



ANNUAL REPORT 2006

FKKKS@UTM

Faculty of Chemical & Natural Resources Engineering | Universiti Teknologi Malaysia

ENGINEERING THE RESOURCES



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ANNUAL REPORT 2006

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Engineering the Resources

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Universiti Teknologi Malaysia

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Message from the Dean

UTM, particularly the Faculty of Chemical and Natural Resources Engineering (FKKKSA@UTM) has a distinctive mission and history that set us apart from other universities in Malaysia and this region. When FKKKSA@UTM was established about 25 years ago, technological and scientific development had significant impact on our curriculum. Our pioneers envisioned a new kind of academic institution specializing in chemical and petroleum engineering with strong collaborations with industries.

The faculty's vision to be a world class centre of academic and research excellence has served us with relevant framework to excel in teaching and research. The progress of FKKKSA@UTM extends far beyond campus and academic fraternity. Our graduates are well accepted by major local corporations and global employers. It is imperative to note that our strategic partners in academia and industry are well established international players. By end of 2006, FKKKSA@UTM have produced more than 10,000 alumni around the globe, some of whom are working for top universities and corporations.

Our major tasks and challenges now, in order to stay relevant and always ahead, are adjusting our academic programs, research focus and innovations to the global trend which is increasingly dependent on a new energy policy due to global warming, where issues such as renewable energy, green chemistry and environment-friendly products are dominating the market. Those trends require a paradigm shift in focus for our teaching and research. With our expertise in interdisciplinary approach of chemical and petroleum engineering, we are moving fast to capture the opportunity to make a critical difference

through innovations, giving impact to the present petroleum-based economy, and educating the leaders of tomorrow.

We are also continuously re-evaluating our academic programs to equip our students for globalization and k-economy. Our students can expect to work in an increasingly interconnected, global economy. To succeed in this environment, they must have strong engineering fundamentals as well as mastering various types of soft skills.



**The Dean's Room**

N01-103

Faculty of Chemical and Natural Resources Engineering

Universiti Teknologi Malaysia

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Fax: 607- 558 14 63

E-mail: dean@fkkksa.utm.my

We are committed to innovation in research and development. We encourage our students, researchers and faculty to go beyond their limitations while working to provide them with the resources that will allow them to achieve significant success.

In general, the year 2006 was very successful for us and I invite you to learn more about our programs and accomplishments in this annual report.

Prof. Ir. Dr. Zaini Ujang DNS, PPT

B. Eng. (Chemical), M.Sc., Ph.D., CEng (UK), CSci (UK), PEng. (M), MCIWEM (UK), MIWA (UK), MIEM, EPRM, MICHem, MMIM

Board of Executives



Standing from the left: Fadzilah Adibah Abdul Majid, Hanizam Sulaiman, Issham Ismail, Arshad Ahmad, Adnan Rip
Sitting from the left: Siti Nur Azimah Hassan Basri, Azeman Mustafa, Kamarul 'Asri Ibrahim, Zaini Ujang, Mohamad

Zaini Ujang, Ir. Dr.

Dean

Professor of Environmental Bioengineering
<http://www.fkkksa.utm.my/staff/zaini/>

Arshad Ahmad, Dr.

Deputy Dean for Research and Graduate Studies

Professor of Simulation and Process Control
<http://www.fkkksa.utm.my/staff/arshad/>

Kamarul 'Asri Ibrahim, Dr.

Deputy Dean for Academic

Professor of Chemical Engineering
<http://www.fkkksa.utm.my/staff/kamarul/>

Issham Ismail

Head of Petroleum Engineering Department

Associate Professor of Petroleum Engineering
<http://www.fkkksa.utm.my/staff/issam/>

Khairiyah Mohd. Yusof, Dr.

Head of Chemical Engineering Department

Associate Professor of Chemical Engineering & Education Engineering
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Azeman Mustafa, Dr.

Head of Gas Engineering Department

Associate Professor of Combustion Engineering
<http://www.fkkksa.utm.my/staff/azeman/>



in, Safriza Sabjah.
Wijayanuddin Ali, Azman Hassan, Khairiyah Mohd. Yusof.

Azman Hassan, Dr.

Head of Polymer Engineering Department
Associate Professor of Polymer Technology
<http://www.fkkksa.utm.my/staff/azmanh/>

Fadzilah Adibah Abdul Majid, Dr.

Head of Bioprocess Engineering Department
Associate Professor of Tissue Engineering
<http://www.fkkksa.utm.my/staff/adibah/>

Mohamad Wijayanuddin Ali, Dr.

Head of Graduate Studies Department
Associate Processor of Process Safety and Loss Prevention
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Adnan Ripin

Head of External Program
Associate Professor of Phase Separation Processes
<http://www.fkkksa.utm.my/staff/adnan/>

Hanizam Sulaiman

Manager of Information System
Associate Professor of Plastics Recycling
<http://www.fkkksa.utm.my/staff/hanizam/>

Siti Nur Azimah Hassan Basri

Deputy Registrar

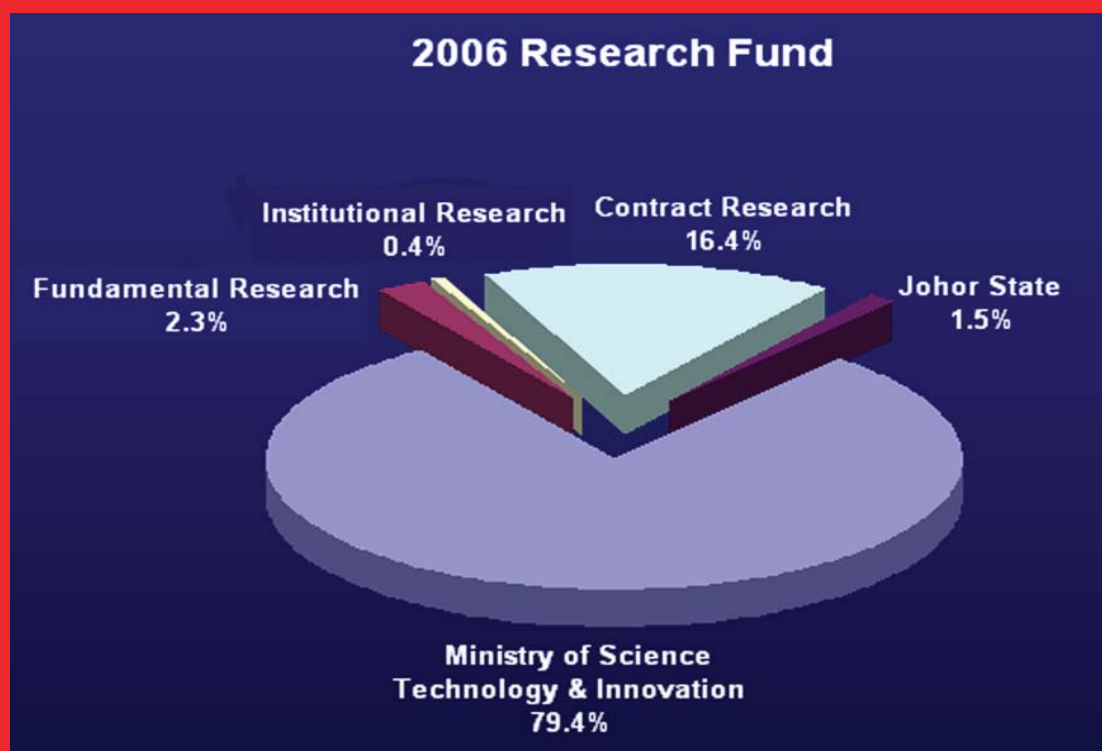
Safriza Sabjah

Assistant Registrar

By the Numbers

RESEARCH FUNDING

The Faculty of Chemical and Natural Resources Engineering has reached its goal with fervor. The RM33.5 million in research funding indicated that research environment in our faculty has flourished and improved to new heights. The amount of research grants is a testimony to the strength of our program, faculty and students in conducting various research projects in diversified areas.



ENROLLMENT AND DEGREES GRANTED

	2006 Enrollment			2006 Degrees Granted		
	B.Eng	M.Eng	PhD	B.Eng	M.Eng	PhD
Chemical Engineering	527	40	10	177	23	4
Petroleum Engineering	239	4	3	37	-	1
Gas Engineering	177	15	6	45	1	1
Polymer Engineering	207	8	2	46	5	1
Bioprocess Engineering	242	30	8	44	9	-
Environmental Engineering	-	16	-	-	3	-
Plant Processing Management	-	45	-	-	6	-
TOTAL	1392	158	29	349	47	7



During the 36th. and 37th. Universiti Teknologi Malaysia Convocation, 56% of the FKKKSA undergraduate students graduated with CGPA above 3.00. The students that received awards are as follows:

ROYAL EDUCATION AWARD

Shamina binti Abdul Aleem - B.Eng. (Chemical)

CHANCELLOR AWARD

Leyu Hui Wen - B.Eng. (Chemical-Polymer)

VICE CHANCELLOR AWARD

Low Kok Wee - B.Eng. (Petroleum)

BEST ACADEMIC AWARD

- Shamina binti Abdul Aleem - B.Eng. (Chemical)
- Low Kok Wee - B.Eng. (Petroleum)
- Nor Farida binti Harun - B.Eng. (Chemical)
- Koay Yee Farn - B.Eng. (Polymer)
- Lee Tin Sin - B.Eng. (Polymer)

Shamina Abdul Aleem also received the Tunku Abdul Rahman Award presented by the Minister of Higher Learning of Malaysia. That award was given to selected students from each university. They are selected based on their academic achievements as well as their extra curricular activities.

