



# THE FACULTY OF **ENGINEERING**

K a s e t s a r t   U n i v e r s i t y



Bangkhen Campus, Bangkok, Thailand



THE FACULTY OF  
**ENGINEERING**  
KASETSART UNIVERSITY

A leader in e-Faculty and e-Learning to produce  
... Professional Engineers...



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# KU



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# MISSION

The Faculty of Engineering's mission is "to produce professional engineers, who are recognized for their competence and technical knowledge as well as their ethical, moral and social responsibilities; and to provide extensive and socially recognized academic and research services, which contribute towards the self-sustainable development of the country". In other words, the faculty is committed to applying our experience and state-of-the-art technology, in order to produce not only knowledgeable and competent engineers, but also outstanding graduates in the following 3 E's and 3 I's. :

## "3 E's & 3 I's"

### Characteristics of our graduates.

- Ethics** > Displaying ethics and a moral code of conduct in their profession.
- Electronics (IT)** > Specialized in computers and information technology.
- English** > Good knowledge of English in order to communicate effectively and succeed in their profession.
- Innovation** > Be creative and develop new inventions and innovations (Innovative Technologies).
- Integration** > Able to integrate knowledge from different disciplines.
- Improvement** > Develop themselves and strive continuously to enhance their professional skills.





## OUR FACULTY

The Faculty of Engineering, Kasetsart University, is a well-established institute which for over 75 years has produced high-quality engineers able to contribute to the continuing development of the country. The Faculty has always focused on producing engineers to meet the evolving needs of the country's industrial and public sectors.

At present, the Departments at the Faculty of Engineering consist of:

- Aerospace Engineering
- Chemical Engineering
- Civil Engineering
- Computer Engineering
- Electrical Engineering
- Environmental Engineering
- Industrial Engineering
- Materials Engineering
- Mechanical Engineering
- Water Resources Engineering



# OUR DEPARTMENTS

## Aerospace Engineering

Our courses and current research activities cover a broad spectrum of topics in aerospace engineering and aviation science, including: aerodynamics, aircraft design, aircraft structures, flight dynamics and control, propulsion, space flight, as well as aviation industry and technology-related topics.

## Chemical Engineering

The program is focused on the design, operation and improvement of chemical and petrochemical processes where raw materials are safely and economically converted into useful products in an environmentally benign manner. Courses are offered in mass and energy balances, cleaner technologies, thermodynamics, unit operations, chemical kinetics and reactor design, plant and equipment design, process control, engineering economics and cost estimation, pollution prevention and control, and safety engineering in process industries. Students are also trained in computer software applications, English fluency and presentation skills in order to work successfully in process industries such as petroleum refining, petrochemicals, rubber, pulp and paper, ceramics, glass, textiles, paints, pharmaceuticals, microelectronics, biotechnology, food processing and various consumer products. The department offers accredited Bachelor, Master, and Doctoral degree programs and has a reputation for excellence in both teaching and research.





## Civil Engineering

We are dedicated to providing fundamental and advanced education in the design and construction of developmental infrastructure. This covers a wide range of disciplines, namely: Surveying Engineering - the mapping of data from field surveying, aerial photographs and remote sensing devices; Structural Engineering - the mechanics of structural elements and strength of materials, the analysis and design of timber, steel, reinforced and pre-stressed concrete structures; Geotechnical Engineering - the behavior of soils and rocks for above and underground structures such as buildings, roads, tunnels, and dams; Transportation Engineering - the systems of land, sea and air transport, highway design, traffic flow and mass transit systems; and Construction Management - the management of construction materials, machinery, manpower and capital in the construction industry.

## Computer Engineering

The Department of Computer Engineering offers accredited Bachelor, Master and Doctoral degree programs in Computer Engineering, as well as a Master of Science degree program in Information Technology. Currently, the Department has 30 full-time professors as well as several adjunct professors, two special research units (in High-Performance Computing and Natural Language Processing) and 6 research laboratories (in Networking, Web Retrieval and Data Mining, Software Engineering, Multimedia, VLSI, and Robotics.) The computing facilities of the department include several work stations, PCs, and a 72-node Pirun cluster.



