.

091013208 **Internet of Things** 3(3-0-6)

Prerequisite : 091013101 Introduction to Computer Programming, 091013207 Embedded Systems

Foundational concepts and architecture of IoT; embedded systems; communication and networking protocols; cloud services; data management; storage and visualization; IoT applications and case studies; design and development of IoT application.

091013209 **Seminar in Electrical and Computer Engineering** 3(3-0-6)

Prerequisite : None

Seminar on research topics in Electrical and Power Engineering, Communication Engineering, Computer Engineering and Smart Grid Engineering.

091013210 **VLSI Architecture** 3(3-0-6)

Prerequisite : 091013106 Electronics Circuit

Very large scale integrated circuits (VLSI); Moore's law and Joy's law; basics of CMOS and digital CMOS design; MOS transistors; CMOS circuit techniques; basics of optimization for circuit design; mapping and implementation techniques.

091013301 **Power Electronics** 3(3-0-6)

Prerequisite : 091013104 Electric Circuit Analysis, 091013106 Electronics Circuit

Power electronics; power electronics devices; AC-DC converter; DC-DC converter; DC-AC converter; AC-AC converter.

091013302 **Machine Vision** 3(3-0-6)

Prerequisite : Curriculum Permission

Machine vision technology; basic components in machine vision systems; application of machine vision in the fields of engineering and related industries.

091013303 **Industrial Standards** 3(3-0-6)

Prerequisite : None

Industrial standard system; electronics industrial standards; automotive industrial standards: ISO, JEDEC, and IATF.

091013304 **Industrial Research Methodology** 3(3-0-6)

Prerequisite : None

Research methodology for industrial application; technical writing and presentation; literature reviews; patent or petty patent; technical seminar.

091013305 **Introduction to Radar Technology** 3(3-0-6)

Prerequisite : 091013103 Electromagnetic Fields and Waves

Radar equation; wave propagation and reflection; radar cross section of a target; signal detection; antennas for radar systems; clutter; radar signal processing; radar tracking; high frequency circuits in radar systems.

091013306 **Communication Protocols and Computer Networks** 3(3-0-6)

Prerequisite : Curriculum Permission

Fundamental concept of telecommunications and computer networks; layers composing the networking framework; network topology and standards; internet and connecting networks; basic concepts and design aspect of communication protocols; Local Area Network (LAN); model and operations of TCP/IP protocol suite; error handling methods; routing algorithms and IP; working principle of TCP and UDP; TCP congestion control; application layer protocols; concept of Software Defined Networking (SDN)

091013307 **Integrated-Circuit Physical Design Methodologies** 3(3-0-6)

Prerequisite : Curriculum Permission

IC fabrication process; basic layout of integrated circuits; matching techniques; chip floorplaning; supply routing; clock distribution network; transmission line effects; impedance matching; stress impact; IR-drops; ESD and latch-up considerations; isolation.

091013308 **Optimization** 3(3-0-6)

Prerequisite : Curriculum Permission

Linear programing; graphical method; simplex method; duality; non-linear programing; unconstrained optimization; direct search; gradient descent; steepest descent; Newton's method; constrained optimization; Lagrange's method.

091013309 **Electrical Measurements and Instruments** 3(3-0-6)

Prerequisite : Curriculum Permission

Units and standard instruments; accuracy; precision; voltage current and power measurements; impedance measurement at low and high frequencies; measurement of DC and AC current and voltage using analog and digital instruments; digital techniques in measurement; noises;

shielding; signal-to-noise ratio enhancement techniques; transducers; computer-based measurement systems.

091013310 **Digital Image Processing** 3(3-0-6)

Prerequisite : 091013101 Introduction to Computer Programming

Fundamentals of digital image processing; color conversion; thresholding; image enhancement; noise reduction and image restoration; pixel sampling; image quantization; image filtering; edge detection; image watermarking; image encryption; image compression; image segmentation; morphological image processing; image registration; image recognition and classification; high dynamic range images.

091013311 **Integrated-Circuit Testing and Design for Testability** 3(3-0-6)

Prerequisite : Curriculum Permission

IC testing; design for testability; logic and fault simulation; test generation; logic built-in self-test; test compression; logic diagnosis; memory testing; boundary scan and core-based testing; DFT and BIST techniques for analog and mixed-signal test; test of ADC; DAC and PLL.