2006 Quick Facts

- Dean: Professor Ir. Dr. Zaini Ujang
- Faculty Member: 13 Professors, 34 Associate Professors, 12 Senior Lecturers, 59 Lecturers, 11 Tutors
- Administrative & Supporting Staff: 71
- Students:
 - Enrollment: B.Eng. (1392), M.Eng. (158), Ph.D (29)
 - Graduated: Bachelor (349; 56% CGPA > 3.0), Masters (47), Ph.D (7)
- Research:
 - Total Fund: RM33.5 million
 - Total Number of Research: 87
- Awards:
 - International: 3
 - National: 6
- Publications:
 - International Journals: 65
 - National Journal: 30
 - International Proceedings: 58
 - National Proceedings: 38
 - Number of Citation: 228





Professor Dr. Nor Aishah Saidina Amin receiving an E-Science Grant from the Prime Minister of Malaysia at the launching ceremony of INNOBIO Sept 2006

Research & Development

UTM fosters a culture of collaboration across disciplines and encourages research over a multitude of boundaries. In line with this policy, research in the Faculty of Chemical and Natural Resources Engineering (FKKKSA) has become almost borderless due to the breadth covered by our technical backgrounds and the fact that much of research activities ventured by the dedicated and well experienced researchers converge with those of many other fields. In FKKS, research activities stretch along both macroscopic and microscopic frontiers of scale.

Looking towards molecular scale, various aspects of genetic engineering, bioinformatics and nanotechnology are being investigated. Examining molecular transport in living tissue, predicting the effects of molecular structure on material behavior and properties, formulating cures for diseases as well as food supplements and healthcare products are among the research activities being carried out by our biotechnology researchers in their efforts to facilitate human life.

At the other end, systems engineering researchers look at the various aspects of process plant design and operations from both technical and economic perspectives. Issues that hamper the profitability of process plant operations are addressed through research collaborations with local industries focusing on critical issues such as process control, optimization, safety and plant design. In the search for better processing systems and strategies, both theoretical and empirical approaches are exploited. The use of statistics and artificial intelligence have facilitated the development of advanced control strategies as well as fault detection and diagnosis schemes that are required by modern process plants.





In between the two sides, varieties of innovations and inventions have emerged from various research activities offered by research groups in the faculty. Research in catalysis, separation technology, material science and environmental engineering continue to flourish. New inventions by some leading researchers have put the faculty in the limelight by winning numerous awards in product exhibitions at national and international levels.

The call for higher plant efficiency has also motivated developments of more intensified processes. By combining multiple processing approaches such as microwaves and heat transfer, electrochemistry and molecular separation, ultrasonic waves and magnetism, traditional process units are intensified to generate new processes that are not only compact but also efficient from both functional as well as operational perspectives.

Among others, energy is one of the most important factors having serious impact on global economy. FKKSJA enjoys the benefit of having experienced researchers in the field of petroleum engineering, which has put UTM as a leader in petroleum engineering research as well as manpower training. Ranging from rock mechanics to reservoir simulations and drilling technology, FKKSJA contributes to knowledge development to support the oil and gas industry. This is further enhanced by the development of techniques and tools for the management of natural gas processing, distribution and utilization by our gas engineering researchers. However, the emphasis on oil and gas does not stop the development of renewable and alternative energy sources.

Since the last decade, the faculty has been the largest contributor to UTM's research funding obtained from both the government as well as the industries. Last year, we have accumulated more than RM33.5 million in grants for 87 different research projects.



Chemical Engineering Pilot Plant (CEPP)

...biotechnology for wellness...



Chemical Engineering Pilot Plant (CEPP) is a multi-purpose Research and Business Development (R&BD) facility located at UTM Skudai Campus, Johor Darul Takzim. The center was established to spearhead the development of new innovative specialty chemical products and processes equipped with a range of semi-industrial scale processing equipment and supporting laboratory facilities. It assists in the development of high value components and innovative processing technology for industries such as nutraceuticals, herbal, phytochemicals, flavour and fragrance, biopesticides, biofertilizers, food ingredients and probiotics. CEPP offers a wide range of laboratory and pilot scale research capabilities from gram to kilogram quantities.

LIFE LONG LEARNING PROGRAM

CEPP offers short course programs for the herbal, biotechnology, holistic therapy, process technology, oil and gas, chemical and oleochemical industries. We offer innovative programs to the industry for the purpose of upgrading skills and knowledge. The programs are offered either as open or in-house schemes through advertisements in local and international newspaper and website. CEPP is also collaborating with various government agencies and companies such as MARA, Ministry of Rural Development (KKLW), Malaysia Herbal Corporation (MHC), Ministry of Agriculture and Primary Industries, FAMA, Petronas, BASF and many more for in-house programs.

Life long learning programs organized by CEPP also

attract many participants from overseas such as Qatar LNG, Emerson (Singapore), Saudi Arabia Basic Industries Corporation (SABIC), Kuwait Institute of Chemical Research, Almarai (Saudi Arabia), Khartoum Refinery (Sudan), Loadstar (PUT) Limited (Sri Lanka) and Thai Petrochemicals.

CEPP is also organizing the Biotechnology Graduate Entrepreneurship Program for the entire 9th. Malaysian Plan where 20 biotechnology graduates from various universities will be selected every year into this program. The main objective of this program is to develop entrepreneurs with good qualification and the ability to manufacture products to be marketed for local and international market. This program is funded through special allocation given by the Prime Minister of Malaysia.



Business Centre:
CEPP Wellness Centre,
Alumni House, 81310 UTM Skudai,
Johor Darul Takzim.
Tel : 07-5531611

“CEPP was purposely designed to be a meeting point of academic research and practical requirements of the industries. It creates a symbiotic environments from which both parties will benefit from each other's strength to develop high value products from local natural resources

It is also a place to develop human capital that can face the ever changing demands of the process industry



Director
Prof. Ramlan Abd. Aziz

Main Office:

Chemical Engineering Pilot Plant,
Faculty of Chemical and Natural Resources
Engineering,
Universiti Teknologi Malaysia,
81310 UTM Skudai,
Johor Darul Takzim.
Tel : 07-5531559
Fax : 07-5569706
<http://www.cepp.utm.my>



Some of the products from CEPP R&D that have been commercialized.



... your specialty chemical partner ...

KL Branch:

Chemical Engineering Pilot Plant,
Rumah Semarak,
UTM City Campus, Jalan Semarak,
54100 Kuala Lumpur.
Tel : 03-26154358
Fax : 03-26937921



Membrane Research Unit (MRU)

Membrane technology is one of the most recent and advanced technologies developed for separation processes such as gas separation, water desalination, water and wastewater treatment, drinking water production, food and beverage processes, medical industries and filtration processes.

MEMBRANE RESEARCH UNIT (MRU) was established in 1998 in the Faculty of Chemical and Natural Resources Engineering. Prof. Dr. Ahmad Fauzi Ismail, who is the director of this centre of excellence has contributed a great deal to the development of MRU. In addition, this centre has attracted a number of industries to utilize their expertise and further exploit the findings for commercial production.

In the process of developing membrane technology as one of the viable indigenous technologies in Malaysia, Membrane Research Unit, UTM has outlined a pragmatic research activity to achieve the goal. The research activities have been systematically categorized as i) Membrane Manufacturing ii) Membrane Process Modeling, Design and Simulation

and iii) Membrane Applications.

Membrane is defined as a thin skin layer formed from various materials such as polymer, metal or ceramic. Normally membrane is designed based on its different applications. Based on the membrane structure and size, membrane allows selective permeation of one component through the membrane and retains other components in a mixture of solution. The ability to separate one component from others in mixture solution is called selectivity. The development of the membrane technology is crucially important in Malaysia because of the advantages offered by it.

MRU Highlights

Jan 2006 MRU was appointed to perform survey on water treatment plant in the districts of Kluang and Batu Pahat under BAKAJ, Johor. This survey was used by the state government to plan and organise water supply for the public in Johor.

6 June 2006 The 2nd National Carbon Fiber Conference 2006, AMREC, UKM, UTP, UPM and UTM was organized by the MRU at City Bayview Hotel, Langkawi, Kedah. The latest research findings related to Carbon Technology and its development were evaluated by representatives from MOSTI and the industries.

5 Nov 2006-5 Feb. 2007 Prof. Dr. Ahmad Fauzi Ismail was chosen for the British Chevening Royal Society Fellowship Program at the Imperial College of London. The objective of this program is to develop more collaboration with other research institutions of higher learning.

4 Dec 2006 MRU was actively involved in research under the 9th. Malaysian Plan whereby MRU was successful in getting funding for 4 projects through the E-Science fund.