## Electrical Engineering

The Department of Electrical Engineering offers both undergraduate and graduate programs. Our programs provide coursework and research in the area of communication systems, control and instrumentation systems, electronics, and power systems. The four-year undergraduate program is designed to inculcate students with a broad background in all aspects of electrical engineering and also allows students to choose elective courses to match their individual areas of interest. The graduate programs are geared for students to be actively involved in cutting-edge research in emerging technologies and applications research. Some of the ongoing research is conducted into communication networks, sensors, wireless networks, telecommunication applications, embedded systems, robotics, biomedical electronics, photovoltaic systems, control systems, power systems, and microelectromechanical systems (MEMs).



## Environmental Engineering

The Environmental Engineering Program supports educational and research activities centered on the development and application of engineering principles to understand and minimize the adverse effects of pollution created by various human activities. Major topics of instruction and research in this program include: the design of conventional and advanced water and wastewater treatment facilities and sewage systems; solid and hazardous waste management; the development and evaluation of techniques to remediate contaminated sites and aquifers; and environmental management tools for organizations, such as environmental impact assessment, environmental risk assessment, and environmental management systems.





## Industrial Engineering

Students are instructed in manufacturing processes, quality control, engineering economics, work studies, operations research, plant layout, production planning and control, safety engineering, tool design, project feasibility studies, industrial and commercial law, and applications of modern technologies such as computers and industrial robots.

Industrial Engineering covers not only technical but also human aspects. Our curriculum is designed to provide students with insights related to the manufacturing industry. In addition, students will learn about tools that help improve productivity, such as work studies, quality control and operations research. Besides manufacturing and mathematical knowledge, industrial engineers are also instructed in economics and industrial and commercial law.

## Materials Engineering

The program is geared towards providing the knowledge and practical experience essential for understanding the science and technology of materials development and usage. The fundamentals of materials are taught via department core courses that focus on structure, properties, processing, and performance of materials. Examples of core courses offered are thermodynamics and kinetics, transport phenomena, microstructure characterization, mechanical and physical properties, and phase equilibria. Students subsequently tailor their selection of technical elective courses that provide further understanding of selected materials such as metals, polymers, ceramics, composite materials and electronic devices.

## Mechanical Engineering

Mechanical Engineering is an interdisciplinary field, which brings fundamental measures to a wide range of applied engineering and innovative technologies. The department offers five major areas of specialization for the undergraduate program, namely: automotive engineering, air-conditioning engineering, energy engineering, fire protection engineering, and design and manufacturing engineering and electrical-mechanical manufacturing engineering. In addition, the department also offers a graduate program leading towards a Master and/or Doctor of Engineering.

## Water Resources Engineering

The curriculum focuses on fluid mechanics, hydraulics, surface and subsurface hydrology, river engineering, water resources engineering, water quality control, coastal engineering and urban flood protection and drainage, in addition to applications for the development and management of different scale projects.





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## Master's and Doctoral Programs

The Faculty of Engineering offers master's and doctoral programs in several disciplines for both regular and special programs, as follows:

### Master's Program

- Aerospace Engineering
- Chemical Engineering
- Civil Engineering
- Computer Engineering
- Electrical Engineering
- Engineering Management
- Environmental Engineering
- Fire Protection Engineering
- Industrial Engineering
- Industrial Production Technology
- Information Technology
- Infrastructure Engineering and Management
- Materials Engineering
- Mechanical Engineering
- Safety Engineering
- Structural Technology for the Built Environment
- Water Resources Engineering

### Doctoral Program

- Chemical Engineering
- Civil Engineering
- Computer Engineering
- Electrical Engineering
- Environmental Engineering
- Industrial Engineering
- Materials Engineering
- Mechanical Engineering
- Water Resources Engineering





## Cooperative Education (Co-Op) Programs

The Faculty of Engineering realizes the importance not only of academic studies and scientific inquiry, but also of practical training in industry so that students can gain knowledge in the classroom and, at the same time, develop their own ideas, theories and concepts systematically from real-life situations. It will enable our students to combine theory with practice, so that they can proceed along their career paths more clearly and decisively.

