

TEACHING PORTFOLIO



Azli Bin Yahya, Ph.D

Department of Biotechnology and Medical Engineering
Faculty of Biosciences and Medical Engineering
Universiti Teknologi Malaysia
81310 UTM Skudai
Email: azli@fke.utm.my
Tel.(office): 07-5558439 / Tel. (mobile): 012-3837347

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1. Introduction

My early career began after I have completed my diploma from Ungku Omar Polytechnic, Ipoh majoring in Mechanical Engineering. I've been working with Motorola company for 1 ½ years before pursuing my studies to a bachelor degree in Electromechanical Power System at University of Glamorgan in South Wales from 1995 to 1997. I was then, sponsored to do a master degree (MSc) in Electronic Production in the following year by Universiti Teknologi Malaysia (UTM) and consequently employed as a tutor. After completing the MSc course, I have been appointed as a lecturer in 1999 before continuing my studies for doctoral programme in year 2001. Until now, I have taught the undergraduates and postgraduates students majoring in Electronic and Electrical subjects.

This teaching portfolio is presented in order to achieve my goal as an outstanding educator through knowledge, understanding and skill within the academic fields.

2. Statement of Teaching Responsibilities

I have though several subjects for undergraduate level such as Measurements and Instrumentations (SEE 2123), Digital Electronics (SEE 1223), Electronic Devices (SEE 2063), Electronic Circuits (SEE 2253) and Electronic System (SEE 3263). I have also assigned to supervise the experimental laboratory as part of my teaching work for at least two laboratories session per semester or six hour per week. The laboratories are Digital Electronics Year 4 (SEE 2742), Microprocessor Year 3 (SEE 3732), (SEM 3732) and (SEC 3732). Besides lecturing the mainstream students, I was also assigned to teach these subjects at School of Professional and Continuing Education (SPACE), program with Academy Angkatan Tentera Malaysia (ATMA), Industries and UTHM. The following table shows detailed list of subjects and laboratories.

Table 1. Total teaching credits: 74 credits

Postgraduate Subject / Code		Session
1	Research Methodology / UWP0010	20122013 Sem1
2	Research Methodology / UWP0010	20112012 Sem1
3	Research Methodology / UWP0010	20112012 Sem2
4	Electronic Devices and Motor Control/MEV1303 (UTHM)	20112012 Sem1

Undergraduate Subject / Code		Session
1	Digital Electronics / SEU1212	20122013 Sem2
2	Digital Electronics / SKEE1223	20112012 Sem2
3	Introduction to Electrical Engineering / SKEE1012	20112012 Sem1
4	Digital Electronics / SEE1223	20102011 Sem2
5	Electronic Device / SEE2063	20102011 Sem1
6	Instrumentation and Electrical Measurement / SEE1123	20092010 Sem2
7	Electronic Device / SEE2063	20092010 Sem1
8	Electronic Circuit / SEE2253	20082009 Sem2
9	Instrumentation and Electrical Measurement / SEU2123	20082009 Sem2

10	Electrical Technology / SEU3003	20002001 Sem2
11	Electronic II / 3253 - Kulim	20002001 Sem2
12	Electronic I / 3SZC - ATMA	20002001 Sem1

SPACE subject / Code		Session
1	Instrumentation & Measurement / 1123	20072008 Sem2
2	Instrumentation & Measurement / 1123	20072008 Sem3
3	Digital Electronics / SEE1223	20082009 Sem1
4	Digital Electronics / SEE1223	20082009 Sem2
5	Electronic Devices / SEE2063	20092010 Sem1
6	Electronic Mechanical / SEU2012	20092010 Sem2
7	Digital Electronics / SEE1223	20102011 Sem1
8	Electronic Mechanical / SEU2012	20102011 Sem2
9	Electronic Systems / SEE3263	20112012 Sem1
10	Electronic Mechanical / SEU2012 / SEU3003	20112012 Sem2
11	Digital Electronics / SEE1223	20122013 Sem1
12	Digital Electronics / SKEE1223	20122013 Sem2