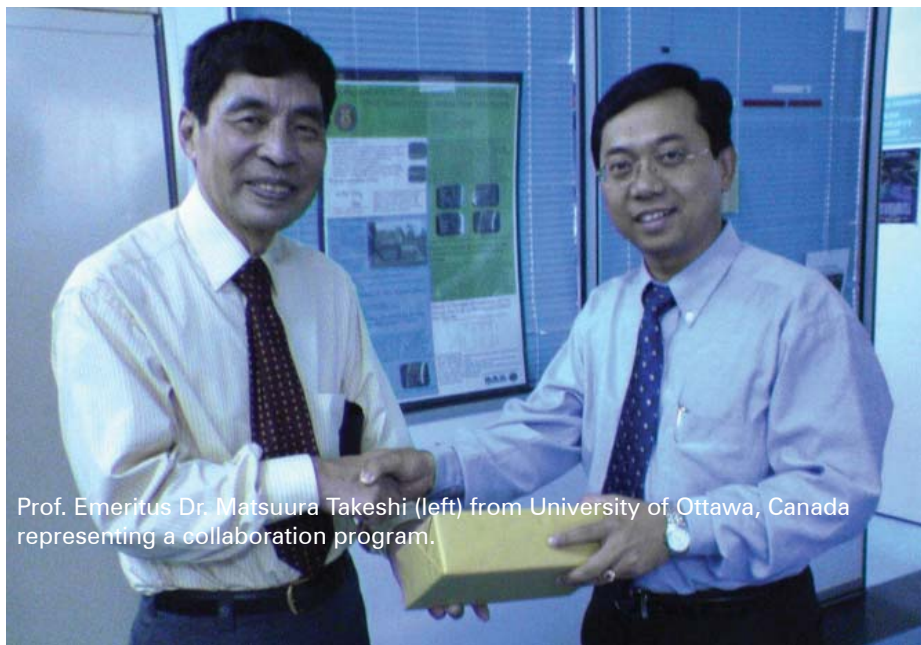


VIP visit during Quality Day Exhibition



2nd National Carbon Fiber Conference 2006

The City Bayview Hotel, Langkawi, 6th-9th Jun 2006



Prof. Emeritus Dr. Matsuura Takeshi (left) from University of Ottawa, Canada representing a collaboration program.

Gas Technology Centre (GASTEG)

Gas Technology Centre (GASTEG) is a centre of excellence under the Faculty of Chemical and Natural Resources Engineering, Universiti Teknologi Malaysia. Being a knowledge-based centre, knowledge and experience are the keywords to GASTEG.

GASTEG is driven to promote the dissemination of knowledge and experience for the betterment of the Malaysian gas industry, in line with its vision to become a regional hub of reference for gas related industries.

<http://web.utm.my/gasteg>

Director of GASTEG, Assoc. Prof. Dr. Rahmat Mohsin (right) and his deputy, Mr. Zulkifli Majid (two from left) at the Seminar on Gas Safety for Educational Sector

GASTEG is attached to the Faculty of Chemical and Natural Resources Engineering which is located at Universiti Teknologi Malaysia Skudai, Johor.

In Malaysia, the number of institutions which focuses in training, research and services to support the gas industry is limited. The GASTEG was established with this objective in mind. GASTEG intends to become the coordination centre for activity undertaken by local and international gas industries. According to its Director, Assoc. Prof. Dr. Rahmat Mohsin, GASTEG is driven in line with its vision of promoting the dissemination of knowledge and experience for the betterment of the Malaysian gas industry.



HIGHLIGHT OF GASTEG ACTIVITIES

WORKSHOP ON BUSINESS PLANNING & MARKETING STRATEGY

This workshop was successfully organised on 12 & 13 July 2006 at Pulau Spring Resort for GASTEG staff. The main purpose of having this workshop is to improve the development of the organization and to identify a good marketing strategy.

PROJECT FOLLOW-UP STUDY : INCIDENT INVESTIGATION ON GAS PIPELINE LEAKAGES FOR GAS MALAYSIA SDN. BHD.

Field testing for Project Follow-Up Study: Incident Investigation on Gas Pipeline Leakages was conducted smoothly. This site project is located at block N06A, FKKKSA. This project was undertaken by Mr. Abu Samah Nasir, Mr. Mohd. Redhuan Ramlee, Mr. Mohammad Faizal Ali Othman and two postgraduate students, Fadhli Omar dan Mohd Firdaus Mohd Lazim.

LAUNCHING OF PROJECT FOLLOW-UP STUDY: INCIDENT INVESTIGATION ON GAS PIPELINE LEAKAGES FOR GAS MALAYSIA SDN. BHD.

GASTEG was appointed by Gas Malaysia Sdn. Bhd. to study on the water jet input to gas pipeline coating. The launching of this Follow-Up Study: Incident Investigation on Gas Pipeline Leakages was on 13 June 2006. Operations & Maintenance Manager Mr. Mohd. Pozi Jusoh and Senior Engineer Mr. Masyuri Tumiran representing Gas Malaysia Sdn. Bhd. Team members were given a short briefing on the progress of this project.

COLLECTING SAMPLES AT PRAI, PENANG

On 5 & 6 July 2006, a team lead by Assoc. Prof. Dr. Radzuan Junin and assisted by Mr. Abu Samah Nasir, Mr. Mohd. Redhuan Ramlee and Mr. Zulkifli Abdul Wahid was appointed to collect samples for this Follow-Up Study : Incident Investigation on Gas Pipeline Leakages at Gas Malaysia Sdn. Bhd., Prai, Penang. Co-operation on behalf of Gas Malaysia Sdn. Bhd. was much appreciated.

GAS SAFETY SEMINAR FOR EDUCATIONAL SECTOR ORGANISED BY TENAGA COMMISSION

Gas Safety Seminar for Educational Sector was organised by Tenaga Commission on 12th. September 2006. Gas Technology Centre (GASTEG) presented a study on Design and Handling of LPG System. The objective of the seminar was to provide a platform to share knowledge and experience on LPG in the Educational Sector.





LABORATORY SERVICES UNIT (UNIPEM)

Address: Aras 2, Blok N07, FKKKSA, UTM Skudai

Tel: 607-5535461 Fax: 607-5581463

Email: unipem2u@fkkksa.utm.my

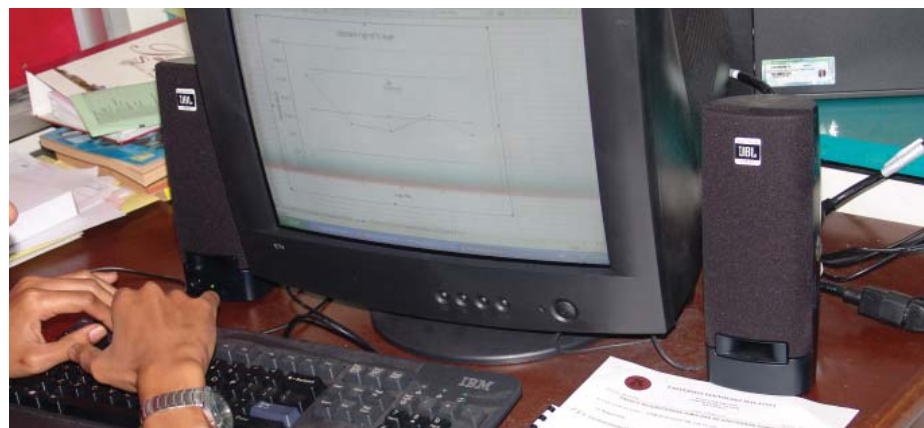
UNIPEM also known as Laboratory Services Unit is actively involved in analysing and testing of physical and chemical properties of petroleum, petroleum-related products, polymer materials and others. In 1997, UNIPEM was accredited the ISO/IEC 17025 under Malaysian Accreditation Laboratory Scheme (SAMP) by the Department of Standards Malaysia. Since then, UNIPEM has been operating in accordance of SAMP requirements in providing and maintaining quality laboratory services to the clients. The current accreditation certification will only expire in December 2008.

Since then, UNIPEM has received many requests for testing from industries.

Highlight of UNIPEM Activities

LABORATORIES TEST CORRELATION PROGRAMME

Proficiency testing programme for diesel fuels 2006 was coordinated by UNIPEM for the first time and is currently the only diesel programme available in Malaysia. Besides UNIPEM, the ISO/IEC accredited Laboratories which participated in this programme are Core Laboratories Malaysia Sdn. Bhd., Petronas Research & Scientific Sdn. Bhd., Department of Chemistry Malaysia, and ITS Testing Services (M) Sdn. Bhd. This programme was successfully completed in August 2006.



SURVEILLANCE AUDIT ASSESSMENT

On 18 - 19 September 2006, the assessment team from Department of Standards Malaysia has carried out an audit on UNIPEM on the implementation of the laboratory management system. The assessment was lead by Mr. Lum Kon Woon (Lead Assessor) and Mr. Poon Wai Lum (Technical Assessor). This assessment is a verification that UNIPEM has met the management and technical requirements of ISO/IEC 17025.

STRATEGIC ALLIANCE

On 20 September 2006 UNIPEM agreed to fully support Oilfield Optimization E&P Sdn. Bhd. in their pursuit of projects of common interest related to

laboratory analysis services. Oilfield Optimization E&P will lead, spearhead and pursue projects under Petronas and its PSC contractors. UNIPEM would provide testing for petroleum and other products under the scope of accreditation, sampling jobs and providing In-House Training for certain Test Methods. In future, UNIPEM will form more strategic alliances with other parties of interests.

In brief, the year 2006 has been a productive and successful year for UNIPEM.



The Centre of Lipids Engineering and Applied Research (CLEAR) Group was established in late 1987 to undertake research in process Engineering and Technology of Palm Oil and Oleochemical Processes. Research was classified into three areas; Process Development, Product Development, and Infrastructural Development. Apart from process engineering aspects, Energy Conservation and Computer associations were also studied by the group.

For further information, please contact:

DIRECTOR,
CENTRE OF LIPIDS ENGINEERING AND APPLIED RESEARCH,
BLOCK A212, UTM *City Campus*,
JALAN SEMARAK, 54100 KUALA LUMPUR.





The research areas and expertise offered by CLEAR include the development of palm oil physical properties, laboratory work, process modeling and simulation, and process and plant integration. According to its Director Assoc. Prof. Mustafa Kamal Abd. Aziz, CLEAR provides its services in the form of contract research and consultancy. It also provides joint research or collaborative work with any interested research centres or institutions. This centres' strategic plans are:

- To develop cross linkages between the palm oil by products in new industrial sectors; water treatment, power generation, medicines, herbal healthcare and agro-chemicals.

