Vol : 1
January 2009

Feedback

Faculty of Electrical Engineering

Congratulations Robocon Teams!!

PBL : an Implemantation for OBE

Future Expection from Eng. Prof. Dr. Marizan Sulaiman

SAFEE

R THESIS

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Vice Chancellor

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Acknowledgement

All Faculty members wish to express their deep gratitude and utmost thanks to former Dean of FKE, Prof Dr Zainal Aripin bin Zakariah who led the Faculty for 1 year from 4 September 2007 to 14 September 2008. His contributions to the development and progress of FKE have been priceless. May he continue to be successful in his present post as Professor in the Institute of Technology Management and Entrepreneurship.

Congratulations

The Faculty would like to congratulate Engr Prof Dr Marizan Sulaiman for his reappointment as Dean of FKE, beginning from 15 September 2008. It is our hope that Prof Marizan will continue to lead FKE towards greater achievements in the years to come.

Welcome

The Faculty would also like to welcome the former Rectors of UTeM, Datuk Prof Dr Mohd Ruddin bin Abd. Ghani and Datuk Prof Ir Ismail bin Hassan to FKE. We are extremely honored and we hope that they will continue to share their knowledge and experience in ensuring that the faculty achieves the highest standards of excellence in the future.

Forwards

Vice Chancellor

Firstly, I would like to thank the faculty for giving me an opportunity to say a few words in this inaugural edition of Feedback, FKE's own bulletin. I would also like to congratulate every faculty member involved for their effort in producing this bulletin. Through the past 8 years since UTeM's establishment, FKE has gone a long way from becoming a small faculty operating in rented shophouses at Taman Tasik Utama to having its own buildings and facilities in the main campus where it is today. With humble beginnings, FKE proved that they have managed to produce high-quality graduates and also contribute extensive research advancement in their respective focus fields.

Their recent achievements speak volumes and commands acknowledgement. In Robocon 2007, FKE's robot team garnered the runners-up spot, losing only to the more experienced MMU Melaka in the finals. Despite that, FKE managed to collect the Best Design Award for the competition, beating all other teams in the country. In competitions and expos held every year, the faculty consistently receive awards and recognition for their research outputs. These are just a couple of examples highlighting that the quality of research members in FKE are in abundance.

There is still a long way to go for FKE in fulfilling UTEM's vision and mission whilst continuing to contribute to the world's pool of knowledge. However, with its current achievement, we can surely expect more to come from this faculty. I sincerely hope that all faculty members, whether it be academics or non-academics, to strive relentlessly in harmony to pursue excellence with utmost determination and hardwork.

Thank you.

Deputy Vice Chancellor (Academics and International)

Assalamualaikum w.b.t. and a very good day,

Firstly, I would like to congratulate Faculty of Electrical Engineering on the first edition of their newsletter.

Faculty of Electrical Engineering is one of the first and major faculties established in UTeM. It began its operation in June 2001, at Taman Tasik Utama, Ayer Keroh before moving to the Main Campus, Durian Tunggal in April 2005. From only one program offered in 2001, the faculty has expanded its capacity by offering seven programs which includes undergraduate degrees and postgraduate studies. The undergraduate's programs offered by the faculty comprises of Diploma in Electrical Engineering, Bachelor in Electrical Engineering (Power Industry), Bachelor in Electrical Engineering (Control, Instrumentation and Automation), Bachelor in Electrical Engineering (Power Electronics and Drives) and Bachelor in Mechatronics Engineering. Masters and PhD in Electrical Engineering are offered on research basis.

The Faculty has proved themselves through student academic excellence and staff achievements in various areas of research and activities. I believe these are the result of excellent leadership from the Dean with support from the committed administration staffs and of course the academicians who are experts in their fields. I hope the Faculty members will continue to provide excellent services in order to achieve their's and the University's missions in becoming a high class technical university.

Lastly, congratulations again to the faculty and the newsletter committee for their commitments and efforts in publishing FEEDBACK. Hopefully it will act as a medium to channel experiences and knowledge to others in the University.

Wasalam. Thank you.

Deputy Vice Chancellor (Research and Innovation)

Assalamualaikum w.b.t.,

Firstly, I would like to thank the Faculty of Electrical Engineering for giving me the opportunity to pen down a few words for this first edition of the faculty's newsletter.

Research has always been and will always be one of the key elements that defines the quality of any institute of higher learning. If a university is able to produce high-quality research outputs, it shows the capability of its academicians, research staffs and students. It will not only benefit the society at large but it will also attract more bright students and outstanding researchers to work together and be part of the UTeM family.

FKE has continuously shown their potential and quality in various field categorized under electrical engineering. One of the obvious example worth highlighting is Robocon, a robotic competition at the national level conducted annually, where we have been able to challenge and stand at par with well-established universities, coming at runners-up spot in the previous competition, beating the likes of UTM and UKM.

FKE has also been a consistent provider of awards and medals in their research innovation and design. In the latest British Science Invention held in UK, FKE managed to win a gold medal in a research entitled PC-Based Controller for Helicopter. Another research innovation which has provided UTeM with a string of recognition is the Display Advertisement Display System (DADS), which is a commercially-viable product that allows advertisement boards to be programmed via mobile devices such as handphones. This product is already in its commercializing phase.

Lastly, let us hope that the faculty continues to produce outstanding research output and come up with more creative and innovative applications in the years to come. Congratulations to the faculty publishing committee for their efforts in putting together this bulletin. Hopefully this will provide a medium for people to know and understand the objectives and achievements of the faculty better.

Wasalam. Thank you.

Dean's Forward

First of all, with great pleasure I would like to congratulate the Faculty's publication committee for being able to come out with the inaugural edition of the Faculty of Electrical Engineering's bulletin. As you all know, this bulletin goes under the name 'FEEDBACK' which is a symbolic depiction of the electrical engineering field.

The objective of this bulletin is to highlight the activities within the faculty to all UTeM staff and students. Everyone knows about the existence of this Faculty since it is one of the first faculties established at UTeM. However, not many people know about the activities happening in the faculty on a routine basis. It is my genuine that this bulletin furnishes you with an initial insight of the Faculty and how we strive towards enhancing UTeM's development, whether be it in research or teaching and learning activities.

It is my wish that this bulletin will be published twice a year, bringing updates on the Faculty's development and the latest news.

"STRIVE FOR EXCELLENCE"

Organizational Chart

Future Expectation

For this first edition. FEEDBACK has chosen the Dean of Faculty of Electrical Engineering, Engr. Prof. Dr. Marizan bin Sulaiman as our special guest. He is now back to lead FKE. Eventhough he is entrusted with a heavy responsibility, it is his primary desire to ensure that FKE continues to move ahead and receives acknowledgement in its focus research fields. Here is FEEDBACK's exclusive interview with the Dean to get to know a little bit more about his planning and future expectations for FKE.

FEEDBACK:
You are one of the persons responsible for the initial development of the Faculty. After serving as the Dean of Center for Graduate Studies, you are now back as Dean to continue leading the Faculty. In your opinion, what is our target now and where should we be heading?

DEAN:
Starting this year until 2015, three research clusters will be developed, comsisting of "Robotics and Industrial Automation", "Energy and Power Systems" and "Power Electronic and Drives". Postgraduate programs and research activities will be tilted towards these three clusters. In the 10th Malaysia Plan (MP), one of these research clusters will be upgraded a Center of Excellence whil the remaining two will continue as research laboratories. FKE is also assigned to support the niche area of the university in Advanced Manufacturing Technology (AMT). AMT consists of 7 major core areas covering all faculties at UTeM. FKE will be responsible for developing one of them, concentrating on Robotics and Industrial Automation (RIA). RIA will cover two specific courses being offered by FKE namely, Mechatronic Engineering and Control, Instrumentation and Automation Engineering.

FEEDBACK:
What is the faculty's position regarding student intake for undergraduates and postgraduates in the near future?

DEAN:
Beside increasing the number of undergraduate and diploma students to the maximum of 1800 students, the Faculty will keep on increasing the number of graduate students up to its full capacity of 300 students. In order to achieve this target, FKE will be offering Master-By-Taught courses beginning in 2009. Master-By-Taught courses will cover courses such as Industrial Power, Control and Automation, Power Electronics and Drives and Mechatronic Systems. The faculty will also plan for laboratory equipment not only to cater undergraduate students but can also accommodate the research activities to be carried out by graduate students.

FEEDBACK:
How do you intend to strengthen the human resource of the Faulty, i.e. the academics, technical staff and professionals of whom are the major asset of the Faculty?

DEAN:
Career path for academic faculty members begin typically as tutors, obtaining the Masters Degree to become lecturers before pursuing their PhD as soon as possible. After completing PhD's, they are required to commit themselves towards research activities and graduate supervision in line with the University's strategic plan.

> "You may be intelligent and skillful, but if you do not possess the right attitude, you would never harness your maximum potential. On the other hand, if you have a positive attitude, you can always learn new knowledge and skills through time and experience"

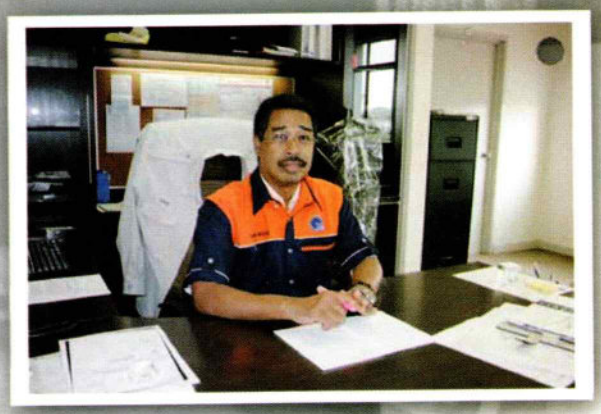
Preparation must be carefully planned so that every faculty member knows which areas of expertise they should focus on. It is also important for us to distribute the workforce evenly between the three research clusters. I would like to encourage all faculty members who are interested in pursuing PhD in UTeM to focus on a specific field that is in line with the Faculty's and University's aspirations. Apart from that, I think it is also important to maintain the balance between the number of faculty members furthering their studies at UTeM, locally and abroad, to maintain the mixture of quality for the faculty members.

FEEDBACK:
Beside lecturers, FKE also has Teaching Engineers (JP), whom are profesionals holding a bachelor's degree and possessing working experience in the industry. How do you see the prospect and potential of JPs in terms of the Faculty's development?

