

#UTHMJohor

ACADEMIC PROFORMA 2016/2017

Universiti Tun Hussein Onn Malaysia
Batu Pahat, Johor
MALAYSIA

Diploma of Electrical Engineering (DAE)



Technically
Above The Rest

Centre for Diploma Studies

Universiti Tun Hussein Onn Malaysia
86400 Batu Pahat, Johor

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Foreword from the Vice Chancellor

Assalamualaikum Warahmatullahi Wabarakatuh and Warm Greetings

Our utmost gratitude to Allah the Almighty, I am able to share and pen down a couple of words and advices to readers of this proforma especially to new students of Universiti Tun Hussein Onn Malaysia (UTHM) whom had just enrolled in this 2016/2017 Academic Session.

Congratulations and welcome to the new students and thank you for believing in UTHM for your continuing endeavour in the search of knowledge towards the success in your future career and life betterment.

For your information, University leadership continues to strive in the search of, designing, and adapting the effective and efficient approaches that would able to produce the highest impact towards making UTHM a top Higher Education Institution. The success in obtaining “QS STARS RATED FOR EXCELLENCE 2015”☆☆☆ and UTHM was recognized as the Top 300 in the QS World University Ranking by Subject 2015 for Mechanical, Aeronautical and Manufacturing Engineering, have proven that UTHM continues creating excellence. These successes have convinced the University that these are due to the alignment of University's vision and mission which are continually strengthen and improve.

As the Vice Chancellor, I gave full confidence that UTHM is currently on the right track in the effort towards the success of the 10 Shifts identified in the Malaysia Education Blueprint (Higher Education). Based on the details outlined in the Malaysia Education Blueprint (Higher Education), UTHM is committed in producing human capital and disseminating knowledge to meet the needs of the industry and the community as well as to nurture creative and innovative human capital.

Last but not least, I believe that you will become graduates of the University that will successfully continue the University excellence tradition. When you graduated, you will become the member of society that will not only be able to apply the knowledge gained but also be able to contribute service and expertise for the importance and the needs of Religion, Race and Nation.

"WITH WISDOM WE EXPLORE"

PROFESSOR DATUK DR. MOHD. NOH BIN DALIMIN

Vice-Chancellor

Universiti Tun Hussein Onn Malaysia

Foreword from the Deputy of Vice Chancellor (Academic and International)

Assalamualaikum Warahmatullahi Wabarakatuh and Warm Greetings

I would like to take this opportunity to express the utmost congratulations and well done to you as the new students whom have been successfully been selected to pursue studies at Universiti Tun Hussein Onn Malaysia for this 2016/2017 session.

I would also like to congratulate Centre for Academic Development and Training that has successfully produced the proforma which will be used as a guide for students in planning the studies beginning from the first semester until the end of the studies at this University.

Detailed planning which is effectively implemented at every semester as well as early preparation of students before attending lectures is very important in ensuring the readiness of learning process. Apart from that, the preparation for co-curriculum program also is important in shaping the personality and social development of students.

I hope that the publication of this proforma can be fully utilized by you in planning your studies at the University and you are capable of obtaining the best results as well as attaining excellent success.

Last but not least, I would like to wish All the Best and I pray that you will achieve excellent success in your studies at the University and thus can contribute as the human capital towards religion, race and Nation development.

Thank you.

PROFESSOR DR. WAHID BIN RAZZALY

Deputy of Vice Chancellor (Academic and International)
Universiti Tun Hussein Onn Malaysia

Foreword from the Dean Centre for Diploma Studies

Assalamualaikum Warahmatullahi Wabarakatuh and Warm Greetings

Congratulation to all new students and welcome all of you to the Centre for Diploma Studies (CeDS), UTHM for the Academic Session of 2016/2017. All of you are the chosen ones from those who are still looking for a place to study in a university. You have made the right choice by joining us the 15th Public University in Malaysia. I welcome all of you to the CeDS and we are always ready to support and train you to be a semi professional in the field of science and technology.

As a centre, we are responsible in running and operating the diploma programmes for UTHM and our centre has a clear vision and mission in developing and strengthening all the diploma programmes offered. Currently, we have nine (9) diploma programmes being offered and the number of programmes will increase in the near future in phase with the increase needs of the nation manpower. I believe you have chosen a suitable programme that suits your qualification and dreams for future. Final year CeDS students will stand a chance to further their study in any Bachelor Programmes in the UTHM depending on the requirements stated by the faculties.