- To research and develop new products from palm oil by-products and waste products by using new process technologies in oil palm milling i.e. solvent extractive distillation, continuous low process integration to conserve water and energy.
- To collaborate with MPOB and oil palm companies.
- To demonstrate and scale-up new processes for these new products particularly in existing mills and refinery production lines.
- To design new processes into new and old plants for conversion into co-production mills.
- To train new staff to design, manufacture, operate and service the co-production mills.
- To assist current mills and refineries to recycle, re-use and reduce their pollution loads.

CLEAR provides research and consultancy services to the palm oil industry, be in the mill or the refinery and other agencies on issues related to food fats and oil industry. In addition, being a part of the academic institution, CLEAR is committed to carry out research in the related areas as its contribution towards the advancement of the development of new technology in this country. The overall CLEAR effort is shared by the perceived needs of industry and it is confident in achieving its objective in the view of the current presence of a number of its member having both the relevant necessary experience and expertise in their specialized areas. The research areas and expertise offered by CLEAR include the development of palm oil physical properties, laboratory work, process modeling and simulation and process and plant integration. CLEAR provides its services in the form of contract research and consultancy as well as organizes practical workshops to interested parties in the related fields. Joint research or collaborative work with any interested research centres or institutions is also welcomed.



Red Palm Oil may have potential anti-cancer properties



department of
CHEMICAL
engineering



2006 Quick Facts

Head: Associate Professor Dr. Khairiyah Mohd. Yusof
Academic Staff: 7 Professors, 12 Associate Professors, 3 Senior Lecturers, 25 Lecturers, 3 Tutors
Undergraduate students: 527
Graduate students: 50
www.fkkksa.utm.my/chem/

Renowned for Research

Since its inception in 1983, the Department of Chemical Engineering UTM has emerged as one of the leading centres of reference for technology development and innovations to support national and multinational companies in the chemical and process industries. It is well-equipped with extensive facilities to meet the R&D needs and is supported by a large team of highly qualified and dedicated academicians who are well-experienced in training, consultancy, research and development activities.

The department consists of the following research groups:

- Process Synthesis and Design Group (PSE)
- Process Control and Safety Group (PCS)
- Chemical Reaction Engineering Group (CREG)
- Separation Science and Engineering Research Group (SENER)
- Advanced Process Engineering Group
- Process Intensification Group (PI)
- Adsorption Selective Carbon Membrane Group

- Environmental Research and Consultancy Group (EnvRCG)
- High Temperature Processing Group (HiTEMP)
- Industrial Air Pollution & Air Quality Research Group
- Water Quality and Water Quality Modelling Group

Each group is headed by a well-experienced expert researcher who has extensive involvement in R & D work in close co-operation with industry. The group head leads research as well as a dedicated research laboratory (Please refer to the department organisational structure).

The department is also synonymous with its two leading centres of excellence in the nation, namely the Chemical Engineering Pilot Plant (CEPP) which is engaged in fine and specialty chemicals R & D activities as well as in professional training and Centre of Lipids Engineering and Applied Research (CLEAR) which is actively involved in R&D work for palm oil sector.

Faculty Expertise

The department is home to more than 50 expert faculty members - many of whom are national award winners - and 10 state-of-the-art laboratories and learning centres. Recent highlights include the following:

- 35 international and national journal publications, including publication in prestigious journals such as Water Science Technology, Chemical Science, Desalination, Journal of Molecular Catalyst, Applied Artificial Intelligence, Chemical Engineering Journal, Journal of Membrane Science, Journal of Solvent Extraction and Development Japan, Applied of Membrane Science and Technology, IEM Journal and Jurnal Teknologi.
- 28 conference proceedings and presentations at international and national conferences such as INRET 2006, Asia Pacific Conference on PBL, KLICA and SoMChE.
- Dr. Kamarul 'Asri Ibrahim and Dr. Mohd. Rashid Mohd. Yusof appointed as Professors for their achievements in their fields.
- Assoc. Prof. Dr. Hanapi Mat was awarded TWAS/ UNESCO Fellowship Award as a visiting professor at the Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore, India and Hitachi Fellowship Award as a visiting professor at the Department of Applied Chemistry, Faculty of Engineering, Kyushu University, Japan.
- Prof. Dr. Nor Aishah Saidina Amin received Silver award at the 17th International Invention Innovation Industrial Design and Technology Exhibition, Silver award at the Industrial Art & Technology Exhibition and two Silver awards at the Nuremberg International Exhibition of Ideas, Invention and New Products.
- Prof. Ir. Dr. Zaini Ujang received a Silver award at Malaysian Technology Exhibition.
- Assoc. Prof. Dr. Zainuddin Abd. Manan, Winner of the Business Planning Competition (BizPlan) organized by MDC-Mara-BIP and received UTM Individual Applied Research Award.
- Pioneering the research of the Chemical Engineering Education in Malaysia especially in Active Learning, Cooperative Learning and Problem-Based Learning.

Student Leadership

Chemical Engineering Department students are known to excel. Here are a few highlights from the past year.

- Upon earning their degrees, more than 50% of chemical engineering graduates secured places in industry.
- Chemical Engineering Student Society (Persatuan Pelajar Kejuruteraan Kimia-PPKK), a nationally well-known student society, has organized many national level activities such as Chemical Engineering Exposition (ChemEX '06), Water Awareness & Management Camp (WAMAC '06) for secondary school students sponsored by UNESCO and National Energy Conference NEC 2006, a program in-collaboration with Shell and Pusat Tenaga Malaysia.
- Educational Industrial Visit to numerous industries such as BASF, BP Amoco, MPOB, PTM, Petronas-Ammonia, Petronas Refinery and Petronas Gas.
- Shamina Abdul Aleem received the Royal Education Award and the Best Academic Award during 2006 UTM Convocation, and Tunku Abdul Rahman Award presented by the Minister of Higher Learning of Malaysia.
- Nor Farida Harun also received the Best Academic Award during 2006 UTM Convocation.



department of
PETROLEUM
engineering



2006 Quick Facts

Head: Associate Professor Issham Ismail
 Academic Staff: 4 Professors, 8 Associate Professors,
 6 Senior Lecturers, 6 Lecturers
 Undergraduate students: 239
 Graduate students: 7
www.fkksa.utm.my/petroleum/





EXCELLENCE THROUGH CREATIVE THINKING

The Department of Petroleum Engineering (DPE) was established in 1975 and is the oldest department in Chemical and Natural Resources Engineering Faculty. Currently, DPE is offering the Petroleum Engineering Undergraduate Program, and the post-graduate studies by research, namely the Master and Doctor of Philosophy (PhD) in petroleum engineering. DPE is also in the process of introducing Master of Science in petroleum engineering (by course) in 2008.

Academic Staff Excellence

The Department of Petroleum Engineering is supported by 23 academic staff; four professors, eight associate professors, five senior lecturers, and six lecturers. They are highly qualified in petroleum engineering with wide academic, publication, research, and consultancy experiences. In 2006, of the 23 academic staff, 21 staff were active in lecturing and supervising, one staff was undergoing industrial training, and one staff was pursuing his PhD abroad.

In addition to teaching the undergraduate students, the academic staff were also active in supervising the master and PhD students. Currently, DPE has three master students and five PhD students. In order to produce high quality graduates, DPE is equipped with seven state-of-the-art laboratories, a Schlumberger Field Development Centre, and an ExxonMobil Resource Centre. 16 technical support staff were attached to DPE to support its learning, consultancy, and research activities.

The academic staff have been actively involved in presenting and publishing their research works in conferences and refereed journals, respectively. Due to their vast experience in publication, many of them



were also invited as speakers and facilitators for many publication-related courses, such as book writing, editing, and proof reading courses, organized by UTM and government agencies.

The academic staff were also actively involved in research and development, where those research activities were funded via IRPA grants. Many of their consultancy works were conducted via the UNIPEM and Uni-Technologies Sdn. Bhd. Among the notable companies that sought our service were Petronas Carigali, CEPP, and Petronas Penapisan.

Competitive Students

In 2006, DPE has 226 petroleum engineering undergraduate students and eight post-graduate students, and they were trained with the necessary technical knowledge and skills as required by industry. In addition to formal education, those students were also well known for their keen participation in the SPE-Students Chapter activities, an effective way to develop and improve their generic skills. Their grand achievements in 2006 were:

- Finished as the top six in the SPE-Students Chapter Outstanding Award.
- Successfully organised S-SPEC, a Shell Inter-varsity Student Paper Presentation Contest in collaboration with Shell.
- Successfully organised Oil & Gas Symposium, sponsored by Petronas, ExxonMobil, Talisman, Murphy, Hess, Schlumberger and others.
- Educational industrial visit to oil service companies in Kemaman Supply Base, Terengganu.

DPE is proud to have produced 37 petroleum engineering graduates in 2006 where all of them are currently employee of many multinational companies, namely Petronas, Shell, Schlumberger, etc.



department of
GAS
engineering

2006 Quick Facts

Head: Associate Professor Dr. Azeman Mustafa

Academic Staff: 1 Professor, 4 Associate Professors,
2 Senior Lecturers, 6 Lecturers, 3 Tutors

Undergraduate students: 177

Graduate students: 18

www.fkkksa.utm.my/gas/



Committed to Success

The Department of Gas Engineering in Chemical and Natural Resources Engineering Faculty which was established in 1998 has been offering the chemical based engineering undergraduate program specializing in gas engineering since 1989. In addition, the department also conducts post graduate studies by research, both master and doctor of philosophy in gas engineering. The department is also planning to introduce another M.Sc program in gas engineering and management by course or module in 2007.