DEAN:
JPs are hired based on their industrial experience, hoping that they can import technical knowledge gained from the industry to the students. This helps equip students with the necessary knowledge relevant to their fields of studies and hopefully make them more favourable to employers. JPs can also contribute towards the development of research activities, particularly in developing the research laboratories. I hope the university will implement a special scheme for Jpsas soon as possible to pave the career pathway for JPs so that they remain in their professional line. This is also to attract more experienced engineers from the industry to join the university.

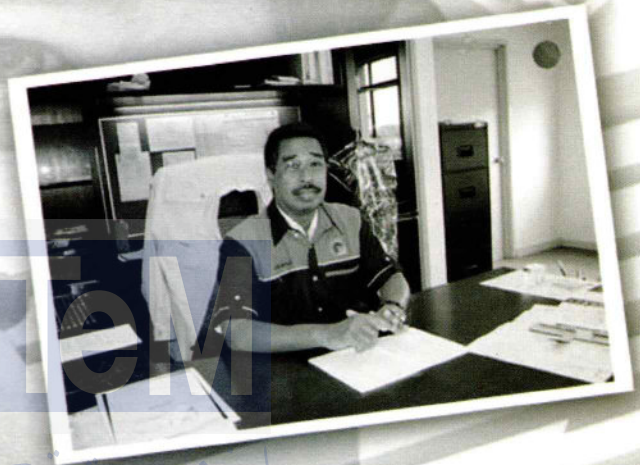
FEEDBACK:
What are your hopes and intentions on further enhancing the research activities and output at FKE?

DEAN:
I expect faculty members to be actively involved in research activities, supervisions of graduate students and getting more research grants. I will make sure that each faulty member will have at least one short term research grant under his/her name. I also strongly encourage all lecturers to go for PhD as soon as possible, either locally or overseas. Being able to do so while they are relatively young will be an advantage to them. Faculty members with PhDs can contribute mouch more to the development of the Faculty. In terms, of research, they can supervise more graduate students as well as providing more expertise in the development of the centers of excellence.



FEEDBACK:
What are your plans to improve the elements of soft skills and ability to converse in English among students and faculty members to achieve the university's target by 2010?

DEAN:
There are three domain in soft skills; cognitive, psychomotor and affective. The focus should be more towards the affective domain, because it determines our way of thinking and our commitment. You may be intelligent and skillful, but if you do not possess the right attitude, you would never harness your maximum potential. On the other hand, if you have a positive attitude, you can always learn new knowledge and skills through time and experience. Changing bad habits is difficult, that is why the focus is more on the affective domain. Similar approaches will be taken towards students; however the Center for Language and Human Development (PBPI) will be in charge of imparting the soft skills.



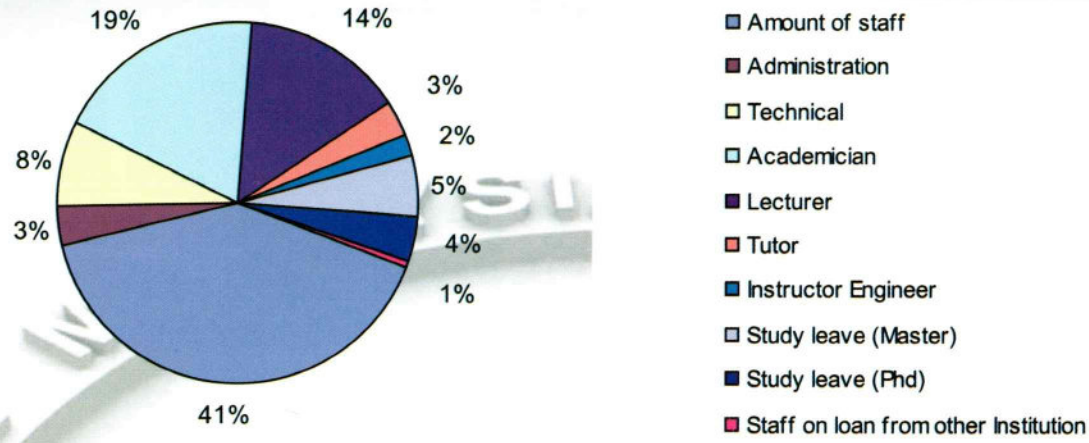
FEEDBACK:
Finally, according to the indicator of Malaysia's Universities Equivalency Grading to underline their academic reputation for IPTA in 2007 by the Malaysian Qualification Agency, UTeM only managed to obtain a satisfactory level. What is your opinion regarding this matter?

DEAN:
Equivalency in engineering programs should depend on accreditation. By having full accreditation, only then should we discuss about ratings where points are given according to main criterias such as facilities, academic staff qualifications, etc. Since we are still a new university, it is understandable that we are in no means able to compete with other more established universities in terms of research advancements and facilities. However, this also means that there are a lot more opportunities available for us to move ahead. The University continues to strive forward so that our reputation will improve in all aspects (i.e academic, infrastructure, and facilities). Give ourselves a few more years and I believe we will be on par with them.

FEEDBACK:
Thank you for time Prof.

DEAN:
You're welcome.

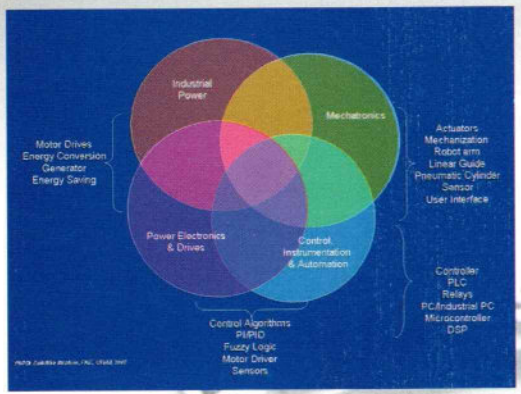
Statistic of FKE's Staff



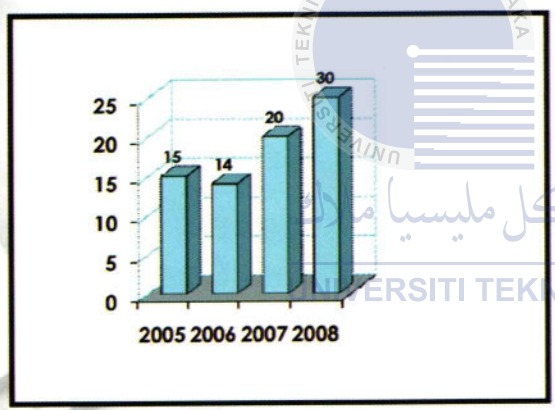
Students Enrolment

Bil	Program / Course	Year							
		2008	2009	2010	2011	2012	2013	2014	2015
1.0	B. Eng in Electrical Engineering (Industrial Power)	240	270	300	330	360	360	360	360
2.0	B. Eng in Electrical Engineering (Power Electronics & Drives)	240	270	300	330	360	360	360	360
3.0	B. Eng in Electrical Engineering (Control, Instrumentation & Automation)	240	270	300	330	360	360	360	360
4.0	Bachelor in Mechatronic	240	270	300	360	420	450	480	480
5.0	Diploma in Electrical engineering	210	240	270	300	330	360	360	360
6.0	M.Sc in Electrical Engineering (course work)	-	60	120	140	160	200	240	240
7.0	M.Sc in Electrical Engineering (by reseach)	20	45	60	70	80	90	90	90
8.0	PhD in Electrical Engineering	5	15	25	40	50	60	60	60
Total		1195	1440	1675	1900	2120	2240	2310	2310

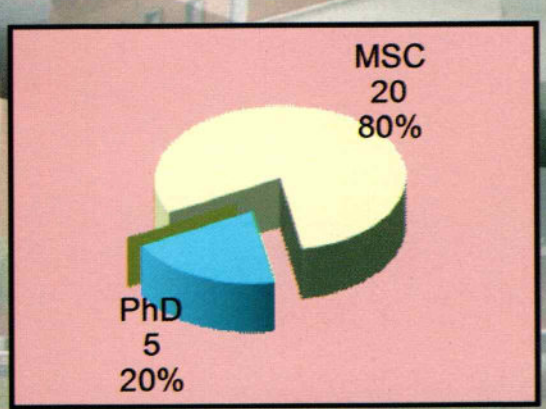
Technology Mapping In 2005 – 2008



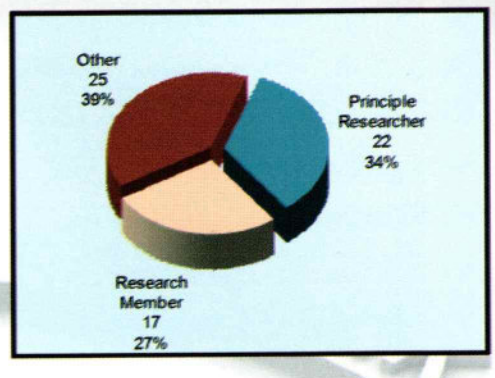
Number of Short-Term Project At FKE In 2005 - 2008



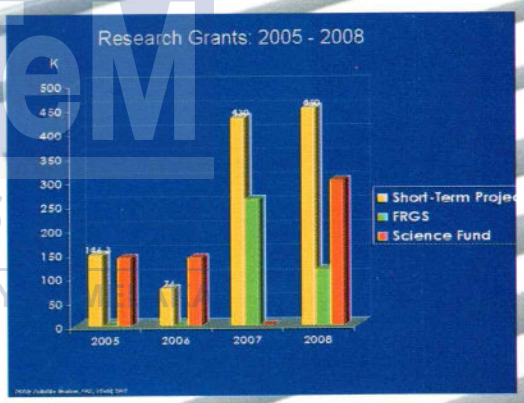
Projection Number of Postgraduate Student At FKE 2008-2009



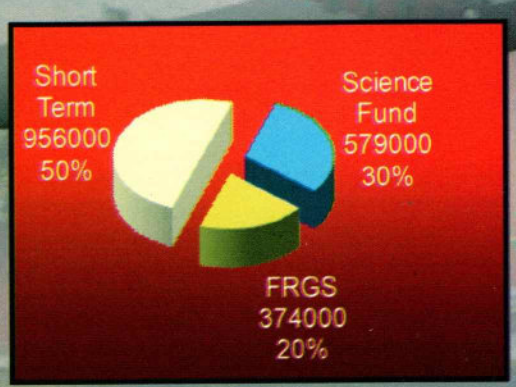
Staf Involved in Research Activities At FKE In 2006-2007