091013312 **Data Science and Machine Learning** 3(3-0-6)

Prerequisite : 091013101 Introduction to Computer Programming

Principles and concepts in data science; data exploration and visualization; statistical analysis; hypothesis testing; fundamental concepts of machine learning; supervised learning algorithms; unsupervised learning algorithms; anomaly detection; time-series analysis; model evaluation and validation; feature engineering; practical applications of machine learning.

091013313 **Data Engineering** 3(3-0-6)

Prerequisite : 091013101 Introduction to Computer Programming

Data modeling and schema design; database systems; data processing technologies; ETL processes; data acquisition; data pipelining; data quality; data governance; data exchange and data integration.

091013314 **Artificial Intelligence** 3(3-0-6)

Prerequisite : 091013101 Introduction to Computer Programming

Deep learning, classification model, regression model; reinforcement learning, application of AI for control system; convolution neural network, image recognition, object detection; generative adversarial network, diffusion model; natural language processing, word tokenization, large language model.

091013315 **Antenna Technology for Smart Devices** 3(3-0-6)

Prerequisite : 091013103 Electromagnetic Fields and Waves

Antenna types and parameters; antenna analysis; wire antennas; aperture antennas; reflectors; microstrip antennas; broadband antennas; concept of antenna arrays; antenna systems and measurement techniques.

091013316 **Advanced Wireless Communications and Metering Infrastructure** 3(3-0-6)

Prerequisite : 091013206 Principles of Communications

Wireless communications; probability theory; random variables; random processes; matrix definitions, operations, and properties; path loss; shadowing; statistical multipath channel models; digital modulation and detection; performance of digital modulation over wireless channels; multiple access techniques; signal to noise power ratio; detection error probability; smart meters; advanced Metering Infrastructure (AMI); communication network architecture for smart grids; meter data acquisition system; Meter Data Management System (MDMS); anti-tampering methodology; smart grid system integration.

091013317 **Special Topics in Integrated Circuit Design** 3(3-0-6)

Prerequisite : None

Topics of integrated circuit design for specific applications selected by the instructor.

091013318 **Special Topics in Semiconductor Devices** 3(3-0-6)

Prerequisite : None

Topics of semiconductor devices for specific applications selected by the instructor.

091013319 **Advanced Topics in Integrated Circuit Design** 3(3-0-6)

Prerequisite : None

Advanced topics of integrated circuit design for specific applications selected by the instructor.

091013320 **Advanced Topics in Semiconductor Devices** 3(3-0-6)

Prerequisite : None

Advance topics of semiconductor devices for specific applications selected by the instructor.

091013401 **Pre Co-operative Education** 1 (30 Hours)

Prerequisite : None

Knowledge in co-operative education; co-operative education related rules; special seminar and pre co-operative education preparation activity. Credit is not counted. Evaluation is on an S/U basis.

091013402 **Co-operative Education** 6 (540 Hours)

Prerequisite : 091013401 Pre Co-operative Education

Student does the internship at co-operative enterprises to apply microelectronics design and semiconductor engineering knowledge in the real situation through the project to solve problems in the enterprises and to train for project management under the supervision of experts in the workplace and faculty advisors. Upon completion of the project, students must write a work report including a summary and presentation of the outcome of their work. The content will be presented to program faculty

members, advisors, or committee representatives from the enterprises as deemed appropriate by the program.

091013403 **International Research and Development Project** 6 (540 Hours)

Prerequisite : 090913401 Pre Co-operative Education

Students participate in research activities at partner international academic institutions or research and development departments of international companies, applying electric vehicle and automation system engineering knowledge to as a training for advanced technology research and development. The research is supervised by international researchers and university advisors through online supervision, enabling students to develop research skills in an international environment. Upon completion of the project, students must write a report and present their research findings to program faculty members, advisors, and international research supervisors.

091013501 **Engineering Mindset** 2(2-0-4)

Prerequisite : None

Developing an engineering mindset; problem-solving skills; critical thinking; creative thinking; attention to detail; interdisciplinary teamwork and collaboration; adaptability; systematic thinking; workflow process design; risk management; embracing failure; engineering ethics; social responsibility and sustainability.

RULES, POLICIES AND REGULATIONS

Upon registering, ALL TGGS students agree to acknowledge and to follow King Mongkut's University of Technology North Bangkok (KMUTNB) rules, policies and regulations.