The Faculty of Engineering provides an alternative for students to participate in a Cooperative Education Program. Eligible candidates are Bachelor's Degree students who have taken courses for at least 4 regular semesters or no less than 70 credit hours and have passed all courses with a GPA of at least 2.00. Qualified students are allowed to work full-time as an assistant engineer or assistant researcher for at least 16 weeks, with definite roles and responsibilities by the organizations.

Furthermore, it is an opportunity for students to be employed as permanent staff in the organization upon their graduation. Each of them may be considered for the Student of the Year Award issued jointly the participating universities and the Office of the Higher Education Commission.





# INTERNATIONAL PROGRAMS

## International Degree Programs

The Faculty of Engineering offers International Degree Programs that emphasize creative thinking as well as research and analysis in engineering disciplines, leading to an advanced research capability and highly qualified and innovative engineering minds to serve our rapidly changing world. All courses are taught in English.

### International Bachelor's Degree Programs

- **The International Undergraduate Program (IUP)** offers a 4-year engineering program in 6 majors:
  - Electrical Engineering
  - Industrial Engineering
  - Mechanical Engineering
  - Environmental Engineering
  - Software and Knowledge Engineering
  - Electrical-Mechanical Manufacturing Engineering





■ **International Double Degree Program (IDDP) – Bachelor of Engineering (Aerospace Engineering) and Bachelor of Business Management Degree Programs**

IDDP, established in 1999, is jointly offered by the Department of Aerospace Engineering at Kasetsart University (KU) in Bangkok, Thailand, and the School of Aerospace, Mechanical and Manufacturing Engineering at the Royal Melbourne Institute of Technology (RMIT) in Melbourne, Australia. This program is intended to specifically meet the current and future demands of the aerospace industry, delivering highly talented graduates with professional qualifications and skills in Aerospace Engineering and Business Management. B.Eng. Degrees in Aerospace Engineering are conferred by Kasetsart University and RMIT University, as well as a B.Bus. in management from RMIT University. The total duration of the program is five-and-a-half years, with the first 3 years of academic enrollment at Kasetsart University.

## International Master's Degree Programs

- Chemical Engineering
- Industrial Engineering
- Engineering Management
- Advanced and Sustainable Environmental Engineering
- Information and Communication Technology for Embedded Systems

## International Doctoral Degree Programs

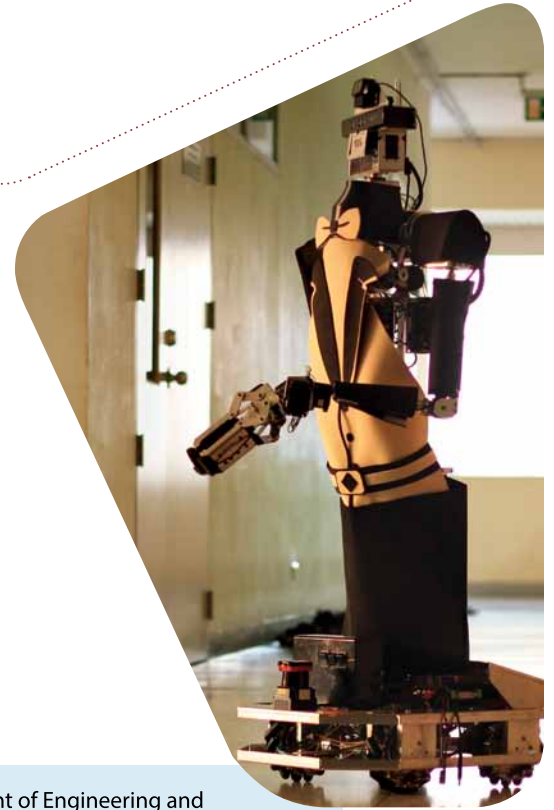
- Chemical Engineering
- Industrial Engineering

# RESEARCH & INNOVATION

A crucial aspect of our students' education is applying what they have learned during their courses to the field of research. By conducting both fundamental and applied research, students can deepen and expand their knowledge. In addition, society benefits from the practical applications of their research. Our students conduct their research at a wide range of companies and institutes, both in Thailand and overseas, as well as at several research institutes belonging to our Faculty of Engineering.