Laboratory / Code		Session
1	Industrial Electronic / ATMA	20002001 Sem2
2	Microprocessor / SEC4742	20082009 Sem1
3	Microprocessor / SEE3732	20082009 Sem1
4	Digital Electronic / SEE2742	20082009 Sem2
5	ECAD / SEC4722	20092010 Sem1
6	Electronic Workshop / SEE1712	20092010 Sem1
7	Microprocessor / SEC4722	20102011 Sem1
8	Microprocessor / SEC3742	20102011 Sem2
9	Microprocessor / SEM3742	20102011 Sem2

Apart from that, my other teaching responsibilities include supervision of undergraduate projects (Projek Sarjana Muda – PSM) which is assigned by the PSM coordinator for each semester. I need to observe and guide the students to make sure that they could produce quality undergraduate project within the 2 semesters. The title of the project will be given to the student according to their interest, however sometimes, students are allowed to propose their own project title. Besides that, I also required to evaluate others PSM presentation for undergraduate and postgraduate project at the end of semester. Table 2 shows list of undergraduate and postgraduate supervision/evaluation students.

Table 2. List of undergraduate and postgraduate supervision/evaluation students.

Doctor of Philosophy			
	Name	Title	Start Year
1	Trias Andromeda	Efficient Positioning Control of Electrical	2009

		Discharge Machining System	
2	Ade Erawan	Control of Electrical Discharge Machining Current Generator	2010
3	Rajandran a/l Murthui	Development of Electrical Discharge Machining current Generator	2011
4	Nazriah binti Mahmud	Pulse Power Generator of Electrical Discharge Machining for Biomedical Application	2011
5	Nor Lyana Safura binti Hashim	Positioning control system of Electrical Discharge Machining for micro-pits form of hip implant	2011
6	Md Razak bin Daud	Analysis of workpiece material for hip implant	2012

Masters by Research			
	Name	Title	Start Year
1	Muhammad Faiz bin Mohamed Saaid	Fuzzy C-Means Clustering Algorithm for DNA Computing Readout Method	Completed
2	Giritharan Narayan	Design And Implementation Of High Efficient Switch Mode Power Supply For A Gel Electrophoresis Unit	Completed
2	Mohd Juzairi Azmir bin Atan	Control of Electrical Discharge Machining Current Generator	2011
3	Kartiko Nugroho	Development of Electrical Discharge Machining Positioning System for Machining Micro-pits of Hip Implant	2012
4	Thaddeus	Gel Electrophoresis Power Unit	2013

Undergraduate Supervision			
	Name	Title	Year Completed
2000/2001			
1	Roskhairul Hanafi Bin Subiran	Rekabentuk DC-DC Converter Menggunakan PWM Dengan Pengurangan Faktor Riak	2000/2001 (Nov 2000)
2	Mohd Khairulanwar Bin Mohamad	Bone Segmentation Based On X-Ray Image	2009/2010/2 (April 2010)
3	Wan Muhammad Affif Bin Wan Azmin	Car Wiring System For UTM Formula SAE (Design Digital Speedometer And Digital Tachometer)	2009/2010 (April 2010)
4	Mohd Fadhil Bin Mohamad Ali	Current And Speed Measurement Of A DC Motor Using PIC	2009/2010 (Dec 2010)
5	Mohd Norhisham Bin Kamarul Zaman	Design Of Buck DC-DC Converter For Electrical Discharge Machining (EDM) System	2009/2010 (Nov 2009)

Undergraduate Supervision			
	Name	Title	Year Completed
6	Mohd Zin Bin Roslan	Formula SAE Car Wiring System Engine Temperature Sensor	2009/2010 (May 2010)
7	Mohd Nazri Bin Napiah	Generator For Electrical Discharge Machining System	2009/2010 (Nov 2009)
8	Su Lii Yen	Motion Control Of Crab Alike Robot Underwater Studies	2009/2010 (April 2010)
9	Dinesh A/L Elanko	Vertical Load Of Electro Discharge Machining (Edm) Dc Motor	2009/2010 (April 2010)
10	Tan Swee Hin	Design And Development Of A Portable Prawn Live Bait System	2010/2011 (May 2011)
11	Ahmad Zulkhairi Bin Mohd Khalid	Feedback System For Automatic Fish Feeder	2010/2011 (May 2011)
12	Lee Yee Hui	Intelligent Control Of Switch Mode Power Supply (Smpps) For Marine Instrumentations	2010/2011 (May 2011)
13	Lam Kong Shen	Maneuver System Of Remotely Operated Underwater Vehicle (Rouv)	2010/2011 (May 2011)
14	Muhammad Affandy Bin Azman	Remote Home Surveillance Using Adroid – Platform Phone Through Tcp/Ip	2010/2011 (May 2011)
15	Muhammad Afiq Nurudin Bin Hamzah	Robotic Arm For Water Quality Measurement In Recirculating Aquaculture System (RAS)	2010/2011 (May 2011)
16	Goh Keng Yong	Underwater Surveillance System Of Remotely Operated Vehicle (Video Capturing)	2010/2011 (May 2011)
17	Ku Nor Zawani Bt. Ku Shuib	Buck Converter Of Electric Discharge Machine For Power Generator	2011/2012 (July 2012)
18	Ling Tien Zhi	Development Of Pulse Power Generator For Electrical Discharge Machining (EDM) System	2011/2012 (June 2012)