Academic Staff Excellence

The academic staff of the gas engineering department are highly qualified in gas related engineering with wide academic, research and consultancy experiences. At present, the department has sixteen full time academic staff; one professor, four associate professors, two senior lecturers, nine lecturers. Approximately 45% of the lecturers are PhD holders in various chemical and gas engineering fields and the rest MSc and MEng holders. There are also some staff currently pursuing their PhD either locally or abroad.

In addition to undergraduate teaching and post graduate supervision, our academic staff has been very actively involved in research, consultancy and publications at national and international levels.

Publications - There have been approximately 25 papers published in various international journals such as Journal of Membrane Science, Journal of Desalination, Process Biochemistry Journal of Atmospheric Environment and 30 proceeding papers presented at national and international conferences.

Consultancy - Our academic staff have also been consulted by various government and private sectors such as the Johor state government, Economic Planning Unit (EPU) Malaysia, Petronas Gas, Gas Malaysia, Petronas Refinery and Ethylene (M) Sdn Bhd to either provide expert opinions and solve their respective problems. In 2006 alone, around 10 consultancy works worth more than RM 200,000 had been awarded to our academic staff.

Research - Our academic staff have also been very active in research and development through IRPA and E-Science research grants. In 2006, five research works under IRPA grants worth more than RM 1 million had been successfully completed. The department also managed to secure another four research grants worth RM 970,000 under E-Science Fund.

Other contributions – In addition to research, consultancy and paper publication, the academic staff had also been highly sought to become chief-editor and reviewers to both national and international journals.

Competitive Students

In 2006 the department has over 177 chemical-gas engineering undergraduates, 6 PhD students and 12 MSc students. Our undergraduate and postgraduate students have been equipped with the necessary technical knowledge and skills as demanded by industry through various up-to-date instructional methods. This has been proven by recent graduates being employed by multinational companies such as Petronas, Shell and Schlumberger.



department of **POLYMER** engineering



2006 Quick Facts

Head: Associate Professor Dr. Azman Hassan

Academic Staff: 6 Associate Professors, 9 Lecturers,
3 Tutors

Undergraduate students: 207

Graduate students: 10

www.fkkksa.utm.my/polymer/

The Department of Polymer Engineering was established in 1998 following the restructuring of the faculty. We have been offering a unique Chemical Engineering degree programme with a specialization in polymer since 1989. This is to meet the manpower and R&D demands of the polymer industry which encompasses plastics, rubber, adhesive, coating and composites. This industry has emerged as the fastest growing industry in Malaysia which has achieved strong growth, averaging about 15 percent over the last 10 years. In this course, besides in-depth knowledge of chemical engineering, students were taught on how large molecules of polymeric materials are formed, how they behave and how they can be tailored into useful products. The students are given opportunities to study various polymeric materials in their final year research projects.

The curriculum for Bachelor of Engineering (Chemical-Polymer) includes basic sciences and mathematics, common university subjects, basic engineering, chemical engineering core and polymer engineering subjects. Teaching is enhanced by our extensive

research activities and close rapport with industry. The 10-week industrial placement during the semester break is a strong feature of our programme. The normal duration to complete the programme is 4 years, or equivalent to 8 normal semesters. At the postgraduate levels, the department also offers Msc and PhD in Polymer Engineering by research and MSc Course in Polymer Technology by taught course.

The department currently houses four specialized laboratories dedicated to both teaching and research activities i.e. Polymer Processing Laboratory, Polymer Testing Laboratory, Polymer Synthesis Laboratory and Polymer Characterization Laboratory.

An impressive array of the state-of-the-art research instrumentation are available in the department for major investigation such as spectroscopy, GPC, microscopies and computational modeling of physical/chemical structure and properties, polymer testing, polymer processing and compounding, thermal and rheological analyses.

Academic Staff Excellence

The academic staffs of the department are committed to academic excellence. Currently, the department has 18 academic staffs (five Associate Professors, nine Lecturers and four Tutors) who are actively engaged in teaching, research and consultation. We are proud that seven of our academic staff are PhD holders and four are currently pursuing their PhD. In the year 2006, Dr Mat Uzir successfully completed his PhD degree from USM while Jamarosliza and Norhayani completed their MSc.

Currently Assoc Professor Dr Razak is the Chairman of the Plastics Rubber Institute of Malaysian Southern Chapter (PRIM Southern Chapter). PRIM has also appointed Assoc Prof Dr Azman Hassan as the Editor-in-Chief for Malaysian Polymer Journal. The department is actively involved in the development of national and international standards. Assoc Prof Dr Wan Aizan and Assoc Prof Hanizam are currently leading various Standards working groups including standards for cross-linked PE, PE water tanks and PB pipes. Assoc Prof Hanizam is the UTM's representative in the Industrial Standards Committee for Plastics (ISC-J), Department of Standards Malaysia as well as the country representative in the various ISO plastics standards technical committees.

In research, the academic staff is actively involved in various exciting areas covering biopolymers, polymer nanocomposites, rubber technology, natural fiber composites, polymer recycling, plastics waste derived fuel, dioxin inhibition studies, toughened polymers, crosslinked PE, microwave for resource recovery, PVC processing and modification. With a strong staff commitment, we are optimistic of a great development in the near future.

Assoc Prof Dr Wan Aizan and Dr Mat Uzir were invited to be in the evaluation panel for E-Science by MOSTE.

We have research collaborations with various institutions and companies in Malaysia such as BASF, MARDITECH Plas Sdn Bhd, MINT, UPM, SIRIM and USM. At the international level, we have also established collaboration with Budapest University of Technology and Engineering (BUTE), Hungary

Our staff members are also active in publications and the achievements in 2006 are:

- a) 12 papers in peer-reviewed international journals.
- b) 3 papers in peer-reviewed national journals.
- c) 3 paper presentations at international level conferences
- d) 4 paper presentations at national level conferences.

Assoc. Prof. Dr. Azman's paper entitled "Electrical Tracking Performance of LLDPE-Natural Rubber Blends by Employing the Combination of Leakage Current Level and Rate of Carbon Track Propagation" published in Journal of IEEE Transactions on Dielectrics was placed third in the international category by UTM. Assoc Prof Dr Razak also published a glossary on polymer composites in Malay language. In the 3rd Malaysian Japanese International Conference organized by Malaysian Plastics Manufacturer Association (MPMA), Assoc Prof Dr Azman Hassan was one of the invited speakers.

Competitive Students

The current student enrollment in the department is 210 undergraduates and 10 postgraduates. Four of the postgraduates are pursuing PhD.

The students of the department have formed the PRIM Student Chapter, the first of its kind in the nation. They are actively involved in various activities such as research and technical seminars, motivation talk, public speaking competition, product design competition and sport competition.

The broad spectrum of the Bachelor in Engineering (Chemical-Polymer) programme prepares the students for the careers in various fields such as petrochemical, composite, plastics processing, product design and development, development and utilization of additives, packaging materials and coating, adhesives, rubber compounds and latex, academic and research and sales.

Graduates of the department are currently employed at various multinational companies (MNCs) and other academic and research centers such as SIRIM, Rubber Research Institute of Malaysia (RRIM), Malaysian Institute of Nuclear technology (MINT). Titans, Polystar, Plastrate, Baerlocher, Shell, BASF and many others. Many of our graduates also opted for further studies at MSc and PhD levels.



department of
BIOPROCESS
engineering

2006 Quick Facts

Head: Associate Professor Dr. Fadzilah Adibah Abdul Majid

Academic Staff: 1 Professor, 4 Associate Professors, 1 Senior Lecturer, 13 Lecturers, 2 Tutors

Undergraduate students: 242

Graduate students: 38

www.fkksa.utm.my/bio/





Academic Excellence. Students' Competitiveness. Research Achievement

Since its inception in 1990, the Department of Bioprocess Engineering has been leading in bioprocess engineering education in Malaysia. Our program has become the source of reference for newly established bioprocess engineering courses in various higher learning institutions in Malaysia. The Bioprocess Engineering Department takes pride in having nationally recognized academic staff, competitive students and inter-disciplinary research programs

Academic Staff Excellence

Even though our department is fairly new and is quite small, we are proud of the fact that 48% of our academic staff are PhD holders and 29% are currently reading for their PhD. 14% are MSc holders and the rest are tutors who are currently reading for their MSc.

The department's 21 academic staff succeeded to accomplish a great deal this year. The followings are some of our academic achievements:

Dr. Ida Idayu Muhamad received a Bronze award on her research entitle "An Active Packaging Using A Smart Bio-Switch Concept" at the Industrial Art & Technology Exhibition 2006 that was held at the Universiti Teknologi Malaysia, Johor Bahru on the 29th August 2006.

5 papers in peer-reviewed international journals such as Journal of Applied Artificial Intelligence, Journal of Membrane Science, Separation and Purification Technology, Process Biochemistry, New Development and Application in Chemical Reaction Engineering.

8 papers in peer-reviewed national journals such as Jurnal Teknologi, Industrial Technology (SIRIM), Malaysian Journal of Microbiology, Journal of Malaysian Applied Biology, Jurnal Biosains, Journal of Science and Technology in the Tropics.

7 proceedings from conferences conducted at international level such as INRET 2006, RPCES 2006, ICENV 2006, APACChe 2006.

4 proceedings from conferences conducted at national level such as Symposium of Malaysian Society for Microbiology, SoMChE, National Seminar on Science and Its Application.