Research Grants At FKE In 2005 – 2008



Research Grants At FKE In 2006 – 2008



List of Short Term Research for 2007/2008 year end 31 December 2008

Bil	Project Number	Principle Researcher	Title	Allocation
1	PJP/2007/FKE(1) – S286	Hidayat bin Zainuddin	Design of Micro-Hydro Power Generation from House Water Tank for home Application	RM 20,000.00
2	PJP/2007/FKE(2) – S287	Hyreil Anuar bin Kasdirin	Design and Development of a Compact Flying Robot Using Intelligent Controller	RM 38,000.00
3	PJP/2007/FKE(3) – S288	Ainain Nur binti Hanafi	Embedded Controller for Robotic and Industrial Automation Applications	RM 20,000.00
4	PJP/2007/FKE(4) – S289	Ahmad Idil bin Abdul Rahman	Automatic Speaker Identification System for Robot Application	RM 19,000.00
5	PJP/2007/FKE(5) – S290	Ahmad Zaki bin Haji Syukor	An Automated Building Central Monitoring System (CMS)	RM 15,200.00
6	PJP/2007/FKE(6) – S291	Jurifa Mat Lazi	Design and Develop Power Over Ethernet	RM 20,000.00
7	PJP/2007/FKE(7) – S292	Aliza binti Che Amran	Smart Sensor for Intelligence Control System	RM 20,000.00
8	PJP/2007/FKE(8) – S293	Md. Hairul Nizam bin Talib	Design and Develop an Energy Saving Electronic Ballast	RM 20,000.00
9	PJP/2007/FKE(9) – S294	Fazlli bin Patkar	60W Stand-Alone Photovoltaic (PV) System	RM 20,000.00
10	PJP/2007/FKE(10) – S295	Ir. Rosli bin Omar	Design and Develop Active Filters in a High Battery Charger Application	RM 20,000.00
11	PJP/2007/FKE(11) – S296	Azhar bin Ahmad	Development of an Online Energy Monitoring System With Power Line Carrier (PLC) Communication System.	RM 20,000.00
12	PJP/2007/FKE(12) – S352	Saifulza bin Alwi @ Suhaimi	Design and Development of PLC –Based Nata De Coco Scrapping Machine	RM 20,000.00
13	PJP/2007/FKE(13) – S353	Syed najib bin Syed Salim	Real Time PID and Fuzzy Logic Position Controlled Dc Motor Drives for Robotic Application	RM 20,000.00
14	PJP/2007/FKE(14) – S354	Muhammad Nizam bin Kamarudin	Embedded Self-Tuning PI Controller for a Didactic Liquid Level System	RM 20,000.00
15	PJP/2007/FKE(15) – S355	Mohd Zulkifli bin Ramli	Design and Development of High Performance Battery Charger for Photovoltaic Application	RM 20,000.00
16	PJP/2007/FKE(6) – S356	Sahazati binti Md. Rozali	Embedded GPS Controller for Mobile Tracking Application	RM 20,000.00

List of Short Term Research for 2008/2009 year end 31 December 2008

Bil	Project Number	Principle Researcher	Title	Allocation
1	PJP/2007/FKE(1) – S396	Eng. Prof. Dr Marizan bin Sulaiman	Development of Expert System Based Software for Energy Monitoring Using Power Line Carrier (PC)	RM 50,000.00
2	PJP/2007/FKE(2) – S397	Ass. Prof. Dr. Zulkifilie bin Ibrahim	Mobile Smart Sensor for Water Quality Monitoring Task	RM 20,000.00
3	PJP/2007/FKE(3) – S398	Zulhani bin Rasin	Design and Development of Water Quality Monitoring System Using Multiple Sensor Inputs	RM 20,000.00
4	PJP/2007/FKE(4) – S411	Ass. Prof. Dr. Zulkifilie bin Ibrahim	Design and Develop an Integrated Embedded Controller for LED Rope Light Application	RM 20,000.00
5	PJP/2007/FKE(5) – S412	Shahrudin bin Zakaria	Moon Surface Searching Learning Model	RM 15,000.00
6	PJP/2007/FKE(6) – S453	Eng. Prof. Dr Marizan bin Sulaiman	Sequencing and Control Algorithm for Pattern Recognition of Industrial Processes	RM 50,000.00
7	PJP/2007/FKE(7) – S454	Ahmad Zubir bin Jamil	Design and Develop Smart PLC-Based Supervisory, Control and Data Acquisition System (SCADA)	RM 20,000.00
8	PJP/2007/FKE(8) – S455	Kyairul Azmi bin Baharin	Day lighting System for Home Automation	RM 20,000.00
9	PJP/2007/FKE(9) – S456	Ahmad bin Hj. Syukor	Automated Remote Messaging System (ARMS)	RM 24,400.00
10	PJP/2007/FKE(10) – S457	Aminudin bin Aman	Design and Development of Impulse Generator for Low Voltage Surge Protective Device	RM 20,000.00
11	PJP/2007/FKE(11) – S458	Dr. Tay Choo Chuan	Portal Kemasukan dan Penyelarasan Penilaian Kemahiran Insaniah (KI) di UTeM	RM 10,000.00

List of FKE's Publications and Recognitions

BIL	List of Publication	Conference	Author
1	Development of an Online Energy Monitoring System Using Power Line Carrier	The International Association of Science and Technology for Development 2008 2nd to 4th April 2008	1. Abdul Hakim Abu Bakar, 2. Azhar Ahmad, **3. Engr. Prof Dr Marizan Sulaiman**
2	Multi Sensor Vision System for Robot System with AI	International Conference on Science and Technology ISCTIE 2008. 12 to 13 Dec 2008 Penang, Malaysia	1. Syed Mohamad Shazali Syed Abdul Hamid, **2. Engr. Prof Dr Marizan Sulaiman,** 3. Azmi Said
3	Evaluation of Harmonics Suppression by Various Transformer Configurations	3rd International Conference on Postgraduate Education ICPE3 16th to 17th Dec 2008 Penang, Malaysia	1. Azhar Ahmad, **2. Engr. Prof Dr Marizan Sulaiman,** 3. Ir. Rosli Omar
4	An Online Energy Monitoring System in Campus Using Power Line Carrier	3rd International Conference on Postgraduate Education ICPE3 16th to 17th Dec 2008 Penang, Malaysia	1. Abdul Hakim Abu Bakar, 2. Azhar Ahmad, **3. Engr. Prof Dr Marizan Sulaiman**
5	MULTI SENSOR VISION SYSTEM FOR ROBOT SYSTEM WITH ARTIFICIAL INTELLIGENT	3rd International Conference on Postgraduate Education ICPE3 16th to 17th Dec 2008 Penang, Malaysia	1. Syed Mohamad Shazali Syed Abdul Hamid, **2. Engr. Prof Dr Marizan Sulaiman,** 3. Azmi Said
6	SPACE VECTOR ANALYSIS IN ELECTRICAL DRIVES FOR SINGLE-PHASE INDUCTION MOTOR USING MATLAB/SIMULINK	3rd International Conference on Postgraduate Education ICPE3 16th to 17th Dec 2008 Penang, Malaysia	1. Angun Anugrah, **2. Engr. Prof Dr Marizan Sulaiman,** 3. Rosli Omar
7	Fuzzy Logic Approach for Modeling Object Physical Features and Holes Occupancies	The 2nd Engineering Conference *EnCon 2008* 18th to 19th Dec 2008 Kuching, Malaysia	1. Syed Mohamad Shazali Syed Abdul Hamid, **2. Engr. Prof Dr Marizan Sulaiman,** 3. Azmi Said
8	Design of Vision Guided Manipulator for Optimal Dynamic Performance	Seminar on Research Achievement at UTeM (REACH 2007) Proceedings, Kuala Lumpur, 18-20 January 2008.	1. Azmi Mohd Said, 2. Herman Jamaludin, 3. **Engr. Prof Dr Marizan Sulaiman**
9	Motion and Energy Optimization of Vision Guided Manipulator for Optimal Dynamic Performance	Journal of Advanced Manufacturing Technology (AMT), January – June 2008	1. Herman Jamaludin 2. Azmi Mohd Said 3. **Engr. Prof Dr Marizan Sulaiman**
10	Interactive Software of Reduction of Sequence Networks	(MUCET 2008) Proceedings, Perlis, 15-16 March 2008.	1 Zainudin 2 **Engr. Prof Dr Marizan Sulaiman**
11	Vision Guided Manipulator: Design Approach for Optimal Dynamic Performance	(MUCET 2008) Proceedings, Perlis, 15-16 March 2008.	1. Herman Jamaludin 2. **Engr. Prof Dr Marizan Sulaiman**
12	Development of an On-Line Energy Monitoring System Using Power Line Carrier	4th IASTED Asia PES 2008, 2 – 4 April 2008, Langkawi	1. Hakim 2. **Engr. Prof Dr Marizan Sulaiman**
13	Dynamic Voltage Restorer Control Technique for Voltage Sag Mitigation	3rd Brunei International Conference on Engineering and Technology 2008, 3 – 4 November 2008	1 Rosli 2 Nasruddin 3. **Engr. Prof Dr Marizan Sulaiman**
14	A Singleton Fuzzy Logic Speed Controller For DC Motor drive	3rd Brunei International Conference on Engineering and Technology 2008	**1. PM Dr Zulkiflie Ibrahim**
15	Implementation of Ethernet Based Pi Speed Controller For DC Motor Drive Based On 8-Bit Rabbit Microcontroller	3rd Brunei International Conference on Engineering and Technology 2008	**1. PM Dr Zulkiflie Ibrahim**
16	The Effect of UNBabc Mapping Function Modification On GPS Tropospheric Delay	Simposium Kebangsaan Sains Matematik ke 16 (SKSM16) 3 - 5 June 2008	**1. Dr. Hamzah Sakidin** 2. Mohd Rizam Abu Bakar 3. Mohd Salmi Md Noorani
17	Alternative UNBab mapping function for GPS tropospheric delay	International Symposium & Exhibition On Geoinformation (ISG 2008) 13 – 15 October 2008	**1. Dr. Hamzah Sakidin** 2. Mohd Rizam Abu Bakar 3. Mohd Salmi Md Noorani 4. Ab. Nasir Matori
18	Improving Students' Understanding On Addition and Subtraction of Fractions Using Problem Solving Approach	International Conference On Learner Diversity (ICELD 2008)	1. Azhari Mohamad 2. **1. Dr. Hamzah Sakidin,** 2. Dr. Tay Choo Chuan
19	Solution manual of Engineering mathematics		1 Dr. Tay Choo Chuan **2. Dr. Hamzah Sakidin** 3. Rahifa Ranom 4. Mohd Rizuan Baharon 5. Irma Wani Jamaludin
20	Solution manual of Prelimineries mathematics		1. Dr. Tay Choo Chuan **2. Dr. Hamzah Sakidin** 3. Zuraini Othman
21	Development of an Online Energy Monitoring System Using Power Line Carrier	The International Association of Science and Technology for Development 2008 2nd to 4th April 2008	1. Abdul Hakim Abu Bakar **2. Azhar Ahmad** 3. Engr. Prof Dr Marizan Sulaiman
22	Evaluation of Harmonics Suppression by Various Transformer Configurations	3rd International Conference on Postgraduate Education ICPE3 16th to 17th Dec 2008 Penang, Malaysia	**1. Azhar Ahmad** 2. Engr. Prof Dr Marizan Sulaiman 3. Ir. Rosli Omar
23	An Online Energy Monitoring System in Campus Using Power Line Carrier	3rd International Conference on Postgraduate Education ICPE3 16th to 17th Dec 2008 Penang, Malaysia	1. Abdul Hakim Abu Bakar **2. Azhar Ahmad** 3. Engr. Prof Dr Marizan Sulaiman
24	Theory and Work Examples – Basic Control System	Tidak berkaitan	1. Syed Najid Syed Salim 2. Azrita Alias 3. Aliza Che Amran **4. Sahazati Md. Rozali** 5. Saleha Mohd Saleh
25	Pembangunan Alat Bantu Simulasi dalam Pembelajaran UPS	Persidangan Pembagunan Pelajar Peringkat Kebangsaan (NASDEC2008)	**Elia Erwani Hassan**, Aidi Fazlianah Abdul Kadir, Nor Hafieza Hassan, Nazrulazhar Bahaman
26	SHORT TERM LOAD FORECASTING USING DATA MINING TECHNIQUE	2nd IEEE INTERNATIONAL POWER & ENERGY CONFERENCE	1. INTAN AZMIRA BINTI WAN ABDUL RAZAK 2. MD. SHAH BIN MAJID 3. HASIMAH ABD. RAHMAN 4. MOHAMMAD YUSRI BIN HASSAN
27	Design of Vision Guided Manipulator for Optimal Dynamic Performance	REACH '07 Seminar Penyelidikan UTeM 2007 January, 18-20, 2008 Kuala Lumpur	**-Muhammad Herman bin Jamaluddin** -Prof Dr Marizan Sulaiman
28	Vision Guided Manipulator: Design Approach for Optimal Dynamic Performance	MUCET 2008 Malaysian Technical Universities Conference on Engineering and	**-Muhammad Herman bin Jamaluddin** -Prof Dr Marizan Sulaiman
29	Digital Advertisemnet of Display System via SMS (DADS2000)	Malaysian Technology Expo (MTE 08)	**-Muhammad Herman Jamaluddin** -Shahrir Alias
30	Dielectric Resonator Antenna	Malaysian Technology Expo (MTE 08)	-Mohd Shahrieel Mohd Aras **-Muhammad Herman Jamaluddin** -Mohd Hafiz Salim
31	ROBOCON 2008	ROBOCON 2008	-Staf Mekatronik -Pelajar tahun 1,3 & 4 FKE