TGGS Student's Ethics

- Responsibility:

  To himself, to the environment, to the society, by being a loyal, determined, dedicated, co-operative, honest and integrate person.

- Appropriate codes of conduct:
  1. Encourage and embed student's ethics by integrating ethics and moral values in learning and instruction.
  2. Set up environment and create events and activities to promote student's ethics inside and outside academic settings.
  3. Encourage the students to demonstrate their good deeds and morality.
  4. Recognize and admire the students who demonstrated those ethics and morals.

Class Attendance

- Students should attend every registered class.
- Students must sign the attendance sheet as proof.
- Students must have at least 80% attendance on the course to be eligible to take final examinations.
- Students must obtain permission from the lecturer to attend the class late.
- Breaks during class time are given at the discretion of the lecturer.
- Students must notify the lecturer for a missing class in writing.

Additional rules, policies, and regulations will be given at the lecturer's discretion.

Classroom and Building Policies

- Building and Student Common Room Hour

  7 A.M. to 10 P.M. Mondays to Fridays

  The student must submit the request to Program with the recommendation of the advisor or supervisor to access the building during the off-hour.

  Students must use the access card to enter the building and the common room.

- TGGS Announcement for Students

  It is the students' responsibility to frequently check the TGGS and Program Websites for important information such as cancellations of classes, "make-up" classes, examination schedules and other information. In addition, there is an Announcement Board outside each program office where other notices will be posted. Students who neglect to check the websites and read any posted information on the Websites or Announcement Boards cannot request an exception or special treatment.

- Mobile Phones

  Mobile phones must be switched off during classes. Additional policy on mobile phones may be given at the lecturer's discretion.

  Mobile phones are not allowed to carry during examinations.

- Smoking

  King Mongkut's University of Technology North Bangkok is a non-smoking campus. Electric-smokers are not allowed on campus. Students who caught smoking will be put on behavioral probation and reported to KMUTNB. They may also be fined according to KMUTNB policy and Thai law.

- Alcohol and Drugs

  Alcohol and drugs including marijuana and hemp are forbidden to be brought on campus. Any student who comes to class under the influence of alcohol or drugs will be asked to leave the class immediately and may be reported to the police.

- Weapons

  Weapons of any kind are forbidden to be brought on campus. Any student who brings a weapon to school will be asked to leave the program immediately and the case will be reported to the police.

- Fighting/Aggression/Inappropriate Language

  A student who has a verbal disagreement with another student should seek help from a lecturer or the office staff if the problem cannot be solved alone. Any student who gets involved in a physical fight will be asked to leave the program immediately and the case will be reported to the police.

  Students who are aggressive or use inappropriate language of any kind (in any language) towards lecturers, students, and/or staff may be asked to leave the program and/or report to the police.

- Driving and Parking

  Students who wish to drive to the university must obtain a parking permit from KMUTNB and obey all traffic and parking rules on the KMUTNB campus. Reckless driving and speeding will not be tolerated. Failure to adhere to traffic rules on campus will incur severe penalties and/or dismissal and/or reporting to the police.

- Courteous Behavior

  All students are expected to behave in a respectful and courteous manner toward security officers, cleaning staff, university staff, lecturers, and other students. Rude and aggressive behavior (including inappropriate verbal interactions) will not be tolerated. This includes racism, sexism, homophobia, social class distinction, and etc.

TGGS Access Card

All TGGS students can access TGGS Building (only the front door) and TGGS Student Common Room 502 (on 5th Floor) with TGGS Access Card only.

This card is a property of TGGS, KMUTNB. TGGS has the right to modify or terminate the access of the card without prior notice. The use of this card by the holder constitutes acceptance of the agreement as follows: Students as holders agrees

(1) To follow TGGS building regulations
(2) To not allow another person to use the card to access the building
(3) To notify TGGS immediately of loss or theft of the card

Student's Email Account

All TGGS students will get an email account after they are registered to the faculty. It is encouraged that students use this email account for all matters related to TGGS, e.g. to communicate with the lecturers and staffs, to contact other parties with TGGS related issues, to register to an academic conference, journal publishers, etc.

For more information about how to obtain the Email address please contact your program office.

University Property

Students are expected to maintain the university properties.

Students found intentionally damage KMUTNB and TGGS properties will be held responsible for paying for the damage properties and they may be put on behavioral probation.