In term of infrastructure, the teaching and learning facilities provided in UTHM have been recognised by the QS Star Rating thus fulfill the standard required by the accreditation bodies. Besides that, the rigorous development of the UTHM campus currently, is to ensure conducive learning environment for students. Students will be able to use various facilities including libraries, dormitories, cafeteria, stadium, wireless internet network and all other facilities.

I hope that as a new student in the diploma programme in UTHM, you will use this proforma as a guide and reference to plan and thus completing your diploma studies with excellence.

Wishing You Success.

ASSOCIATE PROFESSOR DR. MOHAMAD ZAKY BIN NOH

Dean

Centre for Diploma Studies

Universiti Tun Hussein Onn Malaysia



University Vision

Towards a world class university in engineering, science and technology for sustainable development

University Mission

UTHM is committed to generate and disseminate knowledge, to meet the needs of industry and community and nurturing creative and innovative human capital, based on tauhidic paradigm

University Education Philosophy

The education and training in this university is a continuous effort to lead in the market oriented academic programmes. These programmes are student-focused and are conducted through experiential learning in order to produce well trained human resource and professionals who are catalysts for a sustainable development

University Logo

The logo of Universiti Tun Hussein Onn Malaysia (UTHM) is the pride, identity and idealism of the members of UTHM community. UTHM logo displays a Proton, Book, Tiered Mortar Board, Book Rest and Shield.

The whole concept of the logo symbolises UTHM as an Institution of Higher Learning which supports the growth and development of knowledge at all levels in fields of Science and Technology.

Blue represents a close-knit circle of members of UTHM community which ensures the success and enhancement of its educational and research programmes and activities for the benefits of mankind.

Red symbolises the courage of UTHM in the exploration of new fields as the pioneer in science and technology applications, which reflects the spirit and self-esteem of the members of UTHM community.

Symbolism:

Red	Courage
Blue	Co-operation/Loyalty
Silver	Quality/Prestige
Book Rest	Repository of knowledge
Proton	Science and technology
Book	Knowledge
Mortar board	Levels of study
Shield	Confidence

Chancellor

**Duli Yang Maha Mulia Sultan Ibrahim Ibni Almarhum Sultan Iskandar
Sultan of Johor**

D.K., D.K. (Pahang), SPMJ, SSIJ, S.M.N., S.P.M.T., S.M.P.K., P.I.S.

Pro-Chancellor I

Duli Yang Amat Mulia Tunku Ismail Ibni Sultan Ibrahim

Tunku Mahkota of Johor

D.K., SPMJ, P.I.S

Pro-Chancellor II

YBhg. Tan Sri Dr. Ali Hamsa

Chief Secretary to the Government of Malaysia

University Board of Directors

Chairman

Tan Sri (Dr.) Ir. Jamilus bin Md Hussin

Pengerusi Lembaga Pembangunan Industri Pembinaan (CIDB Malaysia),
Pengerusi KLIA Premier Holdings

Members

Professor Datuk Dr. Mohd. Noh bin Dalimin

Vice Chancellor
Universiti Tun Hussein Onn Malaysia

Tan Sri Dato' Sri Sufri bin Hj Mohd Zin

Group Managing Director
TRC Synergy Berhad

Associate Professor Dr. Arham bin Abdullah

Director
Industrial Relation Division
Ministry of Higher Education Malaysia

Datuk Dr. Pang Chau Leong

Department of Skills Development
Ministry of Human Resources

Datuk Hj. Mohlis bin Jaafar

Head of Director
Department of Polytechnic Education
Ministry of Higher Education Malaysia

Dato' Zainal Abidin bin Mat Nor

Deputy Secretary of Public Asset Management Division
Ministry of Finance

Datuk Mat Noor Naw

Chairman
Exim Bank Berhad

Puan Mazula binti Sabudin

Director
Student Entry Management Division
Ministry of Higher Education Malaysia

Secretary

Encik Abdul Halim bin Abdul Rahman

Registrar
Universiti Tun Hussein Onn Malaysia

Senate Members

Chairman

Professor Datuk Dr. Mohd. Noh bin Dalimin

Vice-Chancellor

Members

Professor Dr. Wahid bin Razzaly

Deputy Vice-Chancellor (Academic and International)

Professor Dr. Hashim bin Saim

Deputy Vice-Chancellor (Research and Innovation)