32	Digital Advertisemnet of Display System via SMS (DADS2000)	Malaysian Technology Expo (MTE 08)	-**Muhammad Herman Jamaluddin** -Shahrir Alias
33	Digital Advertisemnet of Display System via SMS (DADS2000)	UTEMEX 2008 UTeM Expo on Research & Development	-**Muhammad Herman Jamaluddin** -Shahrir Alias
34	Design and Development of Compact Flying robot	UTEMEX 2008 UTeM Expo on Research & Development	-Alias Khamis -**Muhammad Herman Jamaluddin** -Hyriel Anuar Kasdirin -Hairol Nizam Mohd Shah
35	Digital Advertisemnet of Display System via SMS (DADS2000)	ITEX 2008 19th International Invention, Innovation & Technology Exhibition	-**Muhammad Herman Jamaluddin** -Shahrir Alias
36	Design and Development of Compact Flying robot	ITEX 2008 19th International Invention, Innovation & Technology Exhibition	-Alias Khamis -**Muhammad Herman Jamaluddin** -Hyriel Anuar Kasdirin -Hairol Nizam Mohd Shah
37	Water Valve Controller for Household Applications	ITEX 2008 19th International Invention, Innovation & Technology Exhibition	-Ahmad Zaki Hj Shukor -**Muhammad Herman Jamaluddin** -Fariz Ali @ Ibrahim -Izwan Azrul Rasli -Norazami Abd Patah
38	Digital Advertisemnet of Display System via SMS (DADS2000)	INPEX 2008 Invention of New Product Exposition, USA	-**Muhammad Herman Jamaluddin** -Shahrir Alias
39	Design and Development of Compact Flying robot	BIS 2008 British Invention Show, London	-Alias Khamis -**Muhammad Herman Jamaluddin** -Hyriel Anuar Kasdirin -Hairol Nizam Mohd Shah
40	Intelligent Mobile Robot Systems In indoor Environment Applications		Hairol Nizam Mohd Shah, Prof Dr.Marizan Sulaiman, Syed Najib Syed Salim,
41	Motion and Energy Optimization Of Vision Guided Manipulator For Optimal Dynamic Performance		Muhammad Herman Jamaluddin, Azmi Mohd Said, Prof Dr. Marizan Sulaiman.
42	Track and Obstacle Detection with Usb Camera For Vision - Based Automated Guided Vehicle		Sulaiman Sabikan, Prof. Dr. Marizan Sulaiman, Syed Najib Syed Salim, Muhammad Fahmi Miskon
43	Basic Control Systems (Theory & Worked Examples)		Syed Najib Syed Salim, Azrita binti Alias, Aliza binti Che Amran, Sahazati Md Rozali dan Saleha Mohamad Salleh
44	Development of Predictive Functional Control for Unstable Model-Based Autopilot Control	Engineering Postgraduate Conference (EPC 2008) on 21 & 22 October 2008 at Residence Inn, Kajang	**H. A. Kasdirin**, J. A. Rossiter
45	Design and Implementation of PC-Based Helicopter Controller	UTeMEX conjuction with Melaka Educational Carnival on 30 Mac 2008	**Hyreil Anuar Kasdirin**, Alias Khamis, Muhammad Herman Jamaluddin, Hairol Nizam Mohd Shah, Nor Sarizan M Youb
46	Design and Implementation of PC-Based Helicopter Controller	19th International Invention, Innovation & Technology Exhibition (ITEX 08) on 11 May 2008 at KLCC, KL	**Hyreil Anuar Kasdirin**, Alias Khamis, Muhammad Herman Jamaluddin, Hairol Nizam Mohd Shah, Nor Sarizan M Youb
47	Design and Implementation of PC-Based Helicopter Controller	British Invention Show (BIS 2008) on 15 – 18th October 2008 at Hertfordshire, UK	**Hyreil Anuar Kasdirin**, Alias Khamis, Muhammad Herman Jamaluddin, Hairol Nizam Mohd Shah, Nor Sarizan M Youb
48	Dielectric Resonator Antenna (DRA) Design	Malaysia Technology Expo (MTE 08)	**Mohd Shahrieel bin Mohd Aras** Dr. Mohamad Kamal b A. Rahim Mohamad Zainol Abidin b Abd. Aziz
49	Light Beamer Remote control via handphone	Malaysia Technology Expo (MTE 08)	Norhafiz Salim **Mohd Shahrieel bin Mohd Aras** Muhammad Herman bin Jamaluddin
50	Dielectric Resonator Antenna (DRA) for wireless application	2008 IEEE International RF and Microwave Conference.	**Mohd Shahrieel bin Mohd Aras** Dr. Mohamad Kamal b A. Rahim Mohamad Zainol Abidin b Abd. Aziz
51	An Array of Dielectric Resonator Antenna (DRA) for wireless application	2008 IEEE International RF and Microwave Conference.	**Mohd Shahrieel bin Mohd Aras** Dr. Mohamad Kamal b A. Rahim Mohamad Zainol Abidin b Abd. Aziz Zulhani bin Rasin
52	Solution Manual of Basic Power System	Penerbit UTeM	Jurifa Mat Lazi, **Hidayat Zainuddin**, Zaihasraf Zakaria
53	Knowledge-based Adaptive Frequency Control of Gas Turbine Generator Model for Multi-machine Power System	Journal of Electrical & Electronics Systems Research (JEESR) UiTM, Vol. 1, No. 2, pp. 11-22. June 2008	**H. Zainuddin**, S. Jovanovic
54	Development and Testing on the IDMT Overcurrent and Earth Faults Protection Relay Simulator	Seminar on Research Achievement at UTeM (REACH 2007) Proceedings, Kuala Lumpur, 18-20 January 2008, pp. 23-26.	M.H.N. Talib, M.H. Hairi, **H. Zainuddi**n, M.N. Othman, A. Noordin
55	Development and Testing on the IDMT Overcurrent and Earth Faults Protection Relay Simulator	Malaysia Technical Universities Conference on Engineering and Technology (MUCET 2008) Proceedings, Perlis, 15-16 March 2008, pp. 349-353.	M.H.N. Talib, M.H. Hairi, **H. Zainuddin**, M.N. Othman, A. Noordin
56	Experience in Developing Overcurrent and Earth Faults Protection Simulator	presented at International Conference on Engineering Professional Ethics and Education (ICEPEE '08), Kuala Lumpur, 13-15 May 2008	M.H.N. Talib, M.H. Hairi, **H. Zainuddin**, M.N. Othman, A. Noordin
57	Development of High DC Voltage Generator for HVDC Testing of Vulcanized Rubber	2nd International Power Engineering and Optimization Conference (PEOCO2008) Proceedings, Shah Alam, Malaysia, 4-5 June 2008, pp. 284-289	A. Khamis, M.F.C.A. Aziz. J.M. Lazi, **H. Zainuddin**, M.H. Hairi
58	Experience in HVDC Testing of Vulcanized Rubber in UTeM's High Voltage Laboratory	will be presented at 2nd IEEE International Conference on Power and Energy (PECon2008), Johor Bahru, Malaysia, 1-3 December 2008	A. Khamis, M.F.C.A. Aziz. J.M. Lazi, **H. Zainuddin**, M.H. Hairi
59	A Modified Approach for Load Flow Analysis of Integrated AC-DC Power Systems	TENCON 2000, Kuala Lumpur, September 2000.	**Aida Fazliana** and Mohd Wazir
60	Steady State Analysis of Power Transmission Using Unified Power Flow Controller	IEEE/PES T&D Conference and Exhibition 2002: Asia Pacific. Yokohama,Japan, Oct 2002.	**Aida Fazliana**, Mohd Wazir and Abdullah Asuhaimi
61	Computer Aided Education Application for Understanding Basic Principles of Induction Motor	The AEESEAP International Conference 2005, Hotel Istana, K.Lumpur, June 2005.	**Aida Fazliana** and Alita Dewi
62	Steady-state Performance of Static Syncronous Compensator (STATCOM)	The AEESEAP International Conference 2005, Hotel Istana, K.Lumpur, June 2005.	**Aida Fazliana**, Wahidah and Jurifa
63	Spesifikasi yang sesuai untuk Aplikasi Berbantu Komputer (Computer Aided Education) Bagi Pengajaran dan Pembelajaran dalam Bidang Kejuruteraan Elektrik.	Konvensyen Teknologi Pendidikan ke-18 Inovasi Teknologi Instruksional Dalam Pengajaran dan Pembelajaran, Hotel Grand Continental, Kuala Terengganu, September 2005.	**Aida Fazliana** dan Alita Dewi
64	Speed Drive Based on Torque-Slip Characteristics of the Single Phase Induction Motor	The Sixth International Conference on Power Electronics and Drive Systems, Renaissance Hotel, Kuala Lumpur, Dec 2005.	Aida Fazliana, Jurifa, Azman, Fazlli, Abdul Rahim, Mohd Azlan
65	An Interactive Learning on AC Power Transformer	AEESEAP Regional Symposium on Engineering Education 2007, Universiti Malaya, Februari 2007.	**Aida Fazliana**, Nur Hakimah and Gabriel
66	Computer Aided Education on Special Transformer as Interactive Approach in Power Engineering Education	International Conference on Engineering and ICT (ICEI 2007), Hotel Equatorial Melaka, Nov 2007.	**Aida Fazliana**, Jurifa, Ain Ain Nur, Mohd Hafiz
67	Three-Phase Squirrel Cage Induction Motor Analysis Using LabVIEW	International Conference on Engineering and ICT (ICEI 2007), Hotel Equatorial Melaka, Nov 2007	Nur Hakimah, Ozdemir Gol, Fazlli, **Aida Fazliana**
68	Pembangunan Alat Bantu Simulasi dalam Pembelajaran UPS	Persidangan Pembangunan Pelajar Peringkat Kebangsaan, UTM Skudai, Oct 2008	Elia Erwani Hassan, **Aida Fazliana Abdul Kadir** , Widyawatie Nawi, Nor Hafiezah Hassan,Nazrulazhar Bahaman
69	Simulink implementation of Digital Cascade Control DC Motor Model – A didactic approach	2nd IEEE International Conference on Power and Energy (PECon 08), December 1-3, 2008, Johor Baharu, Malaysia.	1. **Muhammad Nizam Bin Kamarudin** 2. Sahazati Binti Md. Rozali