FBME - Undergraduate Project Evaluator SEB4 PSM2	
April 2009	
1	Aisyah bt Ahmad Shafi
2	Chan Teck Keng
3	Wan Mahani Hafizah bt Wan Mahmud
4	Lai Khin Wee
5	Lew King Yon
6	Mohd Fadhlan bin Mohd Zaihidee
7	Mohd Salleh bin Md Roslan
8	Noorfaiz bin Noorhaidi
9	Sofia Najwa binti Ramli

10	Tan Teik Kean
11	Raja Mohd Aizat bin Raja Izaham

SPACE Undergraduate Supervision SEE4812 / 5812			
	Name	Title	Session
19	Mohd zaidi bin Yusop	LED Driver	20112012 Sem 2
20	Muhammad Aiman bin Jamaluddin	ROV controller	20112012 Sem 2
21	Siti Rohaya Binti Hussain	Control of Fragrant using PIC	20112012 Sem 2
22	Abdul hak bin Mat	Animation of EDM	20082009 Sem 1
23	Mohd Hambali Bin Taha	Electrical Discharge Machining (EDM) – Mechanics Animation	2008/2009 Sem 2
24	Mohd Norazam Bin Asmadi	Electrical Discharge Machining (EDM) Process Animation Using Visual Basic And Macromedia Flash	2009/2010 Sem 1

SPACE Undergraduate Project Evaluator SEE4812 / 5812	
2011/2012 Sem2	
1	Marzuki bin AB Manan
2	Mohd Hafiz bin Zainol Abidin
3	Mohd Sahar bin Ismail
4	Saiful Azri bin Mazlan
5	Mohd Zaidi bin Yusop
6	Muhammad Aiman bin Jamaluddin
7	Siti Rohaya bt Hussain
8	Nor Harfilzan bt abdullah
9	Mohd Farkharuddin bin Abu
10	Hamir bin Saon
11	Husna Zahira bt Abd Rashid
12	Mohd Faizal bin Azid
13	Muhammad Hafiz bin Bidin
2008/2009 Sem1	
1	Ahmad Shairi bin Suhaimi
2	Khairul Anuar bin Ali Hassan
3	Md Amri bin Tamuri
4	Mohamad Termizi bin Mohamed Zin
5	Mohd Norazam bin Asmadi
6	Mohd Hambali bin Taha
7	Mohd Rahim bin Said
8	Mohd zaid bin Syed Abdullah
9	Ng Wei Chon
10	Saiful Hafidz bin Mohamad Ghazali

11	Samsur bin Nongkang
12	Yusof bin Abdul Hamid
2007/2008 Sem 2	
1	Muzilin bin Musa
2	Nor Jaziha binti Mat Jalil
3	Chin Fong Ngen
4	Abdul Hak bin Mahat
5	Azizan bin Hassan
6	Mohd Termizi Mohamed Zin

I am also been assigned as an academic advisor for 15 first year students. As an advisor, some of my responsibilities to my students are:

- Guide them to the basis of UTM education systems and perceive their studies performance.
- Check and confirm their subject's registration form.
- Advice and help them throughout their overall studies in term of choosing the subjects, total credit loads and duration of studies.
- Revise and discuss their academic performance for every semester in order to achieved better results.