3 consultancy projects.

Competitive Students

In the year 2006, we have over 242 undergraduate students and 38 graduates. Our undergraduate and postgraduate students are hardworking, creative, innovative and competitive and because of that upon graduation our students are usually employed by prestigious companies such as Inno Biologics Sdn. Bhd., Schlumberger and Sime Darby.

Our students have also successfully organized an educational trip to China on May 2006. The trip was lead by Assoc. Prof. Dr. Firdausi Razali, Dr. Lee Chew Tin and Dr. Ida Idayu Muhammad. Kerry Specialty Ingredients was one of the main sponsors for the educational trip to China with a contribution of RM 8,000.

Inter-disciplinary Research Programs

Apart from the existing research grants, we managed to secure a few new grants this year, which were awarded by Yayasan Felda and MOSTI. This will allow our academic staff to continue contributing to the scientific community both locally and internationally. Due to the inter-disciplinary nature of our research, we have succeeded in collaborating with various other institutions such as Felda Biotechnology Center and Rubber Research Institute of Malaysia.



JAKRIS: Committed to Staff Affairs



2006 Quick Facts

Leadership: Muhammad Noorul Anam Mohd. Norddin

Total Staff: 200



Staff Welfare and Recreational Committee (JAKRIS) in the Faculty of Chemical and Natural Resources Engineering was established with the intention of managing and caring the staff welfare. The year 2006 was highlighted by many programs and activities for staff and their family.

Here are a few highlights from the past year:

- Program 'Ibadah Korban & Jamuan Hari Raya Aidil Adha 2006'. This program was jointly organized with Kolej 16 & 17 and the sacrifice was performed by Kpt Wan Ibrisham Fikri the principal of the college after Aidil Adha prayers at the college compound.
- A trip to the southern tip of Asian Continent, Taman Negara Tanjung Piai.
- Course in Basic Canoeing Skills, held at the UTM lake.
- Family Day FKKKSA was held on 11 Mac at the Dewan Sri Berlian, Kolej Tun Fatimah. The annual event was officiated by the Dean of FKKKSA and family members were entertained with various tele-matches and lucky draws.
- A visit to an orphanage house at Pengkalan Chepa, Kelantan.
- A visit to Pusat Pembiakan Penyu, Terengganu.
- A visit to Terengganu Handcraft Centre.
- Trip to Aquaria & Petrosains, KLCC for FKKKSA staff's children.
- FKKKSA Merdeka Futsal tournament.
- Independence Day Celebration.
- Thanksgiving Gathering for Staff Promotion and Accomplishments.
- Hari Raya Aidil Fitri Feast.



Successful Postgraduates, The Pride of Our University



2006 Quick Facts

Leadership: Professor Dr. Arshad Ahmad (Deputy Dean for Research & Graduate Studies), Associate Professor Dr. Mohamad Wijayanuddin Ali (Head of Graduate Studies)

Masters students: 155

Doctoral students: 29



Faculty of Chemical and Natural Resources Engineering Postgraduate Students Society was established to manage and take care the social affair of postgraduate students. The year 2006 was highlighted by many programs and activities for postgraduate students.

Here are some highlights from the past year:

- Annual General Meeting for FKKKSA Postgraduate Society at Postgraduate Room, N29.
- First Stage Examination Tips Sharing Day. The program was organized by Postgraduates Society at N29 aimed to help the university to create quality postgraduates and at the same time to create a bond between postgraduates students.
- FKKKSA Postgraduate Dedication Day 2006.
- Workshop on chemical engineering marketing, Tiara Beach Resort, Port Dickson. Attended by Alumni, Graduate and Undergraduate students and Staff of Chemical Engineering Department.
- Postgraduate Horse Riding at UTM Equestrian Centre.
- FKKKSA Postgraduate Ice Breaking session.
- FKKKSA Postgraduate Summer Camp 2006 at Plaza Campsite, Teluk Gorek, Tanjung Resang, Mersing.
- FKKKSA Bowling Tournament 2006 organized by FKKKSA Postgraduate Students Society.
- Postgraduate Annual General Meeting & Breakfasting.



Committed to Students Success



2006 Quick Facts

Leadership: Professor Dr. Kamarul 'Asri Ibrahim

(Deputy Dean for Academic)

Total students: 1392

Number of Society: 5

Student Achievements

For the past several years, the Faculty of Chemical and Natural Resources Engineering has sought to increase enrollment without compromising student quality. It's not just what these students bring to the faculty, it's also what they do while they are here. Here are a few highlights from the past year:

- Chemical Engineering Exposition (ChemEX 2006) was organized by the Chemical Engineering Student Society in collaboration with the Institution of Chemical Engineers Malaysia (ICheEM). Under the theme of "Expose, explore, experience" various activities were conducted which includes discussion on environments, research exhibition, academic forum, jogathon and

sport competition between staff and students. The objective of these activities are to expose students to the field of chemical engineering as a preparation for future career, strengthening relationship among students as well as build their confidence.

- Bioprocess Engineering Students Visit to China. This program aims to polish students' generic skills in terms of organizing international visit, enhanced communication skills, time management, team-working, problem-solving and self-esteem. Cultural interaction program is also integrated within the intensive one-week visit. Apart of being a golden opportunity to widen students' horizon on biotechnology industry and research, this event serves as a platform to promote bilateral international collaborations between the higher learning institutes



in China and UTM through research collaboration, student exchange and internship placement. The main places of visit include Sun Yat-Sen University in Guangzhou where academic and cultural programs held, South China Botanical Garden Research Centre, and a number of industrial visits in Shenzhen Hi-Tech Park, Guangzhou Industrial Park (The Science City) and Guangzhou International Commercial Center.

- Shell Inter-Varsity Student Paper Presentation Contest 2006. The objective of this annual program is to exchange ideas related to the oil and gas industry. It also helps to enhance the good relationship among the industry people, academic and governmental organization. The positive comments and responses from the Shell representatives are a moral booster and appreciation from the industrial people. In fact, they

look forward for the next SSPEC 2007.

- Oil & Gas Symposium 2006 focused on the students from local universities participation in the exhibition, technical talk and forum and interview session. With a lot of new concepts and ideas given, OGS 2006 is the benchmark to other programs involved in SPE-UTM Student Chapter. Other informal gathering of SPE Student Chapters involved UTM, UTP, Universitas Trisakti and Institut Teknologi Bandung.
- National Energy Conference 2006, in collaboration with Shell & Pusat Tenaga Malaysia (PTM), DSI, UTM was organized by Chemical Engineering Student Society.

It is students of this calibre who are helping to influence the quality of UTM's engineering programs.

Student Testimonials



Two international undergraduate students from Indonesia, Gary Satya Wicaksana Sjaafwan (left) and Muhammad Azhar Al-Faqi (right).

"...I'm glad that I have chosen this engineering degree. In this program, I have the opportunity to develop a broad range of skills which will help me meet future challenges.."
Gary Satya Wicaksana Sjaafwan

"...I have also made friends in the University. I like it here because not only does it provide a good academic environment but it's got a good social life as well... "
Muhammad Azhar Al-Faqi

:: Choose Faculty of Chemical and Natural Resources Engineering, Universiti Teknologi Malaysia, Malaysia
We chose UTM because only UTM and UTP have Petroleum Engineering. Surf at website and a lot of good response show that UTM is among the best places to study. The course was intensive, but it was well worth the effort as I've gained valuable knowledge to meet future challenges. In short UTM is a great place to start the development of your career.

:: The Best Things
Universiti Teknologi Malaysia has such great facilities such as transportation, hostel, gymnasium, internet services and etc.

:: UTM Life
Love the sports facilities in campus. The lifestyle in UTM is relaxed and the city is just the right size. I am also thankful for the friendships that I forged with my lecturers and my fellow course mates, adding

on to the good memories that I had during my time here.

:: Hope and goals
To get good marks, dean list and first class at graduation. To become a successful and knowledgeable petroleum engineer.

Fully recommended to others.



Calendar of Events

5 - 7 JANUARY 2006

Sukmer 2006, Sports day organized by PRIM's student chapter.

7 JANUARY 2006

Annual General Meeting for FKKKSA Postgraduate Society at Postgraduate Room, N29.

11 JANUARY 2006 (A)

'Hari Raya Korban' Gathering and the Launching of the First Volume of Buletin FKKKSA.

13 - 18 JANUARY 2006 (B)

ChemEX '06 Chemical Engineering Exposition 2006, organized by Chemical Engineering Student Society (PPKK) in-collaboration with CEPP, Student Affairs Office UTM, IJKM and Southern Waste Management Sdn. Bhd.

14 JANUARY 2006 (C)

Second Malaysian Chem-E-Car Competition 2006 organized by Institute of Engineers Malaysia (IEM).

18 JANUARY 2006

SPE-UTM Student Chapter Annual General Meeting 2006.

18 JANUARY 2006

Health Talk – Aloe Vera & Health through Nutrition. The talk was given by Mr. Stephen Chang and Dr. Mohd. Razin Jaafar at Lecture Hall 9, N24.

26 JANUARY 2006

Seminar on Technologies for Biovalidation Applications. The half-day seminar was attended by lecturers, lab researchers and postgraduates students at the Jasmine Seminar Room, Chemical Engineering Pilot Plant.

10 FEBRUARY 2006

First Stage Examination Tips Sharing Day. The program was

organized by the Postgraduates Society aimed to assist the postgraduates and simultaneously create friendship between postgraduates students, held at Postgraduate Room, N29.

