



THE STATE UNIVERSITY OF NEW JERSEY  
**RUTGERS**



## Our Partner Universities

These are our current Partner Universities, along with specific types of full-time Study Abroad schemes offered. Please regard these information as tentative, as we continue to seek new partners & to establish program details with current partners.

- University of New South Wales, Sydney, Australia. 1-year Study Abroad in 4th Year, with option to continue to fast-track Master Program (1 year additional study)
- Monash University, Clayton, Australia. 1-year Study Abroad in 3rd Year, with option to continue to 1-year Master in Advanced Engineering Program upon graduation from ITB
- Rutgers University, New Brunswick, USA. 1-year Study Abroad in 4th Year.
- University of Iowa at Iowa City, USA. 1-semester to 2-semester Study Abroad.
- University of Colorado at Boulder, USA. 1-semester to 2-semester Study Abroad, or summer research.
- University of Auckland, New Zealand. 1-semester Study Abroad



## Leadership Team

### Chemical Engineering Undergraduate Program Chair

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### Dean of the Faculty of Industrial Technology

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## Chemical Engineering Program Faculty of Industrial Technology

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## Prospectus

# UNDERGRADUATE INTERNATIONAL CLASS IN CHEMICAL ENGINEERING

*Academic Year 2016-2017*



## Admission Requirements

- English proficiency: IBT International TOEFL or IELTS
- One of the following valid certificate / diploma of international high school-level education qualifications: SAT, General Certificate of Education A/AS Level, AICE, Sijil Tinggi Persekolahan Malaysia (STPM), European Baccalaureate (EB), International Baccalaureate (IB), ITB Academic Potential Test Results
- High School Academic Report / Semester Academic Transcript from 1st to 5th Semesters

### Further information:

<http://usm.itb.ac.id/international/>

Faculty of Industrial Technology  
Institut Teknologi Bandung

# What is Chemical Engineering ?

Chemical Engineering is an engineering discipline which studies the design & operation of commercial-scale chemical processes in **safe, sustainable, & profitable** manners. These processes encompass various steps utilizing chemical & biochemical reactions, & changes in properties of materials to convert them into commercially valuable products. Practical everyday life is virtually impossible without chemical products — clothing, automotive fuel, agricultural fertilizers, plastics, medicine, & even foods.

Chemical engineers **design, engineer, & operate** processing facilities. When **designing** a processing plant, they transform laboratory-scale chemical reactions into commercial-scale operations by determining the sequencing of major process operations, calculating materials & energy flow between these operations, selecting



The petroleum industry is just one of many areas of employment of chemical engineers

the proper type & size of processing equipment, & apply economic principles to evaluate the profitability of the facility. When **engineering** an existing process facility, they apply their knowledge of process behavior & performance of individual or sets of equipment to **improve** the competitiveness of the facility (e.g. using less energy, generating less waste). When **operating** a facility, chemical engineers use their knowledge in thermodynamics, heat transfer, mass transfer, fluid mechanics, & process control to understand the steady & dynamic **behavior of processes**. This understanding enables them to safely operate the facility using various process instruments & control systems, & to evaluate the performance of existing processes.

## Chemical Engineering at ITB

Established in 1941, Chemical Engineering at ITB is the oldest chemical engineering higher education institution in Indonesia. Currently it hosts more than 40 full-time faculty members, approximately 350 Undergraduate students, 120 Master students, & 20 Doctoral students. The undergraduate program is currently the only such program accredited by ABET (USA) in Indonesia.

## International Undergraduate Program

To ensure the competitiveness of our graduates in the increasingly global engineering job market, we have established an International Class in the Chemical Engineering Undergraduate Program in 2016. This class is taught entirely in English, & operates in parallel with the regular class in ITB's Ganesha campus.

The curriculum comprises of a 4-year coursework. The **first-year courses** are focused on basic sciences, liberal arts, & principles of general engineering. The **second-year** coursework teaches fundamental engineering sciences such as thermodynamics, mass & energy balance, heat transfer, & fluid mechanics. The **third-year** coursework strengthen the understanding of fundamental engineering sciences & tools through moderately complex subjects & engineering labs. The **fourth-year** coursework centers around 3 culminating subjects, namely Industrial Internship, Undergraduate Research, & Plant Design Project. In the Industrial Internship, students take 1 to 3 months of residency in the industry to gain firsthand experience of real-life engineering practice. In the team-based Undergraduate Research, students learn to formulate & solve engineering problems through literature survey & experimental work. The Plant Design Project provides



Students conducting drying experiment using equipment with digital data acquisition

a rich, complex challenge for students to apply the entire Undergraduate coursework in the team-based design of a complex processing plant.

## Study Abroad

International Class students are highly encouraged to undergo study abroad experience with a maximum duration of 1 year (2 semesters). The format of the program is flexible, ranging from short courses / summer school, internships, & 1- to 2-semester full time study. For the full-time



HIMATEK ITB team wins the NACES 2016 engineering challenge in Malaysia

study, Students may apply to one of our partner universities on a competitive basis or, alternatively, propose a different university of their own choosing. Students are expected to take the Study Abroad session in their 3rd or 4th year.

Full-time study abroad schemes may be different between each Partner University, dependent upon curricular & academic calendar compatibility.

## Student Life

Opportunities for students to enrich their study experience, to gain friends & expand their network are abound in ITB campus. HIMATEK ITB (ITB Chemical Engineering Student Union) is our primary professional-based student activity. We currently also host the only AIChE (American Institute of Chemical Engineers) Student Chapter in the country. Our students have organized several key annual events, including a regional-scale international plant design competition. There are also numerous student activity units in sports, & traditional & contemporary sociocultural areas.