3. Statement of Teaching Philosophy

The purpose of teaching is not only limited to delivering knowledge to students but enabling them to understand, synthesize, generate and apply knowledge as a whole. However, it is the students' responsibility to learn and acquire knowledge. We as lecturers and educators have the responsibility of creating a learning academic environment that ensures the growth of knowledge for every student. In my classes I emphasize to my students that they are responsible for their studies, while my role as a lecturer is to facilitate their learning process and help them to achieve their goal. I also exposed my students to the technical aspects, which related to those courses.

As an educator, I want to share and deliver all my knowledge to my surroundings especially my students. Therefore, I believe that learning process will never fade in someone life and quest for improvement. Furthermore, I can improve and upgrade my skills and knowledge as well as encourage others for the same purpose. I will feel guilty if after my class sessions, my students leave the classroom unmotivated and have hatred for the knowledge. I strongly believed that teaching and learning should be student-centered with guidance. We must understand their needs and aspirations, not ours. Also the learning environment should be conducive and receptive to the teaching and learning process. The use of teaching aids and technology should be integrated to enhance teaching and learning. Therefore, in order to put my philosophy into practice, I have exercised the following;

- Be well-prepared with materials, knowledge and teaching planning before entering the class. This is to make sure that the knowledge I disseminate is factually correct, meets the curriculum specification and up-to-date.

- Explain in a simple way so that the information of knowledge will be easily understood and applied.
- Being a helpful-friendly person, so that the student would not feel afraid to ask for further explanation.
- Improve my teaching skills continuously, for example try to adopt different approach of teaching technique so that the student will never feel bored in class.

4. Statement of Teaching Methodology

Teaching methodology has a direct impact on students' development. Activities such as group assignments, individual assignments, quizzes, tests, class discussion and tutorials are designed so that all the additional elements required can be practiced by students. As an educator, I use a simple language to explain difficult concepts and emphasize the basic. I have divided into several different teaching strategies as follows:

Lecture:

Lecturing is important activity to explain the concepts and theoretical aspect to the students. It is a basic development process in learning environment. I have applied different ways of delivering lectures so as to attract the students' attention to the subjects. One of the techniques is the comedian elements that could sparkle the moment in lecture but not too much.

Exercises and Tutorial:

I emphasized more on exercises and tutorials which students tend to anticipate well in the session compared to assignment. The task is based on chapters whereas discussion is made according to questions and answers. However, I do sometimes ask the students to submit the task for grading. Through these strategies, I can ensure the students' understanding level and at the same time be able to monitor their performance. I usually assign a lot of tutorial problems in my lecture, since there is even it is not compulsory to pass-up for grade. I try to assign a mixture of routine and challenging problems so that I can stimulate the more advanced students but still enable the poorer students to at least learn the basics of the course material. In small classes, I give group homework and try to grade as much of the homework as possible. However, in large classes, usually undergraduate level, it is not possible to grade all of the routine assignments. In the latter classes, students can check their work on routine assignments by using solutions manuals and by asking questions in class or personally check the answers in a separate session to promote their confidence.

Cooperative Learning:

I believe peer teaching and learning is often more comfortable for students and can give those with particularly short attention spans a much needed alternative. Students have different learning style; some learn better in group environment and the better students can learn by teaching. Personally implementation of Problem Based Learning (PBL) in my students' laboratory experiment serves this context. Group planning and discussion are considered in solving the given task. My role as an advisor has made their work objective much clearly guided that leads to a successful completion of task.

Test and Exam:

Test and final examination are considered the earliest method for measuring students' performance individually. As an educator, I am responsible for my students' achievement in which their individual marks of tests will be evaluated and commented personally in order to obtain consistency in academic accomplishment. First, I try to test over a reasonable range of class material, and I try to stress the important concepts. I don't include unimportant items or problems which require some "trick" that the students may have only seen once. I also include problems of varying difficulty. Before each exam, I do spend some time in class revising topics for better preparation.

In previous semester, I was allocated a Measurements and Instrumentations (SEE 2123) subject for the second year student in education faculty. On the first class of the subject, the students have already been informed and explained the teaching methodology concept for better understanding. Any comments would be heard and deal promptly. The Course Outline document as in Table 3 is the evident of such effort.