Uniform

TGGS students are required to wear uniforms during class. TGGS students are required to carry their Student ID card every day. TGGS students who are not properly dressed will not be permitted to enter the campus, TGGS building, and/or classrooms. For more information, please visit https://tggs.kmutnb.ac.th/wp-content/uploads/2025/07/KMUTNB-rules-of-dress.png

Students can wear KMUTNB sport outfit during the sport course which is available at KMUTNB Shop.

For the lab courses, students can wear TGGS Workshop Shirt. Students can order this shirt from the specified shop as announced by TGGS Academic Affairs. Please consult the design of this shirt as follows:

Supercomb Twill Fabric

Golden Crown Brand

Color No. 12

(ผ้าซุปเปอร์ค้อมทวิว ตรามงกุฎทอง)

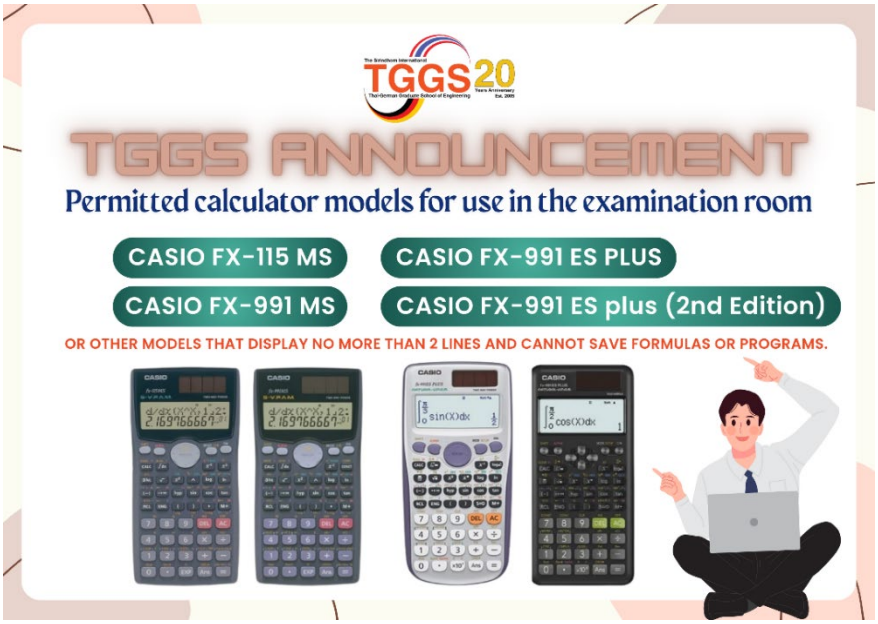
Laptop

The recommendation for laptop specification as stated on https://tggs.kmutnb.ac.th/choosing-your-laptop is to be used as a reference for common class activities.

The minimum specification is for those who choose to use old laptops. However, if you plan to buy a new laptop or upgrade your old one, please check our recommended specification. Please also read our remark on each component if exists.

Calculator

The recommendation for calculator is as follows:



For more information, please visit https://tggs.kmutnb.ac.th/wp-content/uploads/2025/07/permitted-calculator.png.

Examination and Quiz Policies

- Students must wear the correct uniform and show a valid Student ID card for any quiz/examination.
- Students must be on time for a quiz/examination.

  Students arriving after the start of a quiz/examination will not be allowed to take that quiz/examination.

- Students are not allowed to talk during a quiz/exam.

  All questions should be directed to the lecturer/proctor.

- No dictionaries (including electronic dictionaries) or other reference materials are allowed to be used during a quiz/examination.

  Unless otherwise specified, any form of supporting material is explicitly forbidden.

- All mobile phones must be switched off and submitted to the lecturer/proctor before a quiz/examination begins.

  Any student whose mobile phone goes off during a quiz/examination will be penalized by the loss of marks and/or may be asked to leave the quiz/examination room.

- Students who fail to take any quiz/examination on the scheduled date (without prior arrangement with TGGS staff or due to an emergency such as serious illness) will not be allowed to take a make-up quiz/examination and will receive an 'F' grade.

  All excuses for non-attendance at an examination will be carefully checked for accuracy and authenticity.

Cheating Policy

Cheating is not tolerated at KMUTNB.

It is the students' responsibility to know what constitutes cheating, and to take all necessary precautions to avoid it. Ignorance is no defense. If in doubt, students' should consult their course lecturer, project or Thesis supervisor, and/or their Program Coordinator.