Associate Professor Dr. Asri bin Selamat

Deputy Vice-Chancellor (Student Affairs and Alumni)

Professor Dr. Ahmad Tarmizi bin Abd. Karim

Assistant Vice-Chancellor (Development, Management Facility and ICT)

Profesor Dato' Dr. Abdul Razak bin Hj. Omar

Assistant Vice-Chancellor (Community and Industrial Relations)

Professor Dr. Hj. Ismail bin Abdul Rahman

Dean Centre for Graduate Studies

Associate Professor Dr. Abd Halid bin Abdullah

Dean Faculty of Civil and Environmental Engineering

Dr. Afandi bin Ahmad

Dean Faculty of Electrical and Electronic Engineering

Associate Professor Dr Shahrudin bin Mahzan @ Mohd Zin

Dean Faculty of Mechanical and Manufacturing Engineering

Dr. Mohd Lizam bin Mohd Diah

Dean Faculty of Technology Management and Business

Associate Professor Dr. Ahmad bin Esa

Dean Faculty of Technical and Vocational Education

Associate Professor Dr. Nazri bin Mohd Nawi

Dean Faculty of Computer Science and Information Technology

Associate Professor Dr. Mohd Kamarulzaki bin Mustafa

Acting Dean Faculty of Science, Technology and Human Development

Associate Professor Dr. Ishak bin Baba

Dean Faculty of Engineering Technology

Associate Professor Dr. Mohamad Zaky Bin Noh

Dean Centre for Diploma Studies

Associate Professor Dr. Azme bin Khamis
Dean Center for Academic Development and Training

Professor Dr. Rosman bin Md. Yusoff
Dean Centre for General Studies and Co-Curricular
Director Institute for Social Transformation and Regional Development

Madam Robijah binti Kamarulzaman
Dean Centre for Language Studies

Professor Dr. Rosziati binti Ibrahim
Dean Research and Development Centre

Professor Dr. Sulaiman bin Hj Hassan
Faculty of Mechanical and Manufacturing Engineering

Professor Dr. Yusri bin Yusof
Director of International office/Faculty of Mechanical and Manufacturing Engineering

Professor Dr. Maizam binti Alias
Faculty of Technical and Vocational Education

Professor Dr. Jailani bin Md. Yunos
Faculty of Technical and Vocational Education

Professor Dr. Hj. Mustafa bin Mat Deris
Faculty of Computer Science and Information Technology

Professor Dr. Rosziati binti Ibrahim
Faculty of Computer Science and Information Technology

Professor Datin Dr. Maryati binti Mohamed
Faculty of Science, Technology and Human Development

Mr. Abdul Halim bin Abdul Rahman
Secretary/Registrar

Mdm. Azizah binti Nasri
Bursary (Acting)