Awards And Recognitions Received By FKE Staff (2008)

NO.	TITLE	AWARDS / RECOGNITION	EXHIBITION
1	Design and Development of Compact Flying robot	GOLD Medal (international)	BIS 2008 British Invention Show, London
2	Digital Advertisemnet of Display System via SMS (DADS2000)	GOLD Medal (national)	Malaysian Technology Expo (MTE 08)
3	Digital Advertisemnet of Display System via SMS (DADS2000)	GOLD Medal (international)	ITEX 2008 19th International Invention, Innovation & Technology Exhibition
4	Digital Advertisemnet of Display System via SMS (DADS2000)	GOLD Medal (national)	UTEMEX 2008 UTeM Expo on Research & Development
5	Design and Development of Compact Flying robot	SILVER Medal (national)	UTEMEX 2008 UTeM Expo on Research & Development
6	Design and Development of Compact Flying robot	SILVER Medal (international)	ITEX 2008 19th International Invention, Innovation & Technology Exhibition
7 8	Digital Advertisemnet of Display System via SMS (DADS2000)	SILVER Medal -Business Solution Category BRONZE Medal -Electrical & Electrinic Category (international)	INPEX 2008 Invention of New Product Exposition, USA
9	Dielectric Resonator Antenna	BRONZE Medal (national)	Malaysian Technology Expo (MTE 08)
10	ROBOCON 2008	- 1st Runner Up - Best Design (national)	ROBOCON 2008
11	Water Valve Controller for Household Applications	BRONZE Medal (international)	ITEX 2008 19th International Invention, Innovation & Technology Exhibition

Post Graduate Students

There are 31 post graduate students enrolment for FKE.

6 masters students already graduated.

Now, 25 post graduate students in 2008
a) PhD : 4 students.
b) Master : 21 students.

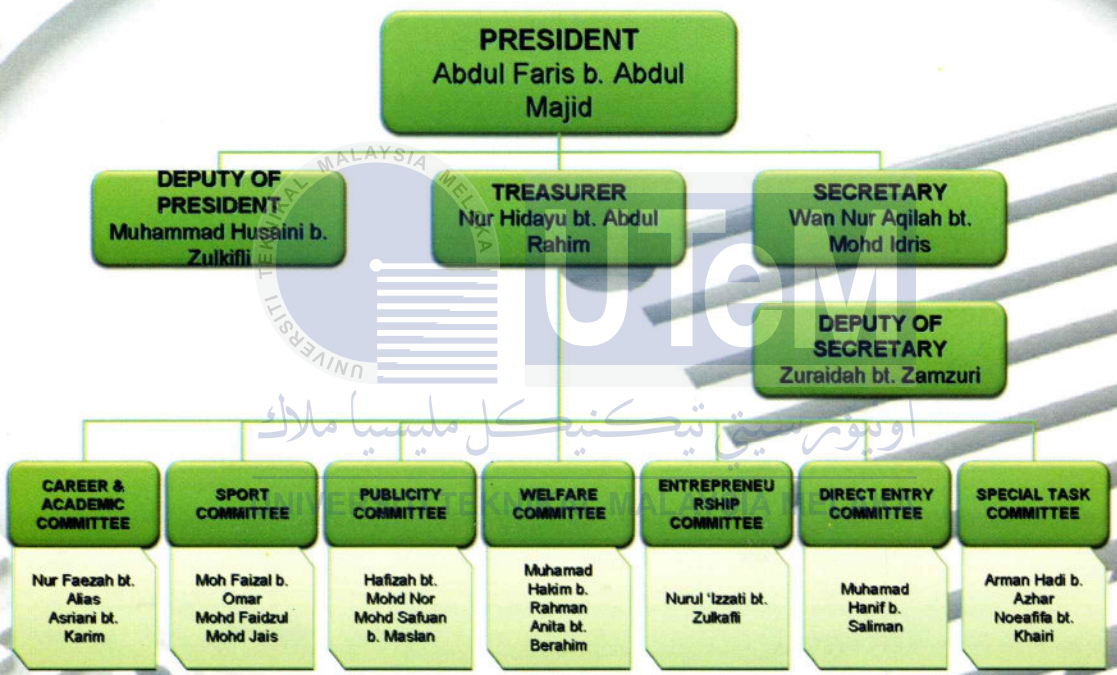
Research Grant Owned By FKE

YEAR	2003	2004	2005	2006	2007	2008	TOTAL NO.	TOTAL AMOUNT
IRPA		1					1	RM 139,000.00
SCIENCE FUND				1			1	RM 141,000.00
FRGS					4	1	5	RM 374,000.00
Short Term Grant	4	9	14	14	16	12	69	RM 1,465,903.55
TOTAL	**4**	**10**	**14**	**15**	**20**	**13**	**76**	**RM 2,119,903.55**

Publication / Conferences In 2008

No.	Type	International	Local	Total
1	Journals	0	5	5
2	Proceedings / Conferences	28	20	48
3	Books	0	5	5
Total		28	30	58

Student Association of Faculty of Electrical Engineering (SAFEE)'s Chart



SAFEE's Activities

Activities at YTL Power Station, Pasir Gudang,

DATE : 18th August 2008

ACTIVITY : Industrial visit to YTL Power Station, Pasir Gudang, Johor and Tanjung Pelepas Sea port (PTP), Gelang Patah, Johor.

DESCRIPTION : accompanied by two

1) Participated by 58 students of third year from FKE headed by SAFEE Vice President (Mr. Zubir Bin Mahmod) and Lecturers (Assoc. Prof. Dr. Musse Mohamud Ahmed and Mr.Hidayat Bin Zainuddin).

2) At the YTL Power Station, students have been explained about the power generation process with the type of Combine Cycle Gas-Turbine (CCGT), the operation of generators, generator-transformers and switchyard components such as step-up transformers and circuit breakers.

3) At Tanjung Pelepas Seaport (PTP), students have been exposed with the electrical power system which being used to execute the loading and unloading process at seaport.

4) Students have a chance to identify their career opportunities which are demanded at both visited places especially in relation to the electrical engineering.

PARTICIPANT : Third year student of FKE in Power Industrial Course

Industrial visit to YTL Power Station, Pasir Gudang, Johor and Tanjung Pelepas Sea port (PTP), Gelang Patah, Johor.

Orientation Week at FKE

DATE	:	23rd July 2008
ACTIVITY	:	Assembly of new first year student, session 2008/2009 with Dean of FKE, Y.Bhg. Prof. Ir. Dr. Zainal Aripin Bin Zakariah at Power Electronic Laboratory, FKE, UTeM.
DESCRIPTION	:	1) To acquire the information and feedback concerning with the new first year student session 2008/2009. 2) To give a chance to the new first year student to highlight their problems and difficulties faced at the faculty and suggestions in order to overcome it.
PARTICIPANT	:	First year student, session 2008/2009

Programmable Logic Controller (PLC) Workshop

DATE : 13th September 2008

ACTIVITY : Programmable Logic Controller (PLC) Workshop at PLC and Control System Laboratory, FKE.

DESCRIPTION :

1) Participated by 38 students of FKE from Diploma and Degree level.

2) Students have been exposed to the theory of software and hardware of PLC such as to read and draw the "Ladder Diagram" and to design the PLC program using "Programming Console".

3) Students also have been taught through practical approach about the usage of "Programming Console" as a PLC interface, utilize of hardware components such as buzzer and mini fan as a load to the program which has been designed.

4) Finally, students have been explained about the application and the importance of PLC to the industries.