Table 3. Sample of Course Outline

Department & Faculty: Department Control & Instrumentation Engineering, Faculty of Electrical Engineering	Page 1 of 6						
Subject & Code: Instrumentation and Electrical Measurement (SEE 2123) Total Contact Hours: 3 hours x 14 weeks	Semester: II Academic Session: 2008/2009						
Week 1-2 Chapter 1: Metrology Introduction. Metrological terminologies. Units and dimensions. Traceability and calibration. The role of metrological institutions. Learning outcomes By the end of this chapter, students should be able to: 1. To understand the principles of basic measurements and instrumentations. 2. Understand the concept of metrology and its applications. Generic Skills CS1, CS2, CS3, TW1, PS1, SE1 Teaching methods Lecture (fundamental concept, features of metrology), tutorial, exercise and group discussion (PBL) Assessment <table><tr><td>1. Tests (3x@10%(Test 1) and 15%(Tests 2 & 3))</td><td>40%</td></tr><tr><td>2. Assignment & Quiz (by individual lecturers)</td><td>10%</td></tr><tr><td>3. Final Examinations</td><td>50%</td></tr></table> References 1. Alan S. Morris, The Essence of Measurement, Prentice Hall, 1996 2. David A. Bell, Electronics Instrumentation and Measurements, Prentice-Hall, 2nd ed.1994 Sallehudin & Mohd. Fua'ad, Instrumentasi, Penerbit UTM		1. Tests (3x@10%(Test 1) and 15%(Tests 2 & 3))	40%	2. Assignment & Quiz (by individual lecturers)	10%	3. Final Examinations	50%
1. Tests (3x@10%(Test 1) and 15%(Tests 2 & 3))	40%						
2. Assignment & Quiz (by individual lecturers)	10%						
3. Final Examinations	50%						
Prepared by: Name: Dr. Sallehudin bin Ibrahim (coordinator) Signature: Date: 1.1.2009	Certified by: (Head Department) Name: Assoc. Prof. Dr Yahaya Mohd. Sam Signature: Date:						

5. Teaching Evaluation

I have been always tried to improve my teaching from time to time. The primary focus in this process is providing an environment which promotes better learning. This means looking at all aspects of the course, not just trying to improve my lecturing skills. I have found that it is especially important to remain flexible, and modify the teaching methods to fit the students in the class. Some students thrive on lectures with lots of theory; others need lots of examples and visual materials. Some students learn well in groups, and others prefer more individual attention. It is important to talk to the students and grade some assignments and/or quizzes early in the course to get an idea of the various students' strengths and weaknesses. Then I can try to adjust my teaching methods accordingly, and in the process hopefully benefit all of the students. The comments given by students, both positive and negative comments in student evaluation of teaching website (<http://aimsweb.utm.my/eppp/>) are also a basis for my teaching improvement. Table 4 shows example of feedbacks.

Table 4. Sample of students' feedback

MENU PENGAJAR SISTEM PENILAIAN PENGAJARAN PENSYARAH	
Senarai Komen Pelajar Subjek SKEE1223	
1.	sangat baik
2.	ok
3.	MAJU KEHADAPAN
4.	Excellent
5.	Excellent.
6.	TAHNIAH..
7.	assignment susah bah. tapi bagus :)
8.	simple and fun teaching style... easy to understand...
9.	Excellent!!
10.	pensyarah ini sungguh bagus.
11.	tambahkan contoh2 soalan dalam kelas..
12.	Baik dan memberangsangkan
13.	subjek ini perlu diajar pada tahun lain
14.	pensyarah yg mahir bahasa english
15.	Give more example of questions with the answer schema
16.	Best!
[Keluar Sistem]	

I also considered the feedbacks from students regarding the course itself as one of the teaching evaluation elements. The feedback questions have been formed in Course Outcomes Assessment form as shown in the following Table 5.