If a student is discovered cheating during any quiz/examination, e.g. talking, whispering, signaling to anyone other than the lecturer/proctor, looking at another exam paper, holding an exam paper in the air, using crib notes or mobile phones, etc., that student will automatically fail the course and be put on behavioral probation. Serious cases of cheating may result in ineligibility to pass to the next level, enroll in the next semester, or ever attend TGGS or any KMUTNB affiliate.

Plagiarism Policy

In any technical and academic writing, it is very important to adequately credit the source for ideas, drawings, texts, etc. in any language and any type of publication, without this it is considered plagiarism. By taking credit for anyone else's work intentionally or by accident, it is stealing and it is not acceptable in all academic and professional situations.

TGGS students must distinguish their own ideas and work from knowledge obtained from sources in all students' work at TGGS and properly site the sources.

PDPA (Privacy Notice)

King Mongkut's University of Technology North Bangkok has announced Privacy Notice to protect the privacy of the university staffs, students, and other related parties (collectively referred to as "Data Subject") and to inform the data subject of information about their rights and duties as well as the purposes for data collection, collecting, using and disclosing personal data (collectively referred to "Data Processing"). In order to comply with the Personal Data Protection Act B.E. 2562. For information of the announcement, please consult https://kmutnb.ac.th/privacynotice.aspx (Thai language). The English version will be available soon, please consult the university website.

General Conduct

All students are expected to behave in a way befitting adults.

Students are expected to have a mature and professional attitude towards their studies. This includes appropriate language, dress, behavior, and participation. Sleeping in class, sexist/racist/homophobic remarks, and swearing are not allowed in any class.

At the lecturer's discretion, any students who do not conduct themselves in the aforementioned manner may be given penalties. Some actions may result in behavioral probation, dismissal, and/or reporting to the police.

Petition Appeal

To be used for reconsideration on a previously denied petition/request

Students can submit the request according to individual issue according to TGGS Academic Affairs procedure/process stated in this student handbook. In the case that the request has been denied, students can submit the petition for appeal to Program Secretary The petition for appeal form (TG31) including supporting documents will be reconsidered by TGGS Committee or KMUTNB Committee depending on the issue.

Please consult additional petition procedure and process for each individual issue as announced by TGGS Academic Affairs.

Code of Ethics for Engineers

All professional engineers and technicians are bound by the Code of Ethics for Engineers or Professional Ethics of their professional engineering institutions.

As future engineers, students must acknowledge and obey the Code of Ethics for Engineers at least in the following countries:

Country	Organization	Website
Thailand	Council of Engineers Thailand (COE)	http://www.coe.or.th Download Document at: http://www.coe.or.th/_coe/_legal/_caseEx/coe_codeofconduct.pdf
Germany	Association of German Engineers (VDI)	www.vdi.de Download Document at: www.vdi.de/fileadmin/media/.../FundamentalsOfEngineeringEthics.pdf
USA	National Society of Professional Engineers (NSPE)	http://www.nspe.org Download Document at: http://www.nspe.org/resources/ethics/code-ethics
UK	Engineering Council (EngC)	http://www.engc.org.uk Download Document at: http://www.engc.org.uk/professional-ethics.aspx

Note

For further information on regulations, policies and penalties, students should consult the KMUTNB Student Affairs website at http://www.studentaffairs.kmutnb.ac.th/rule-1.html.

Additional TGGS specific regulations, policies and penalties, will be made available as appropriate.