Mr. Haji Bharun Narosid bin Mat Zin
Chief Librarian

Centre for Diploma Studies

Centre Vision

Excellent in providing multidisciplinary education in science and technology

Centre Mission

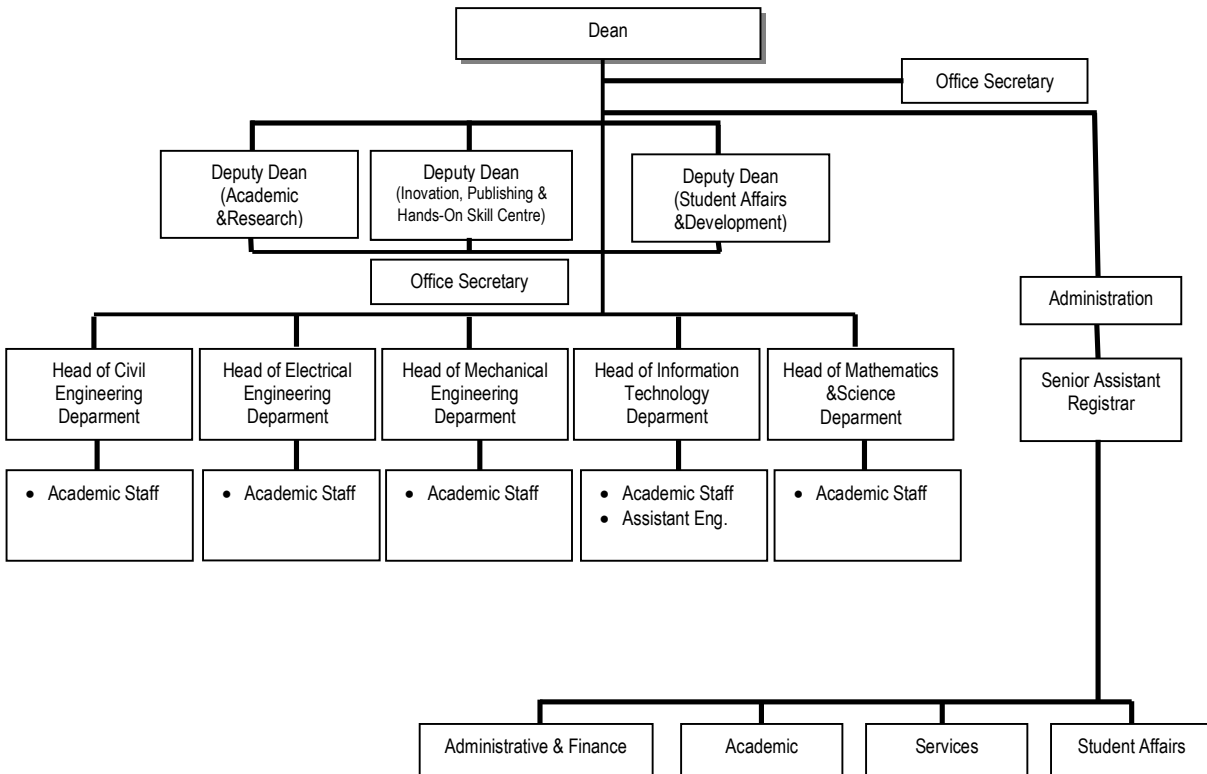
Producing graduates who contribute to national development through a holistic academic program

The diploma programmes had been offered in UTHM since the establishment of Pusat Latihan Staf Politeknik (PLSP) in 1994. At that time only three programmes were offered and were being managed by a few department of concerned. All of the programmes were then assigned under the management of the respective faculties when Kolej Universiti Teknologi Tun Hussein Onn (KUiTTHO) was established in the year 2001.

The establishment of the Centre for Diploma Studies was announced by the Vice Chancellor on the 1st August 2009. With the establishment of the Centre for Diploma Studies all of the diploma programme were able to be managed centrally thus increasing the competitiveness of all diploma programmes being offered by other higher education institutions in this country.

It is the aim of the Centre for Diploma Studies to boost the diploma programmes in UTHM to a level such that it becomes the main choice of applicants. With that all potential applicants are most welcome to join the diploma programme in UTHM. All of the diploma programmes in UTHM is being conducted according to the Outcome Based Education method since the July 2010 session. The diploma programmes offer the opportunities for graduates to further their studies in UTHM. The establishment of the Centre for Diploma Studies is intended to achieve equilibrium in the academic excellence, co-curriculum and the individual development of its graduate such that to achieved the quality needed to fulfill the global occupational market. Until now the Centre for Diploma Studies, have offered nine (9) programmes which are being managed by the various departments.

The Centre for Diploma Studies consists of five (5) departments and is led by a Dean and is being assisted by three (3) Deputy Deans. The organizational chart of the Centre for Diploma Studies is as shown:



Organisational chart of the Centre for Diploma Studies

Centre External Examiner and Industrial Advisor

Department of Electrical Engineering

External Examiner

Prof. Dr. Mohamad Kamal bin A Rahim

Ph.D (Elect Eng.) (Univ of Birmingham, UK), MSc (Communication Eng.)(NSW, Aust.),
B. Eng. (Electrical and Electronic Engineering) (University of Strathclyde,UK),
Dip. (Electrical and Electronic Engineering)(UiTM),

Industrial Advisor

Mr. Mohd Sukri bin Safii

Business Merger Consultant
Gain Quest Sdn Bhd
Kuala Lumpur
B. Sc. Electrical , Electronic, Computer science ,EECS (Super Conductors) University
of Kumamoto, Japan

Mr. Ahmad Hafiz bin Ismail

Senior Radio Planning & Optimisation Expert
Nokia Siemens Networks Sdn. Bhd.
Level 31, Quill Building 7, Tower D
Jalan Sentral 5, KL Sentral
50470 Kuala Lumpur
B. Sc. Electrical Engineering (Robotics) (Rensselaer Polytechnic Institute, Troy, New
York)
Diploma in Electrical Engineering (Instrumentation) (UiTM)