10 - 12 FEBRUARY 2006

Gas Engineering Student Society (GESS) Family Day at Teratak Buana Resort, Mersing.

13 - 17 FEBRUARY, 2006 (D)

Pilot Plant Week – Bioprocess.

18 - 19 FEBRUARY 2006

Camp/XPDC (Kem Rapatan Ukhuwah) Tanjung Piai, Pontian, Johor - PPKK.

22 - 23 FEBRUARY 2006

A visit by Hanyang University, Korea delegates to FKKKSA.

24 - 26 FEBRUARY 2006

'Pesta Syok Betul' was organized by Student Society of Bioprocess Engineering.

7 MARCH 2006

Exchange Students Program. Students from Prince of Songkla University, Thailand were taken in the Bioprocess Department for 12 weeks.

10 - 11 MARCH 2006

PRIM invention and public speaking competition, FKKKSA.

11 MARCH 2006

FKKKSA's Family Day at Dewan Serbaguna Kolej Tun Fatimah.

12 MARCH 2006

Canoeing-SPE.

13 - 31 MARCH 2006

UTM Inter-Department Staff Sports Carnival.



Calendar of Events



(E)



(F)



(G)



(H)

22 - 26 MARCH 2006

Water Awareness & Management Camp (WAMAC '06) Taman Negara Tanjung Piai, Pontian- PPKK.

1 - 2 APRIL 2006 (E)

SHELL Inter-Varsity Student Paper Presentation Contest 2006.

4-6 APRIL 2006

FKKKSA Postgraduate Dedication Day 2006.

7 APRIL 2006

Discussion on UTM-Huntsman Tioxide Graduate Trainee Program.

8 April 2006

Educational factory visit to Doshin Rubber Product Sdn. Bhd, Klang, Polymer 3th year student.

9 APRIL 2006

Graduation Nite of Bioprocess students, Hotel Sri Malaysia, Johor Bahru.

12 APRIL 2006

Final Year Design Project Poster Presentation at Teaching Hall 1, 2 and 3, N29.

13 APRIL 2006

A group of Polymer Engineering Department staff visited Department of Materials Engineering, UNISEL Shah Alam.

19 APRIL 2006

Research collaboration and social visit by FKKKSA staff (Chemical & biotechnology research group) to the Malaysian Pineapple Board aims at initiating research both parties especially in the 9th MP budget.

19 April 2006

Motivational Program for form 1 student of Sek. Men. Sains Kota Tinggi (SAKTI). A part of UBPR welfare activity for school in Johor,

this event was held at SAKTI compound conducted by UBPR staff and student.

24 APRIL 2006

A visit by Prince of Songkla University, Surat Thani delegates to Bioprocess department.

29 - 30 APRIL 2006

JAKRIS's visit to Terengganu and Kelantan

Visit to Centre of Information (Turtle) & Marine Ecosystem

Visit to Handicraft Centre in Kuala Terengganu

2 May 2006

One day Green Card Workshop to enhance FKKKSA about safety awareness in industry organized by CIDB.

6 - 13 MAY 2006 (F)

Biotechnology educational trip to China organized by 3rd and 4th year SKB students.

8 - 11 MAY 2006

Education factory visit to Polipropilene Malaysia (Kuantan) and Petronas-Ammonia plant (Kerteh, Terengganu), Polymer 3th year student.

16 MAY 2006

Donation of Clothes to the Needy Homes at Pasir Gudang.

16 - 18 MAY 2006

SMIDEX 2006 exhibition was held at KL convention center. Crosslinked & Biopolymer research group together with Biotech Advanced Sdn Bhd. was invited to exhibit their research products.

30 MAY 2006

Educational trip for staff children to Aquaria KLCC and Petrosains.

Calendar of Events

5 - 11 JUNE 2006

A visit by Prof. James M. Lee of Washington State University, USA to the Department of Bioprocess Engineering and CEPP.

13-14 June 2006

A 2 day professional course for TRW, Senai, Johor conducted by a professional academic Polymer staff.

16 - 18 JUNE 2006 (G)

Workshop on Chemical Engineering Marketing, Tiara Beach Resort, Port Dickson. Attended by Alumni, Graduate and Undergraduate students and Staff of Chemical Engineering Department.

29 JUNE 2006 (H)

Postgraduate Horse Riding Program at UTM Equestrian Centre.

29 JUNE 2006

Academic Workshop - Polymer Engineering lecturers discussed on polymer engineering curriculum. The curriculum reviewed and upgraded to suit current global requirements, N29 FKKKSA.

14 July 2006

Polymer engineering department staff visit to DK Komposit, Melaka.

19 JULY 2006

SKK Freshman Day 2006, N29.

19 JULY 2006

A Get Together with SPE-UTM Student Chapters Officers.

20 JULY 2006

Visit and Talk by Professor Roland N. Horne, Stanford University - SPE.

24-25 JULY 2006 (I)

International Conference on Natural Resources Engineering and Technology (INRET 2006) organized by FKKKSA.

28-30 JULY 2006 (J)

SPE-UTM Enhancement Camp 2006.

2 AUGUST 2006

A visit from director of manufacturing Alpha Biologics, Penang, Michelle Peake to Bioprocess Engineering Department and CEPP.

2 AUGUST 2006 (K)

JAKRIS's thanksgiving gathering for staff promotion and accomplishment.

5 AUGUST 2006

UTM Family Day.

11 AUGUST 2006

SHELL Gourami Business Challenge: Briefing & Presentation by SHELL Gourami.

11 AUGUST 2006

FKKKSA Postgraduate Ice Breaking session.

18 AUGUST 2006

An industrial visit to Tempe plant by Bioprocess Engineering Final Year students.

18 AUGUST 2006

Talk on CO₂ Capture Using Ceramic Membrane by Dr. Kang Li, Reader of Chemical Engineering Department, Imperial College, London.

19 AUGUST 2006 (L)

SPE-UTM Barbeque Night 2006.

24 - 25 AUGUST 2006

FKKKSA Students Society Open Day.

25 AUGUST 2006

FKKKSA National Day Celebration.

25 AUGUST 2006

A morning with Pusat Tenaga Malaysia (PTM), N29.



Calendar of Events



25 - 27 AUGUST 2006

Industrial Visit to Kemaman Supply Base (KSB) 2006.

26 - 27 AUGUST 2006 (M)

National Energy Conference 2006 "Promoting Renewable Energy and Energy Efficiency for Sustainability" in collaboration with Shell & Pusat Tenaga Malaysia (PTM).

27 AUGUST 2006 (N)

Merdeka Explorace 2006 Program organized by JAKRIS and Student Society.

28 AUGUST 2006

FKKKSA Coffee Club: Let's Talk about Colour and Dressing by Prof. Dr. Mohd. Nawawi Derahman.

28 AUGUST 2006

Talk on Constructed Wetlands for Wastewater & Urban Runoff Pollution Control by Professor Brian Shutes, Professor of Ecotechnology from Middlesex University.

29 AUGUST 2006

Talk on Biological Effects of Heavy Metals on Water Quality by Professor Brian Shutes, Professor of Ecotechnology from Middlesex University.

30 AUGUST 2006

Talk on Carbon nanotubes: Synthesis, structure, properties and applications by Prof. Abdul Rahman Mohamed (USM).

30 AUGUST 2006

FKKKSA Coffee Club: Let's Talk about Bonzai, An Introduction by Assoc. Prof. Azmi.

30 AUGUST 2006

Talk on Steam Turbine

Advancement By Prof. Dr. Freddie Bakhtar, University of Birmingham, UK.

1 SEPTEMBER 2006

FKKKSA Coffee Club: Let's Talk about Massage: Safe or Dangerous? by Dr. Zainal from Faculty of Science.

1-5 September 2006

During the 38th Convocation PRIM's student chapter with the help of polymer engineering department member open a stall selling the exotic and famous mee rebus Hj. Wahid.

4 SEPTEMBER 2006

FKKKSA Coffee Club: Let's Talk about Exercise and Growing Old by Assoc. Prof Dr. Maketab Mohamed.

6 SEPTEMBER 2006

FKKKSA Coffee Club: Let's Talk about 'Kahwin Misyar' by Ustaz Ahmad Puhad.

8-10 September 2006

Another motivational program was held at Sek. Sains Johor, Kluang for the SPM students, organized by UBRP and facilitators from UTM Motivational Club, apart of faculty student's contribution towards academic excellent awareness program.

8-10 SEPTEMBER 2006 (O)

FKKKSA Postgraduate Summer Camp 2006 at Plaza Campsite, Teluk Gorek, Tanjung Resang, Mersing.

13-14 SEPTEMBER 2006 (P)

Oil & Gas Symposium (OGS 2006).



Calendar of Events

16 SEPTEMBER 2006

Launching of the Malaysian Polymer Journal (an E-Journal) by the President of Plastics and Rubber Institute of Malaysia (PRIM).

17 SEPTEMBER 2006

Half day seminar and AGM of PRIM southern branch, FKKKSA.

19 SEPTEMBER 2006 (Q)

FKKKSA Bowling Tournament 2006 organized by FKKKSA Postgraduate Students Society.

20 SEPTEMBER 2006

Talk on Professional Engineer by Board of Engineers Malaysia.

20 SEPTEMBER 2006

FKKKSA Coffee Club: Let's Talk about Polygamy by Ustaz Md. Abbas.

21 SEPTEMBER 2006

Mac OS X Training and Troubleshooting for FKKKSA staff.

22 SEPTEMBER 2006

FKKKSA Coffee Club: Let's Talk about Plant for Wellness by Prof. Ramlan Abd. Aziz.

