KMUTT'S VISION
Committed to the Search for Knowledge.
Determined to be at the Forefront of Technology and Research.
Maintaining the Development of Morally Correct and Proficient Graduates.
Endeavoring for Success and Honor in order to be the Pride of Our Community.
Striving to become a World-Class University.

HISTORY
King Mongkut's University of Technology Thonburi (KMUTT) can trace its origin to the Thonburi Technical Institute (TTI) which was established on February 4, 1960 by the Department of Vocational Education, Ministry of Education. TTI had as its objective the training of technicians, technical instructors and technologists. By the virtue of Technology Act, enacted on April 24, 1971, three technical institutes under the Department of Vocational, namely Thonburi Technical Institute (TTI), North Bangkok Technical Institute and Nonthaburi Telecommunication Institute were combined to form one degree-granting institution under the name of King Mongkut's Institute of Technology (KMIT) constituting three campus. TTI thus became KMIT Thonburi Campus. In 1974, KMIT was transferred from the Ministry of Education to the Ministry of University affairs.

The new Act was enacted on February, 19, 1986: the three campuses of KMIT became three autonomous institutions, each having the status of university. KMIT Thonburi Campus henceforth became King Mongkuts' Institute of Technology Thonburi (KMITT).

On March 7, 1998 as announced in the Royal Gazette, KMITT became King Mongkut's University of Technology Thonburi (KMUTT). KMUTT is the first among public universities in Thailand to receive full autonomy and its administrative system will now be patterned after international government owned university.

The primary objective of its creation was that it should serve as a training institution for technologists. It then offered programs in four fields of technology: Civil Technology, Electrical Power Technology, Mechanical Power Technology and Production Technology. Entering students must have finished Grade 12, science option. Since 1960, the University has expanded in enrollment, number of buildings, equipment, personnel and courses. It now offers academic programs in science, engineering and related areas up to doctoral levels. Research activities and technical services have also expanded rapidly.

The size of campus is 130 rai (52 acres) and is located in Bangmod Sub-District, Thungkru District, Bangkok 10140, Thailand.

Academic Information
APPLICATION
Applicants must hold a Bachelor degree in related field for Graduate Diploma program and Master program. For Doctoral program applicants must hold a Master degree or Bachelor degree (Honor) or other equivalent qualifications. For other qualifications please refer to application handbook of each year.

REQUIREMENTS FOR GRADUATION
Students are eligible for graduation when all requirements of specific curriculum chosen are satisfactory completed.

A. Ordinary degree
1. A student must have passed all courses of a curriculum
2. A student must earn a cumulative grade point average of 2.00 or better

B. Second Class Honors
A student must have passed all courses of a curriculum within the prescribed time for the curriculum and obtained a G.P.A. not less than 3.25

C. First Class Honors
1. A student must have passed all courses of a curriculum within the prescribed time for the curriculum.
2. A student must earn a cumulative grade point average of 3.50 or better. The students who earned the first class honors and second class honors not been received a grade of F, Fe, Fa or U for any subjects.

RESEARCH AT KMUTT

One of the visions of KMUTT is to “To Head towards Excellence in Research and Technology”. To realize this vision the university will engage in its research missions and use the research output to create new knowledge and innovations for the development of Thai society. With this research mission in creating new contributions, the created knowledge should have benefits in 3 aspects: benefit to academic research, benefit to society or the public, and benefit to the economy. The objective to create core capability and excellence in academic research will increase this nation’s capacity to compete in the global arena, changing Thailand into a knowledge society with sustained development, having a strong knowledge base as foundation. The university will focus on developing 7 following areas of research, each of which the university already has some expertise:

1. Energy, Environment and Clean Technology Area
2. Engineering Technology Area
3. Biotechnology, System Biology, Food Technology and Agro-based Technology Area
4. ICT and Applied Mathematics Area
5. Learning and Industrial Education Area
6. Humanities Area
7. Policy Studies Area

In addition to the above 7, the university has started the development of the following new interdisciplinary research areas:

1. Material Science and Engineering
2. Biological Science and Engineering
3. Earth Systems Science
4. Energy and Environment
5. Manufacturing and Automation
6. Indoor Air Quality

TECHNOLOGY TRANSFER AND TECHNICAL SERVICES

Activities pertaining to technology transfer and technical services of KMUTT became institutionalized in the third decade through creation of task-specific units such as Institute for Scientific and Technological Research and Services (ISTRS), Pilot Plant Development and Training Institute (PDTI) and Industrial Park Center (IPC). These units serve as an interface between KMUTT and the modern economic sector in facilitating transfer of technology and upgrading of technical manpower. The setting up of PDTI in 1990 would accelerate transfer of technology to Thai industry by using pilot plant as tools in training of technical personnel and in improvement/development of products and processes.

INSTITUTE FOR SCIENTIFIC & TECHNOLOGICAL RESEARCH & SERVICES (ISTRS)

ISTRS has been set up to lies between KMUTT and the private sector on technical consultant services. It establishes contact with industry, seeks out the need for services, set up consultant/research teams to handle projects and follow up on work progress and quality of work. Typical works of IST are

- Testing and certification of industrial products.
- Materials analyzes and testing.
- Feasibility study for project.
- Testing ad calibration of mechanical and electrical instrument.
- Design, fabrication and installation of specialization industrial machinery, process, equipment for educational institution industrial pilot plants.
- Productivity improvement in process and manufacturing industry.
- Coordinate and organize on training course, seminar and conference.

The center under the ISTRS:
1. Continuing Education Center (CEC)
2. Agroindustry and Biochemical Industry Research and Service Center (ABIRSC)
3. Research Promotion and Intellectual Property Center (RIPPC)
4. Maintenance Technology Center (MTC)
5. Center for Industrial Productivity Development (CIPD)
6. Traffic and Transport Development and Research Center (TDRC)
7. Thermal Engineering Center (TEC)
8. Building Scientific Research Center (BSRC)
9. Policy Innovation Center (PI)
10. System Innovation Center (SI)
11. University Technology Office for SMEs (UTO)
12. Center for Logistics Excellence (LOGEX)

Pilot Plant Development and Training Institute (PDTI)

Pilot Plants, small-scale plants whose sizes are intermediate between that of the laboratory and full-scale production plants, are normally used to obtain scale up data required for actual plants (design, construction and operation). They are also employed to evaluate and select commercial equipment, instrument and materials for construction of actual plants, to identify potential operation problems, to produce products for market evaluation and to conduct research and development. The development objective of PDTI is to develop within Thailand, the scientific and technological capability to develop, design and build pilot plants for relevant and timely industries with initial emphasis on food and agro-based industries, to be followed by engineering industries.

INDUSTRIAL PARK CENTER (IPC)

The KMUTT Industrial Park will be a prime example for the effective management of research and development. The Park will provide the appropriate mechanisms and suitable environment to bring together researchers, industrialists and entrepreneurs from both out of the laboratories and directly into the production process. The Park will also help to promote and develop science and technology throughout Thailand and assist industry in making the correct investment and technology decisions.

CONTINUING EDUCATION CENTER (CEC)

CEC coordinates KMUTT activities on upgrading technical manpower as required by industry through organization of training courses, seminars and conferences. It also assists operation of industrial training units on industrial technology and management, specifically set up by private companies within KMUTT premises for industrial personnel. CEC is in the process of developing data bases on manpower development requirements of selected industries.

FACILITIES AT KMUTT

COMPUTER CENTER

More than 150 PCs connected to the Internet at the bandwidth of 45 Mbps are available for service at the Computer Center. In addition, the Computer Center allows access to the Internet from users' homes through its 300 circuits of the ISDN and 1222 System at the bandwidth of 4 Mbps. Furthermore, Wireless LAN is available through Network, which provides access to the Internet throughout the university. Finally, the Computer Center provides other services to the students, such as consulting on how to use PCs, Mail, applying to university programs or curricula through WEB, and the broadcast system to view exam results.