Faculty Staff Directory

Administration

Dean

Prof. Dr. Hj. Ismail bin Abdul Rahman

Ph.D (The University of Manchester, UK) MSc. (Bldg. Serv. Engineering) (Heriot Watt, UK), B.Eng. (Hons) (Civil Engineering)(UTM), Dip. (Civil Engineering)(UTM)

Deputy Dean (Academic and Research)

Hj. Amir Khan bin Suwandi

MSc. (Civil Engineering) (UTM), BSc. (Hons) (Civil Engineering) (Portland State Univ. USA), Dip. Ed.(Civil Engineering Studies) (UTM)

Deputy Dean (Student Affairs and Development)

Hj. Zulkarnain bin Md. Amin

B. Sc. (Electrical Engineering)(University of Bridgeport, Connecticut, USA), A. Sc. (Electrical Engineering)(DCC, SUNY, New York, USA), Post Graduate Certificate of Education(TTTC), Cert. (Microprocessor System Design)(JICA, Sendai, Japan), Cert. (Computer Networking)(SIEMEN, Mannheim, Germany), Cert. (Supervisory Management)(SEAMEO VOCTECH, Brunei)

Deputy Dean (Innovation, Publication and Hands-On Skill Centre)

Hj. Jahaya bin Kesot

MSc. (Civil Engineering) (UTHM), BSc. (Civil Engineering) (Univ. of Miami, USA)

Office Secretary

Rusnani binti Saji

Dip. (Secretarial Science) (Politeknik Sultan Ahmad Shah, Kuantan)

Senior Assistant Registrar

Eaddy bin Zainal Abidin

BSc. (Forestry) (UPM), Dip (Forestry) (UPM)

Assistant Administrative Officer (Academic and Research)

Mohd Zukhairi bin Husin

Dip. (Computer Science) (UiTM)

Assistant Administrative Officer (Administrative and Finance)

Nur Izzati Hazwani binti Muhammad Ridwan

Dip. (Tech. Managemant) (UTM)

Administrative Assistant (Clerical & Operation) Student Affairs and Development

Jaiganesh a/I Jaganathan

BSc (Management) (OUM), SPM (SMK Dato Bentara Luar)

Administrative Assistant (Clerical & Operation) Administrative and Finance

Ismade bin Niam

STPM (SM Tun Sardon Rengit)

Administrative Assistant (Clerical & Operation) Services Unit

Siti Hawa binti Ismail

STPM (SMK Bandar Mas)

Administrative Assistant (Clerical & Operation) Academic and Research

Nor Nizaha binti Mahadi

SPM (SM Tun Sardon Rengit)

Administrative Assistant (Clerical & Operation) Academic and Research

Mohd Afizal bin Abd. Aziz

Dip. (Teknologi Pembuatan) (ADTEC), Dip. (Manufacturing Tech.) (ADTEC), SPM (SMK Syed Abu Bakar)

General Office Assistant

Dayang Fatimah binti Pohhaini

STPM (SM Munsyi Sulaiman), SPM (SMK Datin Onn Jaffar)

Department of Electrical Engineering

Academic Staff

Head of Department

Hjh. Fauziah Binti Abdullah

B. Sc. (Industrial Technology)(University of Wisconsin, USA), Dip. (Electrical Engineering, Communication)(UTM), Cert. (Electronic Engineering, Communication)(PUO)

Hj. Mohd. Azlan bin Abdul Shukor

M. Sc. (Electrical Power Engineering)(University of Strathclyde, Scotland, UK), B. Sc. (Electrical and Electronic Engineering)(University College Cardiff, Wales, UK), Post Graduate Certificate of Education(TTTC)

Hj. Zulkarnain bin Md. Amin

B. Sc. (Electrical Engineering)(University of Bridgeport, Connecticut, USA), A. Sc. (Electrical Engineering)(DCC, SUNY, New York, USA), Post Graduate Certificate of Education(TTTC), Cert. (Microprocessor System Design)(JICA, Sendai, Japan), Cert. (Computer Networking)(SIEMEN, Mannheim, Germany), Cert. (Supervisory Management)(SEAMEO VOCTECH, Brunei)

Zaurin bin Ali

B. Eng. (Hons)(Electrical Engineering)(UTM), Cert. (Education) (Maktab Perguruan Kinta, Ipoh Perak), Cert. (Basic Electrician)(Domestic and Industry)(MLVK), Cert. (Intermediate Electrician (Domestic & Industry) (MLVK), Cert.(Internal Evaluator) (MLVK)