In addition to research units within the departments, the Faculty of Engineering, Kasetsart University, has established several institutes and centers in order to create specific capabilities and resources for academic excellence, increase the efficiency of our research and educational management, provide academic services to the public, and coordinate between each institute/center and the private sector. These are our institutes and centers:

- Chulabhorn Satellite Receiving Station
- Energy Engineering Institute
- Fire Protection Engineering Institute
- Institute for Innovative Information Technology (I<sup>3</sup>T)
- Center of Excellence in Rubber Mould
- Center for Excellence in Alternative-Energy Vehicles
- Center for Safety Technology in Buildings and Industrial Works (CST)
- Center for Excellence Research in Disaster Management
- Legal Informatics Center
- Quality Development Center
- Materials Innovation Center
- Engineering Computer Center (ECC)
- Industrial Automation Training Center (IATC)
- Air Transport Research and Consulting Center
- Management of Engineering and Technology Center
- Maintenance Management Education Center (MMEC)
- Environmental Engineering Modeling Consulting Center
- The Energy and Environmental Engineering Center Bangkhen
- Geotechnical Engineering Research and Development Center (GERD)
- Research and Development Center of Industrial Production Technology (RD<sup>2</sup>PT)
- Research and Training Center on Resource Management and Geoinformatic Systems







# INTERNATIONAL COLLABORATION

The Faculty of Engineering engages in partnerships with leading universities and academic institutes in countries such as Japan, Taiwan, Germany, Finland and France. The purpose of our international collaboration is to provide our students and faculty staff with the opportunity to study or conduct research at a university or institute abroad, for a period of a few months up to a year. Simultaneously, students as well as faculty staff from our partner universities overseas arrive at our faculty each semester to enroll in our courses, work in our research laboratories, and learn about inter-cultural communication and the tangible aspects of a globalizing world.

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Faculty of Engineering, KU.









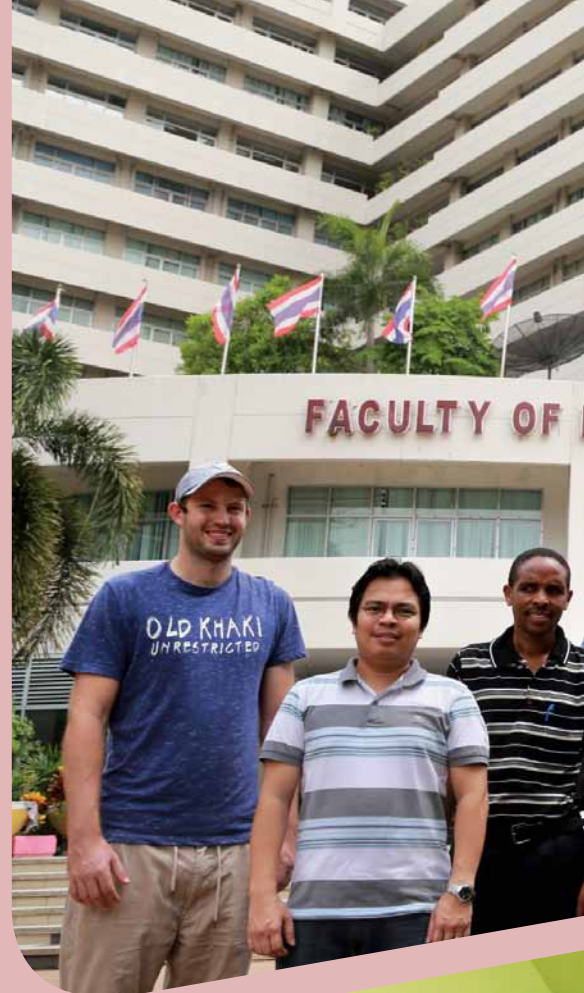
## INTERNATIONAL EXPOSURE

The Faculty of Engineering actively encourages and assists students who would like to gain the valuable experience of studying at one of our partner universities overseas. Personal development is also a very important aspect of studying abroad. We help students with selecting and registering at an appropriate university. During each summer semester, several students undergo training at our partner universities in Japan, Taiwan, Germany, Finland and France, among other countries.