THE KMUTT LIBRARY

The mission of the KMUTT Library is to provide access to information resources to KMUTT students, faculty, and staff in support of the research and instructional mission of the university. The Library develops, organizes, and preserves collections for optimal use and provides links to remote information sources. The Library provides services, including instruction for information literacy and information management, to enable its users to fulfill their academic and intellectual needs.

The Library provides access to scholarly materials, databases of journal article abstracts and citations, electronic journals, and reference databases for the community. The Library also builds special
collections in special subjects, for example, Membrane technology, Biogas, and Powder Technology, etc. In addition, the followings are available for searching through the Internet under the library website by choosing “e-KMUTT Initiative”:
- e-Learning
- e-Magazine
- Digital Library
- Knowledge Portal
- LMS (Learning Management System)

ACADEMIC PROGRAMS
The following academic programs are now offered in the university.
1. School of Architecture and Design
2. School of Bioresources and Technology*
3. Faculty of Engineering*
4. School of Energy and Materials*
5. Faculty of Industrial Education and Technology
6. School of Information Technology
7. Faculty of Science

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Main academic programs related to waste management and renewable energy.

The following section devotes to the detailed description and concepts of the three programs.
A. School of Bioresources and Biotechnology

The School of Bioresources and Technology was established at KMUTT in 1993 with the aim of developing interdisciplinary curriculum that would produce personnel capable of solving the problem arising from the change in the economic structure of Thailand from an agricultural to an industrial base. Natural resources need to be carefully exploited. With knowledge and experience, agricultural products can be converted from low to high value, freshness can be prolonged till reaching the end user, and agricultural soundness and productivity can be increased. This will help lead to a more sustainable development of the country. At present, the School offers a doctoral programme in biotechnology and master degree programmes in biotechnology and biochemical technology, postharvest technology, Natural Resource management, and biochemical technology.

The graduate programme in Biotechnology is multidisciplinary courses providing necessary background for students and advanced courses in bioprocesses especially in fermentation technology. Realizing that genetic engineering and molecular biology is one of the principal technology among the various biotechnologies, the subject is also included in the programme. To meet the increasing demand of qualified personnel in the fast-growing economics of the country, the division started the Ph.D programme in 1991.

Courses taken related to waste management and renewable energy are:

1. Treatment and utilization of biological wastes
2. Energy system design
3. Bio-energy conversion
4. Wastewater Treatment
5. Advanced wastewater treatment
6. Hazardous material and safe disposal of hazardous waste
7. Treatment and utilization of solid wastes
B. Faculty of Engineering

B1. Environmental Engineering Program

Department of Environmental Engineering was established in 1996. Our mission is to produce the well-educated engineers for solving, managing and controlling all types of environmental problems. At a present time, Department of Environmental Engineering offers three programs including Bachelor, Master and Doctoral degree.

Our research includes:
(a) Water supply
(b) Wastewater treatment
(c) Solid waste handling and management
(d) Hazardous waste technology and management
(e) Air pollution control
(f) Environmental impact and risk assessment and
(g) Environmental management such as pollution prevention, clean technology, etc.

Philosophy of Master Degree Program

Department of Environmental Engineering offers two plans for Master Degree in Environmental Engineering. The first plan is established with an objective to produce an well educated engineer in environmental engineering design. The curriculum is developed to include water and wastewater treatment technology, landfill design, incineration process and design, hazardous waste treatment technology and so on. The objective of the second plan is to produce a knowledgeable engineer in environmental management. In this field, participants will learn the management discipline such as environmental management, risk assessment, pollution prevention, laws and regulations, hazardous waste management and so on. Both plans are two-year program. For the second plan, class schedule is set on weekend.

Philosophy of Doctor of Philosophy Degree Program

Thailand is currently facing with many environmental problems including water, air, and soil pollutions. Among these problems, some contain specific characteristics which required intensive and advanced researches before the effective solutions can be established. The researchers who have expertise in the related areas are, however, insufficient which result in a delay or ignorance of many urgent and serious environmental problems. Department of Environmental Engineering established the Doctor of Philosophy Degree Program to overcome this problem. The primary aim of this program is to produce the doctoral personnel with highly skill in advanced research and technology development in order to fulfill the needs of the country.