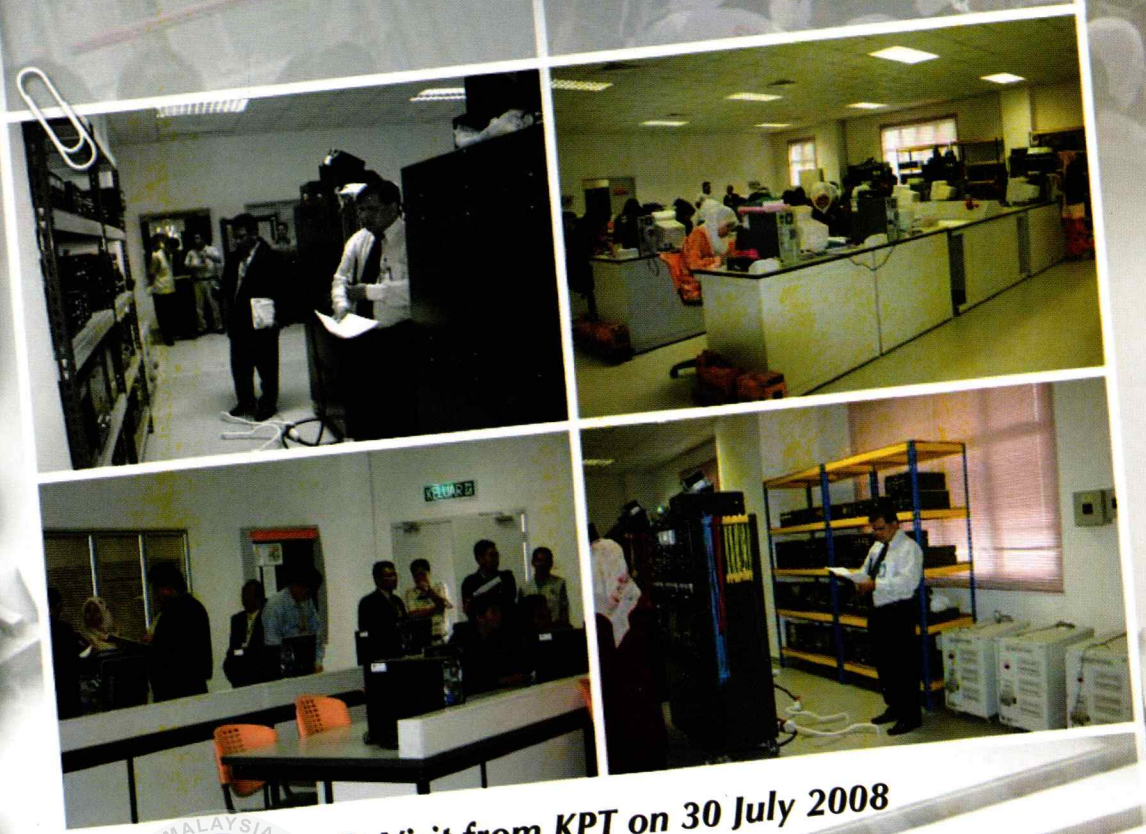
PARTICIPANT : Diploma and Degree student of FKE.

FKE's Activities

IEEE Membership Drive Day held on 27 February 2008

IEM & BEM Membership Drive Day held on 13 August 2008

Activities



Audit Visit from KPT on 30 July 2008

Student Registration on 4 July 2008

Excellent Service Award (Staff)

1. Maaspaliza bt. Azri
2. Azrita bt Alias
3. Aida Fazliana bt Abdul Kadir
4. Fariz bin Ali@ Ibrahim
5. Ahmad Zaki bin Hj. Shukor
6. Norerni bt A. Rahman
7. Asnan bin Abas
8. Mokhtar bin Muhammad

Student Award

- ***Vice Chancellor Award***

  a. Ngo Chee Guan - BEKP
  b. Nurzawani bt Saharudin - BEKP
  c. Mohd Zulfadli bin Ibrahim - BEKC
  d. Sarah bt Jewahid - BEKP

- ***Industrial Award***

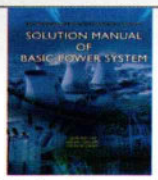
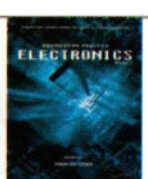
  a. Ahmad Ismail bin Man - BEKC

- ***Chancellor Award***

  a. Lim Chian Nan - BEKE

Sport Day & Inter Departmernts Game

Publications

Title	Author	Publisher	ISBN	Content	Price
 Solution Manual of Basic Power system	-Hidayat Zainuddin -Zaihasraf Zakaria -Jurifa Mat Lazi	Penerbit Universiti UTeM	978-983-2948-25-4	This book was created to fulfill the need of undergraduate students in faculty of Electrical Engineering, UTeM. The material for this book will cover questions and answers for Per-Unit System, Modeling of Transmission Line, Load Flow Analysis, Symmetrical Components, Fault Analysis and Protection.	RM 15.00
 Engineering Practice: Programmable Logic Controller	- Maslan Zainon - Mohd Arif Mat Hanafiah - Ahmad Aizan Zulkefle	Penerbit Universiti UTeM	978-983-2948-17-9	This Programmable Logic Controller (PLC) module has been prepared to assist BEKU1124 (Engineering Practice) subject that is compulsory for the award of UTeM's BEng. (Hons) in Electrical Engineering. The module will be used mainly in PLC workshop, one of the workshops that will be attended by the students as to fulfill BEKU1124 subject requirements	RM 10.00
 Engineering practice : Wiring System & Motor Starter	- Ir. Md Nazri Othman - Aminudin Aman - MD Hairul Nizam Talib	Penerbit Universiti UTeM	978-983-2948-18-6	- Basically this module will cover on safety, IEE Standard and regulation, equipments, components, operation, testing and commissioning. Each sub module will covers practical exercise during conducting a wiring workshop.	RM 10.00
 Engineering Practice : Electronics	Ahmad Zaki bin Shukor	Penerbit Universiti UTeM	978-983-2948-19-3	This Electronics module notes was prepared with the intention to equip student taking the electronics Workshop in the special semester workshop at the Faculty of Electrical with sound knowledge of the basic components used in the module. Although the module is all about the components for preparing a PIC programmer or PIC burner, the processes in doing so will be learned indirectly by the student. This includes arranging the components on a strip board and soldering them.	RM 10.00
 Solution Manual of Engineering Mathematics	Tay Choo Chuan, Hamzah Sadikin, Rahifa Ranom, Mohd Rizuan Baharon, Irma Wani Jamaludin	Penerbit Universiti UTeM	978-983-2948-32-2	One of the most challenging aspects of mathematics learning is to give students suitable examples and exercises which can improve their understanding. The material in this book will cover questions and answers for Function of Several Variables, Multiple Integral and Vector.	RM 10.00
 Solution Manual of Differential Equations	Tay Choo Chuan, Norazlina Abdul Razak, Norasra A. Rahman	Penerbit Universiti UTeM	978-983-2948-28-5	This solution manual is designed to serve as a study guide for engineering students of UTeM. The material in this book will cover questions and answers for Second Order Linear Differential Equation, Laplace Transform, Fourier Series and Partial Differential Equations.	RM 10.00

Congratulations Robocon 2008 Teams!

A group of highly talented young men from FKE, UTeM again proved that the mission to be a world class university is not a day dream. Lead by Fazli Noor, Ahmad Zaki Hj Shukur, Fariz Ali@Ibrahim, Herman Jamaluddin and the others together with a group of brilliant students showed a remarkable success in the Robocon 2008 held at UKM in March.Beaten by MMU in the final to be the 1st runner up and then won the Best Design Award warned the other universities, we are not budak hingusan anymore. Reporter Zulhani b. Rasin comes with the report to dig the secret behind their success.

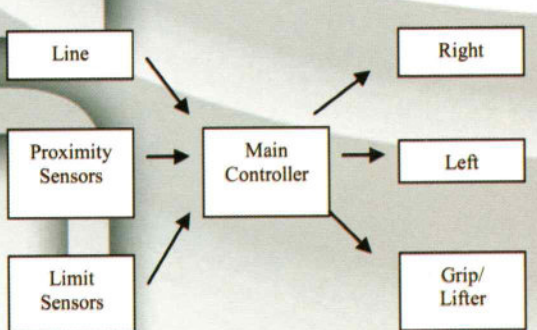
The Robot Concept

The robots in Robocon are mobile entities which can move around and perform tasks in the game field. The 2008 Robocon's theme is created by India, this year's organizer. The robots are divided into manual operated and automatic. There is only one manual operated robot, to pick the objects in certain areas and place into the baskets surrounding the automatic area. It can score points but cannot interfere with the operation of the automatic robot nor can it enter the automatic robot's area.

The automatic robots can score points by picking and holding up objects of cubic shape (representing white and yellow butter) until the end of the game period, which is three minutes. The number of automatic robots is a maximum of three, and the tasks can be divided to score maximum points in the automatic area. The white butter is 6 points while the yellow butter is 12 points.

The automatic robots can navigate via lines placed on the game field but must adhere to certain specifications, size and weight. The robots also can not use fuel or any hazardous chemicals as power supply and mostly use batteries as power supply. The game lasts for three minutes and the team that scores the most points will win the game!

The Block Diagram



The overall block diagram of the robot shows the sensors and actuators used. It primarily consists of line, proximity and limit sensors as inputs and right and left motors, gripper motors and lifter motors.

The Features of Robot

The robot can basically move around via differential drive motor arrangement, allowing the robot to move forward, reverse, and turn left or right. The right and left motor helps to actuate movement of the robot. The grippers or lifters grips and lifts object according to the competition specifications of size and weight. The presence of the line sensors allows the robot to communicate with the surrounding game field. It guides the robot's path to and from various locations on the game field to pick up object and block opponents score areas.The robot is also able to pick objects weighing a kilogram in cubic shape, representing butter in the game theme. Besides picking up objects, the robot can also actuate blocker mechanism to block opponents from scoring points. The very same motor to grip is used to block.

The Main Processor

The main processor used in the robot is the PIC microcontroller. It is chosen because of the ease of use and less instruction set. Furthermore, vast references are available online. It is one of the favorite microcontrollers used in the world today. The in-built hardware modules, such as Pulse Width Modulation and Analog to Digital Converter are used without hassle as the compiler's library allows easy access to these modules. It also simplifies the program written.

The Main Sensors

The main sensors used by the robot are depicted by the block diagram of the robot. Line sensors are somewhat a necessity, as a guide to the robot's path to navigate around the game field. It differentiates the white line from the background color. The proximity sensors are used in conjunction with the operation of the gripper motors to detect a certain range to activate or deactivate in either forward or reverse direction. It also avoids collision with objects or damaging it.