Table 5. Course Outcome Assessment Form

Course Outcomes Assessment Form							
SEE 2253 — ELECTRONIC CIRCUITS							
Please indicate how well you believe these course outcomes were effective on the scale of 5 = accomplished well to 1= accomplished poorly and 0 = not accomplished.							
In this course, I was able to:							
CO	Attributes	How effective was this outcome?					
CO 1	Explain the basic concept of amplifiers	5	4	3	2	1	0
CO 2	Perform DC analysis on amplifiers	5	4	3	2	1	0
CO3	Perform AC analysis on amplifiers at low, middle and high frequencies	5	4	3	2	1	0
CO4	Categorize and analyze different feedback topologies	5	4	3	2	1	0
CO5	Simulate and model simple amplifier circuits using PSpice or MultiSim	5	4	3	2	1	0
General Remarks							
I would like to make the following suggestions to improve the quality of course offering as it relates to the challenges of my personal and professional life:							

FKE/FBME has implemented OBE scheme which requires all lecturers to comply with the system in order to get accreditation from engineering council. All teaching activities such as test and exam questions are based on the mapping between the Course Outcome and the Programme Outcome. Evaluation of the course is directly reflected to the teaching method that I put into practice to my students. The result of students' performance toward the course is available in Table 6.

6. Effort to Improve Teaching

Since teaching is a continuous learning process, therefore, I must enriched and enhance my knowledge not only in electrical field but also others field. To improve my teaching, I have to make sure that the knowledge will evolve by:

- Attending workshops and courses sponsored by UTM or other agencies.
- Participation in seminar and conference to enriched knowledge and developed contact with other academician and industries.
- Keep a discipline in making research and reading from various resources whether magazine, books, journal, proceedings and materials from internet. This will contribute to strong the basic knowledge and can be implemented in teaching.