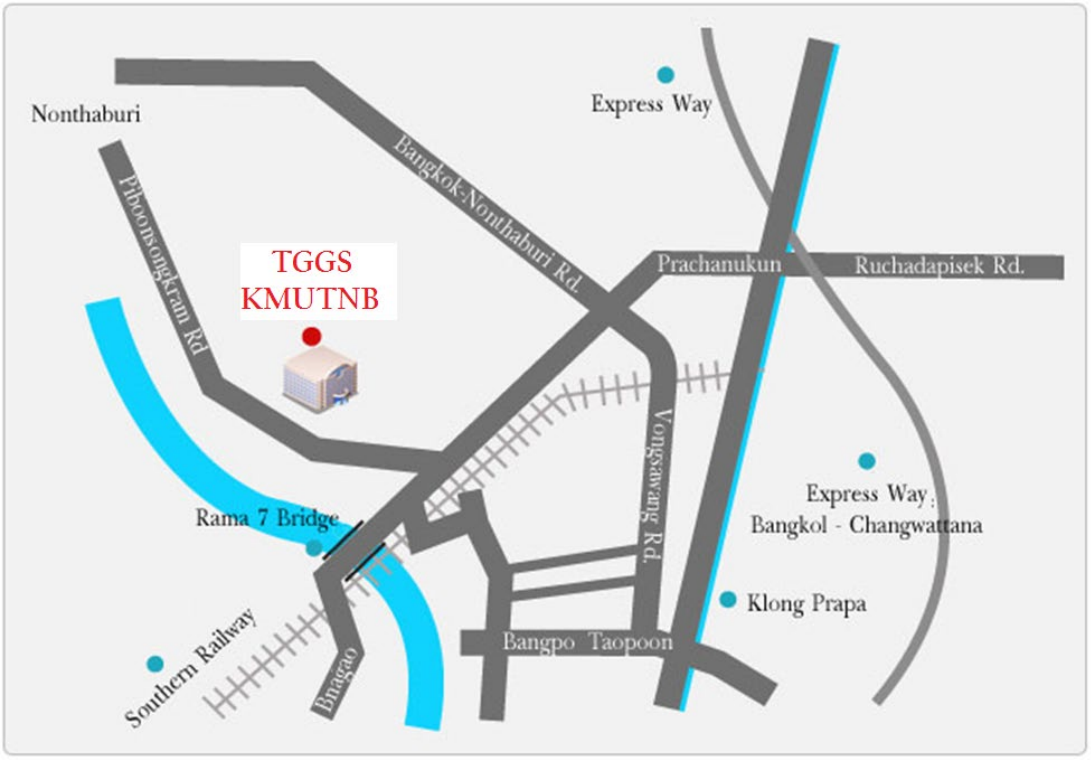
FAQ

General FAQ

Questions and answers are available on the website at https://tggs.kmutnb.ac.th/questions-and-answers.

VISITOR INFORMATION

How to get to TGGS/KMUTNB?



TGGS is located inside the King Mongkut's University of Technology North Bangkok campus area. Following is the information how to reach TGGS.

By car

KMUTNB is at 1518 Pracharat 1 Road, Bangsue, Bangkok, Thailand. It is close to Rama 7 bridge on the Eastside of the Chao Phraya River between Rama 7 Bridge and Nonthaburi province. The 11-story TGGS building is located on the left side of the KMUTNB main entrance.

By bus

There are three different bus lines that go to KMUTNB.

Bus No. 97 from Victory Monument to KMUTNB

Bus No. 32, 33, 64, and 203 from the Grand Palace KMUTNB

Bus No. 90 from Central Plaza, Lad Phrao to KMUTNB

By boat

By Chao Phraya Express Boat from all piers. Go up river to Nonthaburi pier. Then transfer to any of bus No. 32, 33, 64, 90, 97, 117,175, and 203 (all inbound) and get off at KMUTNB.

By MRT train

By MRT Subway from all stations, you may get off at the Wongsawang Station (Purple Line). You can, then, take a bus No.97 (outbound) or a taxi to KMUTNB (ask taxi driver for "Tech-No Pra-Na-Korn-Nuea").

By the Airport Rail Link

To get to KMUTNB from the BKK airport, you can take the Airport Rail Link. The Airport Rail Link is the direct sky train line that runs from the BKK airport to the city. For those coming from abroad and wishing to visit KMUTNB, the Airport Rail Link Station is located at the underground floor of the airport.

Option 1:

Get a ticket for the "SA City Line" at the underground floor of the BKK Airport, the fare ranges from 15 to about 45 THB. The SA City Line makes 6 stops on the way before arriving at its final stopping point at the Prayathai Station. The other midway Stations are, Lad Krabang Station, Thab Chang Station, Hua Mark Station, Ramkhamhaeng Station, Makkasan Station, and Ratchaprarop Station. It takes about30 minutes.