Courses taken related to waste management and renewable energy are:
1. Advanced Water and Wastewater Treatment Technologies
2. Technologies of hazardous Waste Management
3. Landfill Design, Operation, and Maintenance
4. Incineration Process and Design
5. Environmental Law and Organization
6. Environmental Socio-economics
7. Environmental Management

B2. Chemical Engineering Program

The Department of Chemical Engineering at KMUTT was established in 1974. From the original 5-year curriculum with around 200 credits, the programme is now run in 4 years with 150 credits. Apart from the regular 4-year undergraduate programme, the 2-year Master Degree programme (M.Eng.) in Chemical Engineering was commenced in 1982. This programme has strengthened our research activities to a large extent even at the present time. The department's research interests cover in several areas. We now have 7 research groups which are involved in the major interests of the present chemical engineering technologies. Our research programme, however, has been further improved since the launching of the Ph.D. programme in Chemical Engineering in 1991. This programme is closely cooperated with some wellestablished overseas universities such as the University of Queensland in Australia, and the University of Waterloo in Canada.
In 1997, the department has set out a new school to offer a Master Degree in Chemical Engineering Practice. This school was called the "Chemical Engineering Practice School" (ChEPS). The funding of the school activities is mainly from the National Energy Policy Office (NEPO). Due to its unique curriculum which is focused on solving real industrial problems and working in the real industrial site, the programme is now very popular and can draw lots of attentions not only from the chemical engineering students, but also the industries who need to improve their plant performance.

The department is also fully equipped with all kinds of teaching and research facilities, such as multimedia lecture rooms, modern research laboratories with various kinds of analytical equipments (e.g. HPLC, SEM etc.), a workshop for pilot plant testing, and a computer room with several types of engineering softwares (e.g. process simulation (ASPEN PLUS and HYSYS), and Mathematical Analysis softwares (MATLAB), etc.).

Courses taken related to waste management and renewable energy are:
1. Waste Treatment
2. Thermal Power system
4. Environment & Energy

B3. Food Engineering Program

The Department of Food Engineering was founded in 1990. The establishment of the Department originated from the fact that KMUTT is responsible for the technical management of the Royal Project food processing plants located in the rural areas. The plants were first initiated by HM the King to assist the poor rural groups by purchasing their agricultural produce at the guaranteed prices. The royal food plants then transform the produce into processed food or value added products. Having had long experience in providing technical assistance and management to the Royal Project food plants, KMUTT experienced at first hand the disadvantages caused by a lack of qualified food engineers to directly work in the food industry. The food engineering program was therefore set up to serve the rising demand for qualified engineers for the fast growing food industry in Thailand. At present the Department of Food Engineering offers three graduate programs, Graduate Diploma, Master Degree and Doctorate Degree.

The Practice School Program for Master’s Degree in Food Engineering is currently being designed. This program will encourage mutual interest in research development activities between academic institutions and the food industry in Thailand. Food Engineering is a multidisciplinary Department which offers a degree to graduates with either engineering or food science and technology background. The program provides important food science and technology knowledge for engineering students and necessary relevant engineering knowledge for food science and technology students to enable them to successfully work in the food industry. These personnel will be important resource persons for developing the Thai food sector in the future.

Each student is required to study a food engineering problem in a selected food factory for a period of 8 weeks during summer session of the first year. The idea is to train the students to apply their knowledge to solve problems in a real situation before pursuing their research work.

Courses taken related to waste management and renewable energy are:
1. Energy system design
2. Food Process Design
School of Energy and Materials

C1. Environmental Technology Program

Rapid economic development without proper management of natural resources has resulted in adverse impacts and deterioration of the environment both in micro and macro scales. These problems need to be solved as soon as possible using proper knowledge. The School of Energy and Materials offers two graduate programmes in the field of environmental technology, leading to a graduate diploma and a master degree. The objective of these programmes is to produce well-qualified graduates in the field of environmental technology and management of air, water and land resources.

