

## **Course Deatail**

### **Master of Chemical and Process Engineering**

<b>Course Title:</b>	Master of Chemical and Process Engineering
<b>Master Degree:</b>	Master of Engineering (Chemical and Process Engineering)
<b>Academic Institution:</b>	The Sirindhorn International Thai-German Graduate School of Engineering King Mongkut's University of Technology North Bangkok
<b>Duration:</b>	2 years (August 2024 - June 2026)

#### **Background and Rationale:**

The curriculum of CPE program is designed along the same principles as the RWTH Aachen University German version, at the same time adapted to support the industrial development in Thailand. It is meant to create postgraduate engineers not only with hands-on knowledge, but also with research skills and competencies for chemical industry.

#### **Objectives:**

1. Plan A1: Research only. This study plan is specifically designed for those who have some industrial experience and wish to emphasize on research and development. The students taking this plan will conduct research entirely for four semesters. Although coursework is not compulsory, they may be requested to sit-in some courses that will assist in their research work.
2. Plan A2: Coursework, Internship and Thesis. This intensive study plan is suitable for those who wish to master advanced knowledge as well as engineering skills and work competencies. The students will take ten advanced courses in the first year to strengthen their fundamental knowledge. In the second year, the students will learn how to apply their knowledge in a project-based internship and industrial research project.

#### **Course Synopsis and Methodology:**

Please see attached file

MASTER STUDY PROCESS FLOW (Plan A1 Starting 2020)

MASTER STUDY PROCESS FLOW (Plan A2 Starting 2020)

#### **Study plan:**

**Plan A (1) of CPE (4 semesters) total 46 credits**

Course : Master Thesis

**Plan A (2) of CPE (4 semesters) total 46 credits**

Course :

#### **Semester I**

- Heterogeneous Kinetics
- Molecular Thermodynamics and Interfacial Properties
- Chemical Product Design
- Elective
- Elective

## **Semester II**

- Molecular and Interfacial Transport Phenomena
- Chemical Process Design
- Seminar on Modern Aspects of Chemical and Process Engineering
- Elective
- Elective

## **Semester III**

- Industrial Internship (18 weeks)
- Semester IV
- Master Thesis

## **List of Electives of TGGs/CPE as approved by the TGGs Coordinators:**

- Advanced Separation Technology
- Multiphase Flow
- Advanced Process Heat Integration
- Biochemical Engineering
- Membrane Technology
- Energy Technology for Chemical Engineer
- Catalytic Reaction Engineering
- Industrial Enzymology
- Selected Topics in Chemical and Process Engineering I
- Selected Topics in Chemical and Process Engineering II
- Biorefinery
- Process Modeling and Simulation

## **Graduation Conditions:**

1. Complete 30 credits of Course work for Plan A (2) and complete 46 credits of Master Thesis for Plan A (1)
2. the student must complete 4 credits of industrial internship for Plan A (2);
3. the student must complete 12 credits of master thesis for Plan A (2);
4. the student must partially publish the thesis work in at least the International conference proceeding with a full paper or the International journal for Plan A (2) or the International journal for Plan A (1); and
5. the student must pass the English Proficiency Test with TOEFL 525+ (PBT), TOEFL 196+ (CBT), TOEFL 69+ (IBT), IELTS 5.5+ (Academic Module) or CU-TEP 69+ (120 Score)

## **Applicant Qualifications**

1. Bachelor degree in engineering or related fields, awarded by an internationally recognized university
2. Minimum GPA of 3.00 (or 2.50 plus adequate work or research experience)
3. Good reading, writing, and communication skills in English and submit English Proficiency Test Score

**Document Required**

- TIPP application form (Download at: <https://tica-thaigov.mfa.go.th/en/page/75500-tipp-application-form?menu=605b13dbb6f1b76ed31778b3>)
- Medical Report (If candidates had submitted other health certificates without the TICA medical report form, their application will not be accepted for consideration)
- Transcript of Bachelor's degree (to show the courses that you have learnt throughout Bachelor's degree)
- Certificate of Bachelor's degree
- English test score (IELTS 6, or TOEFL (IBT 6.5) , (PBT 400), International program within 2 years)
- Recommendation Letter (At least 3 people)

**Contact:**

Ms. Piyatida Rakangthong (TGGS International Affairs Officer)  
Email: [piyatida.r@tggs.kmutnb.ac.th](mailto:piyatida.r@tggs.kmutnb.ac.th)

**For more information:**

Human Resources Development Cooperation Division  
Thailand International Cooperation Agency (TICA)  
Government Complex, Building B (South Zone), 8th Floor,  
Chaengwattana Rd. Laksi District, Bangkok 10210 THAILAND  
Tel. +66 (2) 203 5000 ext. 43305, 43306 Fax: +66 (2) 143 8451  
E-mail: [tipp@mfa.go.th](mailto:tipp@mfa.go.th)

\*\*\*The application procedure will complete when TICA has received the hard copy of the application form and other related documents through the Royal Thai Embassy/Permanent Mission of Thailand to the United Nations/Royal Thai Consulate – General accredited to eligible countries/territories.