21-23 SEPTEMBER 2006 (R)

NACES 2006 at Universiti Teknologi Petronas.

28 September 2006

MPOB research collaboration visit to Crosslinked & Biopolymer Research Group.

6 OCTOBER 2006 (S)

Break Fasting Gathering for the Chemical Engineering Department, N29.

9 OCTOBER 2006

Postgraduate Annual General Meeting & Breakfasting.

11 OCTOBER 2006

Breakfasting Function of FKKKSA at Masjid Sultan Ismail, UTM.

3 NOVEMBER 2006

Final Year Design Project Poster Presentation at Teaching Hall 1,2 and 3, N29.

3 NOVEMBER 2006

Talk on Recycling of Various Rubber Waste: Technology & Products by Prof. Dr. Hanapi Ismail (USM).

7 NOVEMBER 2006

Visiting Lecturer from Lund University, Sweden (Prof. Gustaff Olsson).

15 NOVEMBER 2006 (T)

'Hari Raya' Gathering FKKKSA.

17 NOVEMBER 2006

'Hari Raya Aidilfitri' Feast and Thanksgiving of Polymer Engineering Department staff at Taman Tropika, UTM.

20-22 NOVEMBER 2006

FKKKSA Postgraduate Workshop at Lanjut Beach Resort.

13 DECEMBER 2006

Quality Day Run UTM.

21-22 DECEMBER 2006

Active Learning Training for FKKKSA academic staff.



The Faculty's Industrial Advisory Board

Dr. Ir. Ramli Karim Zulkifli

General Manager, Kemtek Sdn. Bhd.

Mr Jitender Seghal

CEO, Environ Sawit Sdn. Bhd.

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CEO, Petronas Gas Bhd.

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Mr. Shamsuddin Selamat

ExxonMobil Exploration and Production (M) Bhd.

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Oil Tool Services

Mr. Khairuddin Shaaban

Dow Chemical (M) Sdn. Bhd.

Mr. Chan Pak Kuan

Linatex Sdn. Bhd.

2006 Illustrious Alumni

Petroleum Engineering Department

Syed Esa bin Syed Abd Kadir

B.Eng. (Petroleum) '89

Managing Director, FRZ Scientific(M) Sdn. Bhd.

Assoc. Prof. Issham Ismail

Dip. Petroleum Eng. '82

B.Eng. (Petroleum) '85

Head of Petroleum Engineering Department, FKKKSA, Universiti Teknologi Malaysia

Gas Engineering Department

Ir. Ikhwan bin Hashim

B.Eng. (Chem-Gas) '96

Project Director, Inter Region Engineering(M) Sdn. Bhd.

Kuljit Singh

B.Eng. (Chem-Gas) '00

Field Engineer, Slumberger Algeria

Polymer Engineering Department

Sivaneswaran

B.Eng. (Chem-Polymer) '00

Process Engineer, Shell Nigeria

Aw Yoon Chun

B.Eng. (Chem-Polymer) '98

Technical Manager, Titan Chemicals Corp. Bhd.

Bioprocess Engineering Department

Sreedharan

B.Eng. (Chem-Bioprocess) '00

Plant Manager, Kerry Speciality Ingredients

Hasni Mohd Sajuri

B.Eng. (Chem-Bioprocess) '97

Production Planning Manager, Karp Food Industries

Chemical Engineering Department

Prof. Ir. Dr. Zaini bin Ujang

B.Eng. (Chemical) '88

Dean of FKKKSA, Universiti Teknologi Malaysia

Azmi Said

B.Eng. (Chemical) '91

CEO/Principal Consultant, MYDATA Research Consulting Sdn. Bhd.

Hasnafizi Bin Md Hanapi

B.Eng. (Chemical) '97

Senior Process Engineer, Aker



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 Die process Engineering Department | Chemical Engineering Department |
 Chemical Engineering Pilot Plant
 FACULTY OF CHEMICAL AND NATURAL RESOURCES ENGINEERING
 UNIVERSITI TEKNOLOGI MALAYSIA

Special Report

Chemical & Biotechnology Focus Group has organized the first ever International Conference on Natural Resources Engineering and Technology 2006 (INRET2006) at Marriott Putrajaya. The conference was officiated by the Minister of Science, Technology and Innovation of Malaysia, Dato' Sri Dr Jamaluddin bin Dato' Mohd Jarjis on Monday 24th July 2006. The Two-Day Conference has attracted more than 100 participants world-wide and papers related to Natural Resources Engineering and Technology. With the theme "Value Added Products through Process Intensification", this conference featured seven keynote speakers that specialized in chemical processes, biotechnology, environment, and also advanced material from around the world. This international conference was jointly organized by Faculty of Chemical & Natural Resources Engineering and Chemical Engineering Pilot Plant, and mainly sponsored by J-BioTech Corporation dan Innobiologics Sdn. Bhd.



Faculty Directory

CENTRES OF EXCELLENCE

Chemical Engineering Pilot Plant (CEPP)

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Prof. Dr. Ahmad Fauzi Ismail (Director)

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Assoc. Prof. Mustafa Kamal Abd. Aziz (Director)

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Dr. Muhammad Abdul Manan (Quality Manager)

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FACULTY LABORATORIES

Chemical Reaction Engineering Laboratory

Prof. Dr. Nor Aishah Saidina Amin (Head)

Tel: 607-5535456

Process Design and Simulation Laboratory

Dr. Haslenda Hashim (Head)

Tel: 607-5535795/36021

Environmental Engineering Laboratory

Dr. Zainura Zainon Noor (Head)

Tel: 607-5535626/35879

Separation Technology Laboratory

Assoc. Prof. Dr. Mohd Ghazali Mohd Nawawi (Head)

Tel: 607-5535629

Process Control Laboratory

Dr. Saharudin Haron (Head)

Tel: 607-5535589

Process Control Laboratory 2

Assoc. Prof. Dr. Mohamed Wijayanuddin Ali (Head)

Tel: 607-5535858

Unit Operations Laboratory

Assoc. Prof. Adnan Ripin (Head)

Tel: 607-5535632/35690

Polymer Processing & Testing Laboratory

Assoc. Prof. Dr. Abdul Razak Rahmat (Head)

Tel: 607-5535648

Polymer Synthesis Laboratory

Jamarosliza Jamaludin (Head)

Tel: 607-5535456

Polymer Characterization Laboratory

Assoc. Prof. Dr. Wan Aizan Wan Abdul Rahman (Head)

Tel: 607-5535841

Biotransformation Laboratory

Assoc. Prof. Dr. Firdausi Razali (Head)

Tel: 607-5535622/35805

Downstream processing Laboratory

Assoc. Prof. Dr. Ani Idris (Head)

Tel: 607-5535471

Genetic Engineering Laboratory

Assoc. Prof. Dr. Rosli Md. Illias (Head)

Tel: 607-5535472/35804

Applied Biology Laboratory

Dr. Lee Chew Tin (Head)

Tel: 607-5535623

Tissue Culture Laboratory

Assoc. Prof. Dr. Fadzilah Adibah Abd Majid (Head)

Tel: 607-5535513

Gas System Laboratory

Zulkifli Abd Majid (Head)

Tel: 607-5535652/35883

Gas Testing and Utilization Laboratory

Assoc. Prof. Dr. Noor Shawal Nasri (Head)

Tel: 07-5535614/35642

Gas Calibration Laboratory

Assoc. Prof. Dr. Rahmat Mohsin (Head)

Tel: 07-5535835/35840

Faculty Facilities

The faculty has a number of laboratories for teaching and learning purposes, laboratories for research and development activities and workshops. The laboratories are equipped with extensive range of state-of-art equipment. These laboratories are operated by laboratory technicians that are trained and specialized in specific fields. Software such as Aspen HYSYS, Aspen PLUS, Super Pro, MATLAB, FEMLAB, moldflow, Bioprocess simulator, FLUENT, GINA and Design II are also available to fulfill learning and research requirements.

The faculty is also equipped with meeting rooms, lecture and tutorial rooms, computing facilities and CAD laboratory, prayer room and cafeteria. Most of the classrooms have been upgraded to smart classrooms which are equipped with the PCs and secured by finger print access system door. The faculty is also equipped with wireless internet (Wi-Fi) for students. Over 100 Macbooks were distributed in year 2006 to FKKKSA academic staff to replace their old PCs in order to provide better teaching and learning services.

Besides UTM's main library, FKKKSA provides a mini-library (Esso Resources Centre) which contains reading materials such as references, engineering magazines, student thesis, reports, and working papers. It can accommodate 30 students at a time. This room is also equipped with computing, internet and audio visual services for students.



Gas Combustion Laboratory

Assoc. Prof. Dr. Azeman Mustafa (Head)

Tel: 07-5535625

Geology Laboratory

Khairuddin Abdul Karim (Head)

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Reservoir Fluid Analysis/Petroleum Testing Laboratories

Mohd Fauzi Hamid (Head)

Tel: 07-5535466

Drilling Fluid Laboratory

Wan Rosli Wan Sulaiman (Head)

Tel: 07-5535651

Heavy Duty Laboratory

Ariff Othman (Head)

Tel: 07-5535459/35460

Fluid Mechanic Laboratory

Assoc. Prof. Dr. Mat Hussin Yunan (Head)

Tel: 07-5535466



Universiti Teknologi Malaysia



Faculty of Chemical
& Natural Resources Engineering

OUR VISION

To be a world class centre of academic and research excellence in the field of chemical and natural resources engineering through innovation and creativity

OUR MISSION

To lead in the development of world-class professionals and technology in chemical and natural resources engineering through excellence in education and research



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