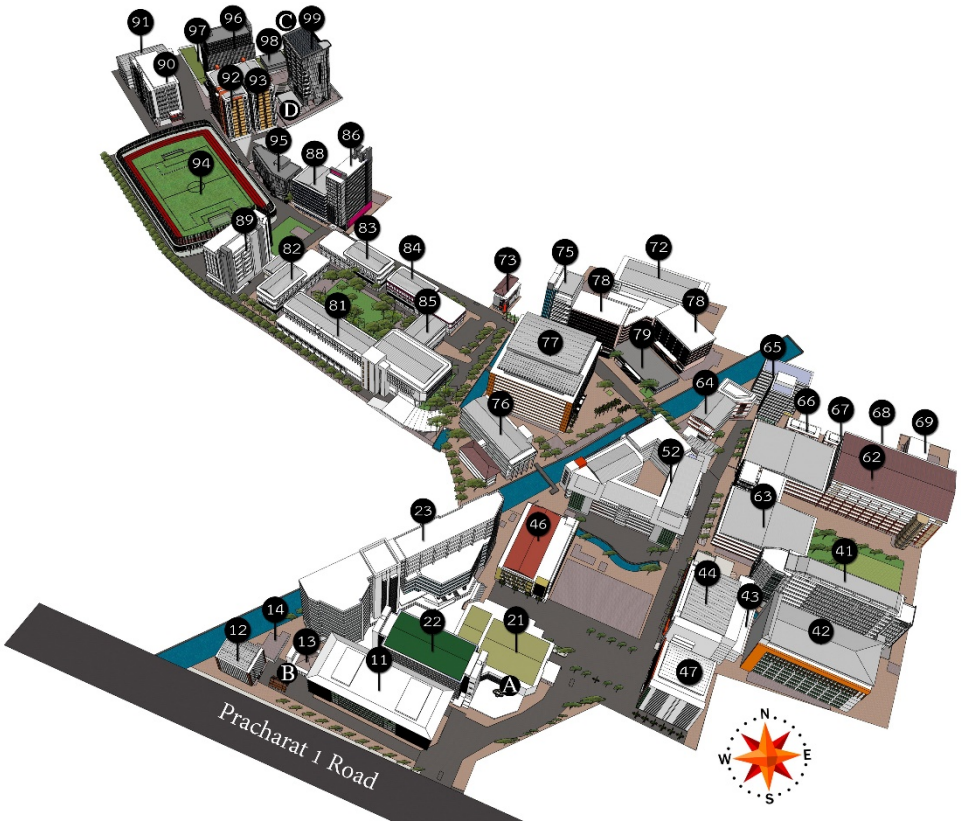
Option 2:

Get a ticket for the "SA Express Line" at the underground floor of the BKK Airport. The SA Express Line runs directly to the Prayathai Station without any stop on the way. It takes about 17 minutes for the whole journey. The fare is a flat rate of 150 THB.

Passengers using both lines would stop at the Prayathai Station. To facilitate your trip to KMUTNB, it is advisable to take a taxi directly to KMUTNB. (or in Thai "Tech-No Pra-Na-Korn-Nuea").

Tell the taxi driver to take you to "Tech-No Pra-Na-Korn-Nuea" because most Thais are familiar with that name. It's close to the Rama 7 Bridge. The fare ranges from about 100-150 THB depending on the traffic condition.

KMUTNB MAP AND BUILDING



1. **The Sirindhorn International Thai-German Graduate School of Engineering (TGGS) (No. 11)**
    - **1st floor: KMUTNB Financial Service**
    - **2nd floor: KMUTNB Registrar Office**
    - **3rd – 10th floors: TGGS**
2. President Office Building (No. 21 and 22)
    - 1st floor: Post Office, Credit Union
    - 2nd floor: President Office and KMUTNB Auditorium
    - 3rd – 5th floors: Computer and IT Service
    - **10th floor: International Collaboration Center (ICC)**
3. Entertainment and Student Activities Club Building (No. 77)
    - **1st floor: Bank, Student Service**
    - **2nd floor: Cafeteria**
    - **3rd – 11th floors: Student Activities Clubs, and Gymnasiums**
4. Faculty of Engineering (No. 81-89)
5. Faculty of Technical Education (No. 44 and 52)
6. Faculty of Applied Science (No. 75 and 78)
7. College of Industrial Technology (No. 42 and 62-69)
8. **Gymnasium (No. 76)**
9. Thai-French Innovation Institute (No. 43)
10. Faculty of Applied Arts (No. 46)
    - **2nd floor: Suan-Palm Cafeteria**
11. Institute for Technology Education Development (No. 76)

12. KMUTNB Staff Club, KMUTNB Health Center (No. 79)

    - **1st floor: Convenient, Photo, and Book Stores**
    - **2nd floor: Health Center and Restaurant**