The limit sensors are also used with the grippers, and used also as a trigger button to start, reset or stop the robot. When used with grippers, it stops the grippers or lifters motion when reaching a certain limit so as not to over-lift or grip.

The Success Story

UTeM team represented by UTeM3 won the 1st runner up, lost to the more experienced MMU Malacca and also won the Best Design Award. The team members were ecstatic over the success, considering this was only the second time they had participated in the competition. "We came only with the advantage of our strategies because we did not have the technology that other teams had," said team member Mohd Zaim Zulkifli, 23. Group leader Mohd Adam Sepee, 23, said that preparing for the competition was stressful. "We had to build our robots within six weeks with limited equipment and resources. We also had to sleep overnight in the lab!" he said. On behalf of the faculty members, your success is a catalyst for the success of the faculty. You all make us proud and again congratulations !

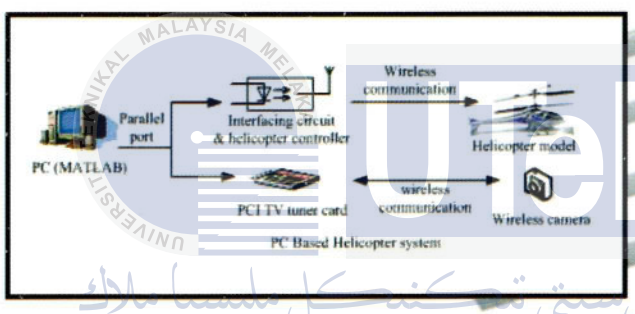
Innovation

PC BASED HELICOPTER CONTROLLER

Design and Implementation of PC-Based Helicopter Controller

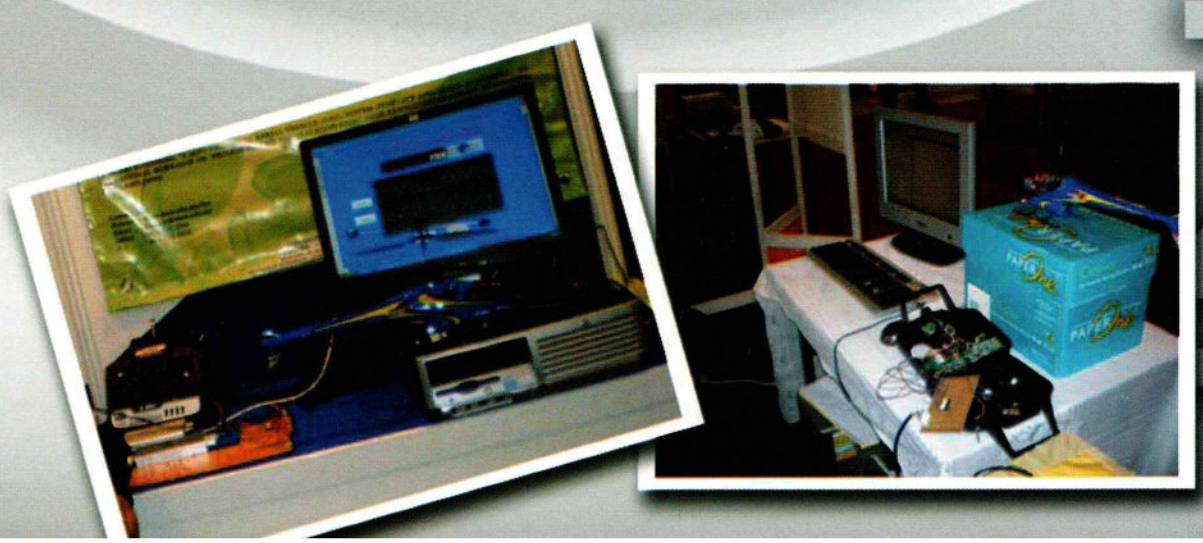
The unman air surveillance operation is essential especially in security and spying activity. Currently, this kind of operation is done by a system consist of wireless small size aircraft. However, the air craft does not provides stable static motion while in the air thus made the air surveillance operation activity at fixed coordinate location unrealized. Therefore, a team of researcher from Fakulti Kejuruteraan Elektrik, Universiti Teknikal Malaysia Melaka consist of Mr. Alias bin Khamis, Mr. Hyreil Anuar bin Kasdirin, Mr. Hairol Nizam bin Mohd Shah, Mr. Muhammad Herman bin Jamaluddin and Miss Nor Sarizan binti Mat Youb is take an opportunity to develop the system by using the helicopter since it can produce a stable static motion while in the air compared to the aircraft.

The movement of the helicopter is control by the remote controller via standard radio frequency (RF) wireless communication. The remote controller is attached with servo motor to control the helicopter movement by adjusting the position of servo motor rotor as per user command using the MATLAB software



The digital camera is attached to the helicopter for purpose of image recording. The image signal is transmit through wireless communication using standard RF communication to the image acquisition device which is the PCI TV tuner card for visualization.

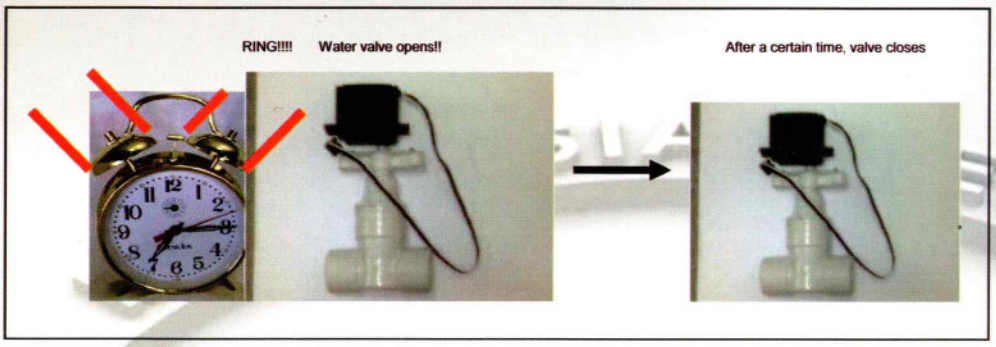
The digital camera is attached to the helicopter for purpose of image recording. The image signal is transmit through wireless communication using standard RF communication to the image acquisition device which is the PCI TV tuner card for visualization. The PC based helicopter control has been published in various exhibitions. The product also has received several recognition such as gold medal in British Invention Show (BIS 2008), silver medal in UTeM Research & Innovation Exhibition, MITC, Melaka and International Technology Expo (ITEX), KLCC (May 2008). The reseachers is hope that this product can be be utilized especially for the national benefit.



Water Valve Controller for Household Application Applications

The Concept

Concept of this product is a controller that is able to control the opening and closing process of a water valve. The valve will open to allow water to flow through it for a pre-programmed time duration and then close to stop the flow.



Basic concept of product

The product made up of several electronics components such as the Peripheral Interface Controller (PIC), 7 segment LCD to display the time and others basic electronics components; resistors, transistors, switches and hobby servo motor.

The prototype

Objective of Product
This product realizes the concept of stand alone time-based sensor-free water valve controller. The target is for the product to be commercialized for non-industrial applications such as the household gardening and agriculture

Advantages

Time-based sensor-free controller is the main advantage of this product. Others from that, this productcan be digitally set to any time in a day in hours and minutes and be activated at every 12 hours. Using USB connection with computer to program its operation easy to develop based on customer's options. Ability to run on batteries makes this product very portable and flexible.

Novelty

This product is a stand alone time-based water valve controller. It does not rely on any server or remote controller and functions on its own. The user only has to set the trigger time for allowing water flow and the duration of water flow is programmable via USB. The system runs on AC power supply and batteries.

Achievement

This product won the bronze medal in the recently held 19th International Invention Innovation & Technology Exhibition (ITEX 08) at Kuala Lumpur Convention Center from 9th to 11 May 2008. Congratulations to Ahmad Zaki b. Hj Shukur who was responsible for the development of the product.

DIGITAL ADVERTISMENT DISPLAY

Digital Advertisement Display System Via SMS [DADS 2000]

The Concept

The advertisement using LCD has gained popularity since it provides a flexible and interactive way especially in term of animation of the advertisement that not offered by the other method. It is including the way to updating the massages as well as animation involve in how the massage is represented. Realizing the high potential of the application of LCD in advertisement activity, three UTeM's researcher from Fakulti Kejuruteraan Elektrik which are Mr. Muhammad Herman bin Jamaluddin, Mr. Ahmad Zaki bin Shukor and Mr. Shahrir bin Alias has come out with an idea to improve and upgrade the LCD adevertisement system.

Traditionally, the LCD display need to be connected to a personal computer to update the message need to be published. It is requires the use to be close to the location of the LCD display or at least have connection of wired telecommunication line to access the LCD display in some distance. To enhance the flexibility of the message modification process, in this research the wireless communication technique is use to replace the traditional one.

This new technique called Digital Advertisement Display System via SMS (DADS 2000) using a SMS to send a latest information need to be displayed. The system is comprise a cellular phone use to create and send the information, GSM antenna and module to receive the messages and the microcontroller to process the data as well as to control the LCD display output. On top of that, in this new invented digital advertisement display system, a security system trough the caller line identification presentation (CLIP) is to prevent unauthorized user to access the system. By using this new system, the updating information from afar into thousand miles has been realized and the complexity of the information modification process has been eliminated as sending the text messages using the cellular phone is concerned.

The DADS2000 has been developed since December 2007. It has been gone through various exhibitions locally and internationally. The product also has received several recognition such as gold medal in Malaysia Technology Expo (MTE), PWTC (Febuary 2008), UTeM Research & Innovation Exhibition (April 2008), Kuala Lumpur and International Technology Expo (ITEX), KLCC (May 2008). Base on the achievement, on Jun 2008, this product has been enter the Invention of New Product Exposition (INPEX) in David Lawrence Hall, PA, USA. This product was recieved silver medal for Business Solution category dan bronze medal for Electronic category. The reseachers is hope that this product can be commercialize and looking into a MOU with local and international company to put the product into the open market.

Master Thesis 1

Author : Aminudin Aman

Design And Development Of Impulse Generator For Low Voltage Surge Protective Device.

A surge is a transient electrical disturbance that is caused by lightning, switching operations or faults. Lightning is a major contributor of voltage surges. The study of lightning has spanned over nearly three hundred years. The lightning protection system (LPS) is the basic requirement in lightning protection for buildings and electrical installations from damages due to over voltage or surge. Due to the increasing number of electronic devices and the growing sensitivity of electronic components, communication and computing equipments, surge protective devices (SPDs) are required to protect them against over voltages. This project is proposed to create artificial voltage surges as well as artificial low voltage switching phenomena by designing and developing a low voltage impulse generator with rated voltage of up to 5kV. By using this impulse generator equipment, the electrical characteristic and performance of low voltage SPDs such as MOV and opto-isolator could be determined.