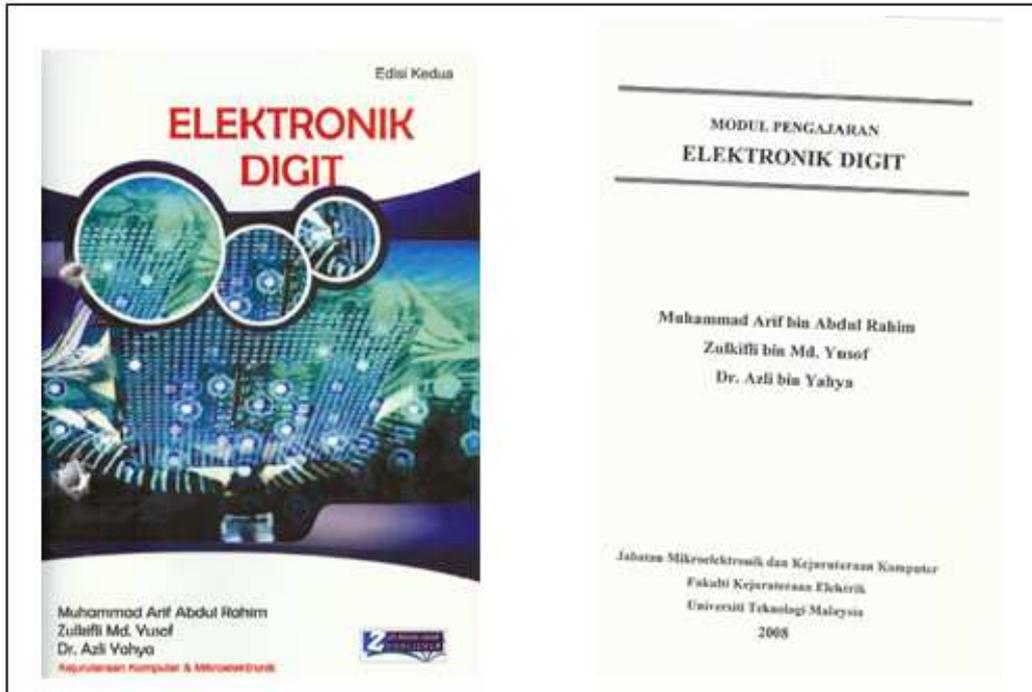
Table 6. Course Assessment Report

Code/Name: SEE 2253 - Electronic Circuits						
Assessing: PO2, PO3						
Lecturer/section: Azli Bin Yahya / 09						
Session - Sem: 2008/2009 - 2						
Grade Distribution						
	A+, A, A-	B+, B, B-	C+, C, C-	D+, D, D-	E	
	13	19	14	4	2	
Modifications to Course (if any)						
NONE						
Outcomes and assessment (PO2 and PO3)						
CO1	(PO2) Able to explain the basic concept of amplifiers <i>Source: Q1, FE (KPI: 0.65, Achieved: 0.60)</i>					
CO2	Able to do DC analysis on amplifiers					
CO3	(PO3) Able to do AC analysis on amplifiers at low, middle and high frequencies <i>Source: Q3, FE (KPI: 0.65, Achieved : 0.50)</i>					
CO4	Able to categorize and do analysis on different feedback topologies					
CO5	Able to perform a computer simulation and modeling of simple amplifier circuits using PSpice or MultiSim					
Student feedback						
<ul style="list-style-type: none"> • Discuss past year questions instead of assignments • Solve questions according to students' level of understanding 						
Reflection						
<ul style="list-style-type: none"> • Most students are weak to understand lectures in English • Lack of effort to obtain extra information from library/internet/meet lecturer • Class after 5pm discourage students to stay focus 						
Suggestion to improve (if any)						
Even though engineering fields are prone to calculation or technical based, minimum understanding of English could deteriorate students' confident towards the subjects.						

7. Product of Teaching

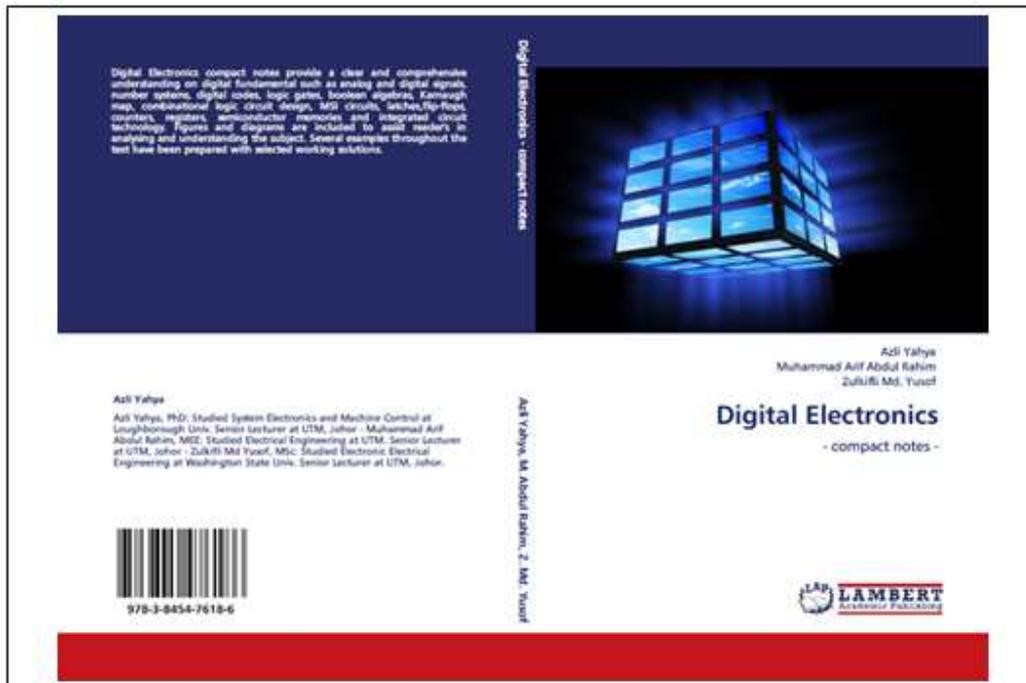
As for the teaching product, I have published a Modul Pengajaran for my students of Digital Electronic subject (see Table 7). The module is frequently updated to incorporate newly information for the benefit of future students.

Table 7. Modul Pengajaran



In year 2011, I have published a Digital Electronics book. The following Table 8 shows the snapshot of the book.

Table 8. Book



Most of my graduate students worked in semiconductor company such as INTEL, ALTERA and MOTOROLA. They easily attracted by these Multi-National Company (MNC) due to the industrial syllabus offered by MiCE department.

8. Teaching Goals

My teaching goals are to be an outstanding educator, flexible, easily adapt to changes and to continue exploring the challenges in teaching electronic-electrical subjects. Therefore, I have listed the short and long term goals in obtaining my teaching goals as follows:

Short Term Goal:

My short term goals would be to upgrade and update my teaching skills, knowledge and materials from time to time for the benefit of myself, students and the surrounding.

Long Term Goal:

I believe I could improve my teaching skills better and share my knowledge with my students. I would consider including one session of my lecture from an industry representative to expose my students to the working world in future.