13. Stadium (No. 94)

14. Navamindra Rajini Building (No. 23)

    - 4th – 6thfloors Zone A: Faculty of Information Technology
    - **2nd – 9th floors Zone B: Central Library**
    - 12th floor: Graduate College

15. Buddhist Shrine (No. B)

16. King Mongkut's Monument (No. A)

17. Building and Vehicle Division, Document Section (No. 12)

18. Thai–German Dual Education and e–Learning Development Institute (TGDE) (Will be included in Techno Park)

19. Science and Technology Research Institute (STRI) (No. 47)

20. Electrical Substation (No. 14)

21. Student Dormitories (No. 92 and 93)

22. Thai German Pre Engineering School (No. 90-91 and 97)

23. Faculty of Architecture and Design (No. 41)

24. Main Canteen (No. 98)

25. KMUTNB Techno Park (No. 99)

INSIDE TGGS BUILDING

- Basement:
  - Coffee Shop
- 1st floor:
  - KMUTNB Financial Service
  - Coffee Shop
- 2nd floor:
  - KMUTNB Registrar Office
- 3rd floor:
  - Dean's Office
  - Associate Dean's Office
  - TGGS Academic Affairs Office
  - TGGS Administration Office
  - TGGS Aachen (Conference Room)
  - TGGS Bonn (TGGS Staff Recreation Room)
  - TGGS Cologne and TGGS Berlin (Meeting Rooms)
  - TGGS Common Room
- 4th floors:
  - **Communication and Smart System Engineering (CSE)**
    - Mobile Communications and Embedded Systems Laboratory
    - Communication Networks Laboratory
    - RF & Microwave Laboratory
    - Smart Grid Technology Research Center
    - Research Center of Advanced Metering Infrastructure (AMI)
  - **Electrical Power Engineering (EPE)**
    - Electrical Power Conversion Laboratory
    - Power System Analysis Laboratory
- 5th floors:
  - **Communications and Smart System Engineering (CSE)**
    - Communication Networks Laboratory
  - **Electrical Power Engineering (EPE)**
    - High Voltage Engineering Laboratory I
    - Electrical Power and Energy Engineering Training Center I/II
  - National Rubber Technology Center
  - Research Center of Innovative Rubber
  - TGGS Student Common Room
  - Goethe Institute and DAAD Office
  - TGGS Student Pray Room (Women)
- 6th floors:
  - **Material and Production Engineering (MPE)**
    - Simulation Lab for Metal Forming
    - Materials Preparation Laboratory
    - Microstructure Laboratory
    - Battery Test Laboratory
    - Metallurgical Process Modeling Laboratory
    - Plant Simulation Laboratory
    - Natural Composite Research Laboratory
    - Materials Testing Laboratory
    - Polymer Processing Laboratory
- 7th floors:
  - **Mechanical and Automotive Engineering (MAE)**
    - Solid Mechanics Laboratory
    - Computational Fluid Dynamics Research Laboratory
    - Structural Dynamics Research Laboratory
    - Design and Innovation Laboratory
    - Automotive Virtual Safety Simulation Laboratory
    - Material Manufacturing and Surface Engineering Research Center (MaSE)

Automotive Safety and Assessment Engineering Research Centre at Automotive Testing Facility KMUTNB Prachinburi Campus

- Automotive Test Track
- Automotive Component Impact Test Laboratory
- Full Vehicle Crash Test Laboratory
- Automotive Brake Performance Test Area

- 8th floors:
  - **Computer Engineering (COM)**
    - Software Systems Laboratory
    - Visual Intelligence Laboratory
    - Architecture Research Group
    - Information Systems and Analytics Laboratory
    - Software and Tools for Scientific Computing Group
  - **Railway Vehicles and Infrastructure Engineering (RVIE)**
  - TGGS Student Pray Room (Men)
  - KMUTNB Academic Service Office
  - State Audit Office of the Kingdom of Thailand at KMUTNB
- 9th floors:
  - **Company Research and Development Center (CRDC)**
  - Companies under CRDC Project
  - Private space and co-working space
- 10th floors:
  - **Chemical Engineering and Management (CEM)**
    - Bioprocess Engineering Laboratory
    - Catalysis and Reaction Engineering Laboratory
    - Novel Technology Laboratory
    - System and Control Laboratory
- 11th floors:
  - Classrooms