Objectives of the research are simplified as below:

1. To develop 5 kV impulse voltage generator.
2. To generate 1/1000μs single impulse voltage.
3. To conduct tests based on single artificial lightning impulse voltage on low voltage SPD.
4. To analyzes the effect or performance of electrical characteristic low voltage SPD against indirect lightning behavior and switching phenomenon.

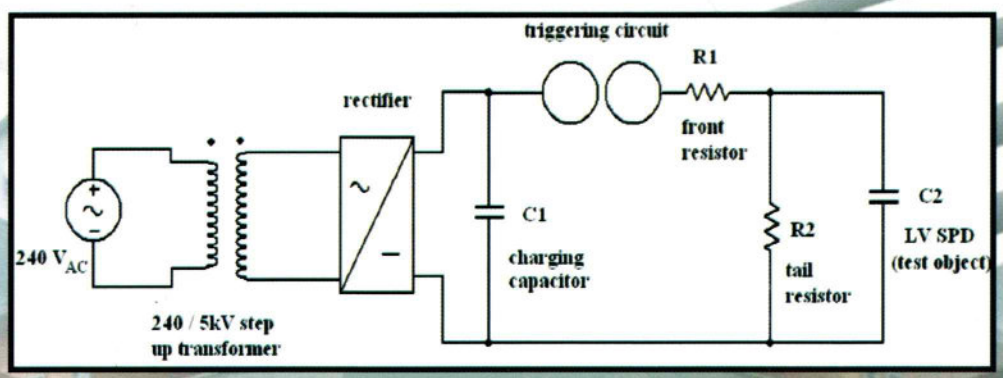


Figure: Impulse Generator for Low Voltage Surge Protective Device System Block Diagram

Master Thesis 2

Author : Muhd Khairi Aripin

Inverted Pendulum On Rotating Disc

This research is about studies on unstable and non-linear system of rotational inverted pendulum where a system had been properly set up included the plant, electronics hardware and controller. The dynamic and mathematical modeling of inverted pendulum system had been determined and obtained so that the controller and entire system will work efficiently. A modern controller strategy then implemented to achieve the stability control objective of rotational inverted pendulum. In this project, a similar system which is an inverted pendulum on rotating disc was set up. The hardware set up for the system using DC motor and others mechanical part was implemented to build an inverted pendulum plant. Electronic components that interface with pendulum plant was identified and incorporated into the system. H-bridge driver was used to control the power switching to the motor and optical quadrature encoders are implemented to detect and measured the position, speed and movement of DC motor and pendulum. Another feedback sensor used is Hall Effect current transducer to measure the current of the motor. An advance digital signal controller (dsPIC) was introduced to achieve the stability control of inverted pendulum on rotating disc.

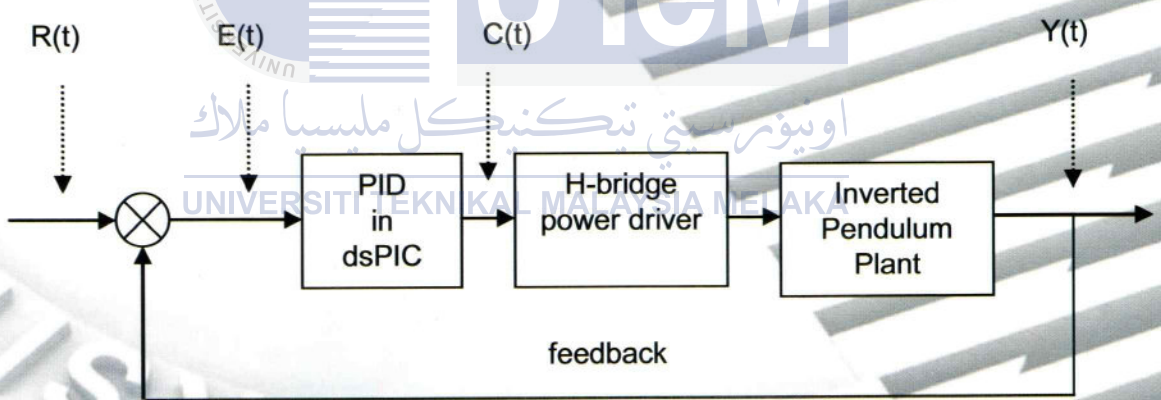


Figure : Control System of Inverted Pendu

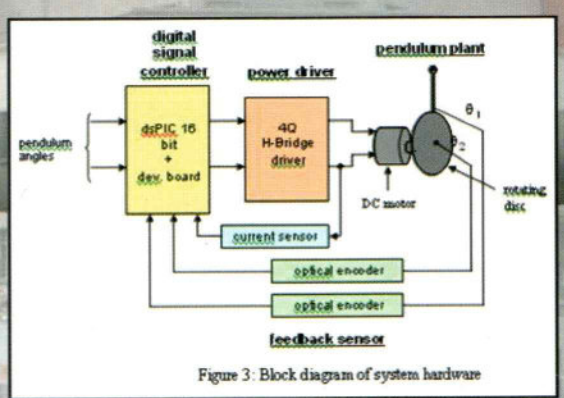


Figure 3: Block diagram of system hardware

Outcome Based Education



Outcome-based Education (OBE) has been initiated by Malaysia Quality Agency at the Ministry of Higher Education formerly known as Quality Assurance Department. The implementation of OBE in engineering education sector has also been driven by Engineering Accreditation Council and Board of Engineers Malaysia. OBE is the essential requirement for Malaysia by 2007 in order to become a fully signatory member of The Washington Accord, a multinational agreement for the mutual recognition of engineering degrees.
OBE is an educational process that focuses at achieving certain specified outcomes in terms of individual student learning. Outcomes are key things students should understand and be able to do or the qualities they should develop.

In 2003, Faculty of Electrical Engineering has made a move to transform the undergraduate curriculum into Outcome Based Education in accordance to fulfill the requirements of Ministry of Higher Education. In this approach, inputs from stakeholders are taken into account when reviewing the curriculum. As a result, there are courses in which their teaching approach have been changed including the methods such as cooperative learning, student-centred learning and problem based learning. This new curriculum was implemented beginning from the 2004/2005 academic session. If the outcomes are not achieved, they are reinstated to ensure that there is a Continual Quality Improvement (CQI) within the education system.

In this curriculum, based on inputs collected from the stakeholders, Faculty has developed the following Program Educational Objectives in order to be achieved by the graduates several years after graduation:

1. An ability to apply fundamental knowledge of mathematics, sciences, electrical and/or mechatronics engineering.
2. An ability to design a system, component, or process to meet desired needs within realistic constraints such as economics and societal responsibilities.
3. An ability to design and conduct experiments, as well as to analyze and interpret data for practice and applications.
4. An ability to identify, formulate, and solve engineering problems.
5. An ability to use engineering tools necessary for engineering practices.
6. An ability to practice professional and ethical conduct.
7. An ability to communicate effectively, not only within the engineering society but also within the community at large.
8. An ability to function in a team effectively.
9. An ability to undertake life long learning.
10. An ability to identify fundamental entrepreneurship skills as applied in the engineering profession.
11. An ability to have knowledge of contemporary issues.

To create awareness among the staff of Faculty of Electrical Engineering on Outcome Based Education, there were several workshops and talks had been held in the faculty. Among them were, a workshop of OBE with stakeholders held on 18th to 20th July 2008 and Continual Quality Improvement workshop held for Faculty of Electrical Engineering Staff on 20th to 22nd June 2008.

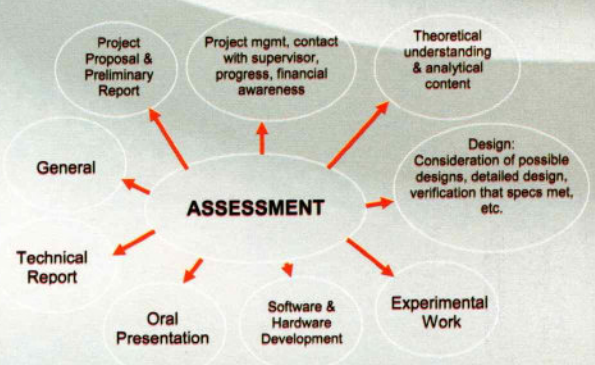
Implementation of OBE in Faculty of Electrical Engineering

It is necessary to identify an educational model that focuses on professional subjects and on students' personal skills and their abilities to learn, as well as life-long learning abilities. One of the techniques focused upon that can comply with the above-mentioned demands is so-called Problem-Based Learning (PBL). The acronym PBL has been used in many different situations and it has a wide variety of interpretations. Due to this, PBL is often supported by an additional document to make a more understandable acronym in a given setting [Egon Moesby, 2004].

This line is followed by using the acronym POPBL, which stands for Project Oriented and Problem-Based Learning carried out in teams. This has been done so as to make a distinction between a PBL taught course with minor problem solving attached to the lecture, and large and comprehensive projects that run over a longer period, maybe for a complete semester. POPBL is utilized in the latter situation, but it can sometimes be difficult to make a good distinction between the two interpretations (PBL & POPBL) [Egon Moesby, 2004].

In order to fulfill the requirement set by the accreditation body, for example, Engineering Accreditation Council in Malaysia, as well as university and faculty policies, Mr. Maslan bin Zainon has been trying his best to implement PBL/POPBL into his teaching subject as one of the approach used in teaching and learning for Outcome-Based Education (OBE). Although a lot of problems occurred during the project implementation but towards the end, the students are able to complete the entire task given successfully. In addition, they managed to produce good products even though they are still in the beginning of third year of studies. PBL/POPBL is not only focuses on skills, commitment and creativity but the ability to work as a team, which is the main strength of the entire activity. Besides, it can be a significant exposure to the students for their final year projects.

Mr. Maslan also shared how he implements PBL in his subject by dividing students into several groups, which consist of five to six members. Then students need to design and develop a basic automated system with an open-ended application where they can design any type of application system depending on their creativity. However, there are minimal technical requirements, which need to be fulfilled. The students must use PLC as the main controller and fulfill the minimum points of PLC inputs and outputs. The system must also consist of electrical actuator, pneumatic actuator or the combination of both. Usually the task would be given at the beginning of the semester, which must be completed within one semester period. The assessment would be done throughout the semester, which the involved criteria can be illustrated by the diagram below.



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