Both programmes require students with either science or engineering background. A master student requires at least 43 credits, comprising compulsory and optional courses in environmental technology and management science, along with a 6-credit science or 12-credit engineering thesis. For a postgraduate diploma student, 25 credits, with a 3-credit special study, is a minimum requirement. A graduate with satisfactory academic record from the diploma programme also has an opportunity to continue in the master programme.

A wide range of environmental topics are offered to the students, such as air and water pollution control technologies, solid and hazardous waste treatment, environmental quality management, environmental impact study, particularly those from energy system. Several elective courses are also available to fit individual interests. As environmental issue concerns multi-disciplinary knowledge, the study programmes are, however, intended to be flexible, subject to resources and students’ interest and qualification. Attempt will be made to accommodate individual needs.

Research topics have currently been conducted include emission from internal and external combustion of fossil fuel, control measures for hazardous flue gasses and particulates using technologies such as furnace and boiler technology, flue gas adsorption using adsorbents such as decolorization and wetland application, solidification and bioremediation of hazardous wastes, as well as environmental impact from power generating projects, and the improvement of water quality, etc.

Courses taken related to waste management and renewable energy are:
1. Environment and Energy
2. Wastewater Treatment
3. Treatment and Utilization of Solid Wastes
4. Waste Heat Treatment & Recovery
5. Waste Minimization and Clean Technology

C2. Energy Technology Program

The programme was first established in the School of Energy and Materials, King Mongkut's University of Technology Thonburi in 1977 just after the energy crisis in 1973. At the beginning phase, the two-year programmes of Master of Engineering and Master of Science were offered. Later on in 1984, a one-year Graduate Diploma Programme was offered. And the Programmes of Doctor of Philosophy was offered in 1998.

The contents of the programmes cover the efficient productions and uses of the conventional sources of energy and technologies of alternate sources of energy. Before completing the programmes, the student will be required to undertake research and development projects on energy technologies under supervision of senior faculties.

At present the Energy Technology Programme covers the following areas of specialization:
1. Alternate Sources of Energy
2. Electricity Generation Technology
3. Drying Technology
4. Buildings
5. Energy and Environment
6. Technology of Materials for Energy Utilization
7. Fundamental Research Studies

Courses taken related to waste management and renewable energy are:
1. Thermal Energy Analysis
2. Nuclear Energy Technology
3. Bio-Energy Conversion
4. Solar Cells and Applications
5. Energy Policy and Planning
C3. Energy Management Technology Program

The Division of Energy Management Technology was established in 1988 with a primary objective to provide graduate study and research training in the areas relating to energy management. The courses offered constitute a number of core and elective subjects including research study and thesis. Since its formation, the courses were updated periodically with new materials and subjects to make the programs consistent with the requirements of the rapidly changing world. Graduates of the courses can be found working in energy consulting firms, energy-related government departments, universities, etc. The Division currently offers 3 programs, namely, post-graduate diploma, master degree and doctoral degree. All accept students from both science and engineering backgrounds. The postgraduate diploma program consists of 25 credits, which can be completed in one year on a full-time basis.

The master degree program offers 2 options for students to choose from, i.e: (1) thesis option for students wishing to take a thoroughly indepth research study on a certain topic which normally involves design and analysis, and (2) a non-thesis option, for working professionals and recent university graduates who seek to further their knowledge and experience in energy management technologies. Master degree candidate is required to complete 28 credits coursework and 12 credits thesis for the thesis-option, and complete 34 credits coursework with 6 credits research study or 37 credits coursework with 3 credits special study, for the non-thesis option. The doctoral degree program including Ph. D, are offered to students with very good master degree in science or engineering. The program consists of 55 credits (42 credits thesis and 13 credits coursework). Publication of the research results is required before graduation.

Current research topics embrace a wide range of areas which include energy utilization from agricultural waste, potential for absorption chiller and micro gasturbine in industries and buildings, energy analysis and conservation in industries and buildings, load management, energy and environment optimization in combined cycle power plant, etc.

Courses taken related to waste management and renewable energy are:

1. Energy Conservation for Industries
2. Renewable Energy
3. Energy Policy and Planning
4. Thermal Power Plants Technology