In addition, we attract both full-time and exchange students from all corners of the world who seek to deepen their knowledge of engineering in an international environment at a world-class university in a thriving and vibrant metropolis. Foreign exchange students learn Thai and interact with local students and other exchange students. Interesting and challenging courses, together with various extra-curricular activities, will benefit students' personal and academic growth. Thus, Kasetsart University offers you ample opportunities to enrich yourself academically as well as culturally in a global environment.

## INTERNSHIPS

Internships offer our students an invaluable opportunity to apply what they have learned to a real-world setting. They can gain first-hand knowledge of the inner workings of an organization and learn what it takes to be a professional engineer at a leading company. Our faculty has well-established partnerships with a variety of multinational corporations that offer our students the opportunity to enrich their lives with practical training both in Thailand and abroad.







## EXTRA CURRICULAR ACTIVITIES

The Faculty of Engineering provides extracurricular activities in order to boost the knowledge and understanding of our students. These extracurricular activities help the students to learn how to work with others and apply their knowledge after their graduation for the benefit of society. The Faculty of Engineering encourages students to actively participate in various academic exhibitions. The students are also encouraged to exhibit their projects in contests, in order to enhance their experience. Finally, our students can turn their time at Kasetsart University into a much more enjoyable and enriching experience by joining a wide variety of students' clubs that engage in practical engineering pursuits, sports activities, cultural expression, social responsibility, and environmental awareness.

## STUDENTS' ACHIEVEMENTS

The students of the Faculty of Engineering bring honor to the university continuously and are the proudest achievement of our Faculty. The academic capabilities and collaboration of students in creating research work and innovation have led to several rewards in contests, such as the gold medal of the Academic Olympic Computer Competition, Design Work with CAD/CAM Contests, Programming Contests, the Robot Design Championship of Thailand, Energy-Saving Automobile contests, and the World RoboCup Competitions.





## COMMUNITY ENGAGEMENT

From our position as a leading faculty in innovative engineering education, we emphasize community engagement as one of our signature programs. Our students and faculty are encouraged to initiate and participate in a wide range of volunteer activities and charitable work. The aim is to build ongoing, permanent relationships for the benefit of a community. To this end, our students participate in dozens of volunteer activities, such as aiding flood victims, constructing an orphanage, and teaching disadvantaged children, as well as protecting the environment by planting trees and protecting endangered habitats. As part of the Engineering Service project, our student volunteers regularly offer several science-related courses to high-school students in order to prepare them for their entrance examination.



## SCHOLARSHIPS

In addition to high-quality education management, the Faculty of Engineering supports our students to obtain equal-educational opportunities for the full-time program. The Faculty of Engineering grants 420 scholarships allocated from both the Faculty's Scholarship Division and income, with a total amount of more than 1 million baht a year. The scholarships are classified as work scholarships, good study performance scholarships, the highest score of the entrance exam scholarships, and academic honor scholarships.

In combination with the support of annual scholarship funds offered by private companies and state enterprises, the Faculty of Engineering grants a total of 540 continuous and annual scholarships in each academic year, ranging from 5,000 to 40,000 Baht a year, totaling approximately 3 million baht each year.

## OVERSEAS TRAINING SCHOLARSHIPS

In addition to arranging practical training in industry for our students, the Faculty of Engineering allocates a portion of its budget each year for students to participate in overseas training programs in all fields, in order to enhance their knowledge and gain experience abroad.



## STUDY PLAN

Graduates are required to complete 141-150 credit hours, specified in the curriculum of each major in the Bachelor's Degree program, and pass a 240-hour practical training program. Each course is accredited by the Council of Engineers. Furthermore, cooperative education programs are offered to interested students.

### Academic Calendar

■ <b>First Semester</b>	»	August - December
■ <b>Second Semester</b>	»	January - May
■ <b>Summer Session</b>	»	June - July

Each regular semester consists of 15 weeks. A 6-week summer study period is offered by the Faculty in order to provide the opportunity for students to take additional courses. The study period in the summer is equivalent to the regular semester.





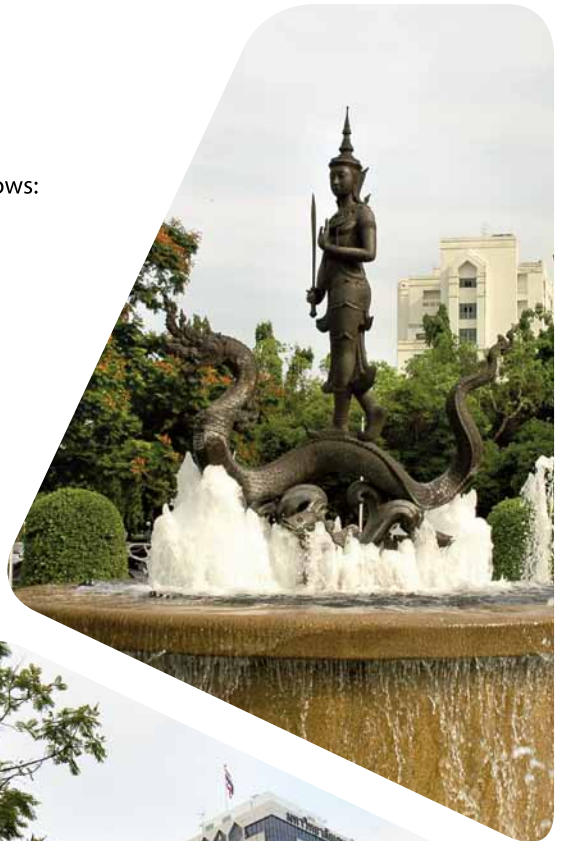
## TUITION\*

The tuition fee for Bachelor's Degree students in each program is as follows:

- Regular (Thai) Program: 16,000 Baht per semester, or the approximate total of 128,000 Baht for the entire 4-year duration.
- Special (Thai) Program: 36,700 Baht per semester, or the approximate total of 294,000 Baht for four years.
- International Undergraduate Program (IUP): 60,700 baht per semester, or the approximate total of 486,000 Baht for four years.
- International Double Degree program (IDDP): 3,200 Baht/credit and 25,300 Baht program fee/semester (at KU) and 26,928 AUD/year (at RMIT in Australia)

Note: For the graduate programs, students interested in further information about tuition and other expenses should contact the relevant department.

(\*) As of 2016 academic year





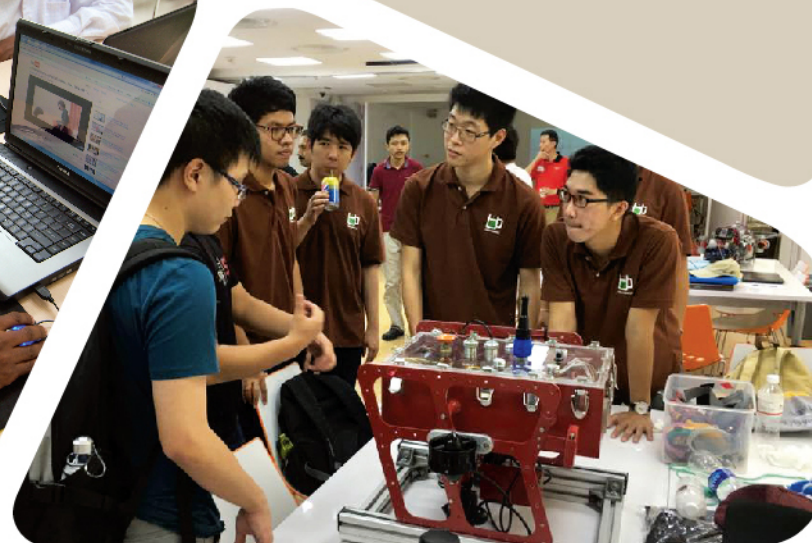
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