Hj. Mohd Hamim bin Hj Sanusi

Master (Information Technology, Management)(UTM), B. Eng. (Hons)(Electrical Eng.)(UTHM), Certificate (Electrical Eng.)(Polimas)

Hj. Mohd Kamal bin Jaafar

M. Eng (Electrical)(UTHM), B. Eng. (Hons)(Electrical Eng., Instrumentation) (UTM), Diploma (Electrical Eng., Communication)(UTM), Certificate (Radio)(ALAM)

Norhafiza Samion

B. Eng. (Hons)(Electrical Engineering.) (UTHM), Diploma (Electrical Engineering)(UTM)

Hjh. Ziana Che Ros

M. Eng (Electrical)(UTHM), B. Eng. (Hons)(Electrical Engineering.) (UTM), Diploma (Electrical Engineering)(UiTM)

Muhammad Faizal bin Ismail

M. Eng. (Electrical), B. Eng. (Hons)(Electrical Engineering.) (UTM)

Nor Faezah binti Adan

B. Eng. (Hons)(Mechatronic) (University of Leeds)

Mohd Sabani bin Mohamad

B. Eng. (Hons)(Electrical Engineering)(UKM)

Nadira binti Johari Halim Shah

B. Eng. (Hons)(Electrical Power Engineering.) (UTHM), Diploma (Electrical Engineering with Education)(UTHM)

Nabiah binti Zainal

M.Eng. (Electrical) (KUiTTHO), B.Eng. (Hons) (Electrical) (UTM),
Dip. (Communication)(UTM)

Mohd Nurul Al-Hafiz bin Sha'abani

Msc. (Electrical Engineering)(Universiti Teknikal Malaysia Melaka (UTeM), Malaysia)
Bac. of Mechatronic Eng. (Hons) (Universiti Teknikal Malaysia Melaka (UTeM),
Malaysia)

Programme Name

Diploma in Electrical Engineering (DAE)

Programme Aims

Skilled labor as human capital in science and technology is essential in the process of more glorious development as set out in Vision 2020 and the National Higher Education Strategic Plan (PSPTN). In line with these expectations, the objective of the education program is designed to produce skilled workers (Electrical Engineering Technical Assistant) which has features such as the following objectives.

Programme Educational Objectives (PEO)

Program Educational Objectives are to produce an Electrical Assistant Engineer that are able to:

- PEO 1 Apply the theoretical knowledge and practical in solving problems in electrical engineering.
- PEO 2 Practicing in a professional, ethical and humane effectively in solving electrical engineering problems.
- PEO 3 Interact with professionals and communities effectively in order to fulfill leadership responsibilities in an organization.
- PEO 4 Build a career development and entrepreneurship as a lifelong learning.

Programme Learning Outcomes (PLO)

Upon graduation, a graduate should acquire the followings:

- PLO 1 Apply basic knowledge of mathematics, science and engineering in electrical engineering.
- PLO 2 Apply knowledge, skills, techniques and latest engineering hardware comprehensively in electrical engineering field.
- PLO 3 Interact with professionals and community effectively in written and spoken.
- PLO 4 Produce effective solutions in electrical engineering problems.
- PLO 5 Able to engage as an individual or group to carry out technical tasks within an organization.
- PLO 6 Identify the career development needs through lifelong learning.
- PLO 7 Applying entrepreneurial practices for career development.
- PLO 8 Practicing knowledge in a professional, ethical and humane in the field of electrical engineering.
- PLO 9 Demonstrate effective leadership responsibilities within the organization.

Structure Curriculum

Table 1: Summary of curriculum for Diploma in Electrical Engineering

Year	Semester	Course Code	Courses	Credit	Total
	Special	UWB 10102 UWS 10403 UWA 10402/202	Academic English Introduction to Nationhood and Malaysia Development Introduction to Islamic Studies/Moral Studies	2 3 2	7
1	I	UQ* 1XXX1 UWB 10402 DAS 10103 DAS 14103 DAY 10102 DAE 11003 DAE 10403	Co-curriculum I Technical Communication I Algebra Physic I Occupational Safety and Health Electrical Technology Computer Technology Computer and Multimedia	1 2 3 3 2 3 3	17
	II	UWB 20502 DAS 10303 DAS 14203 DAE 20103 DAE 11103 DAE 21203 DAE 21801	Technical Communication II Engineering Mathematics I Physic II Computer Programming Circuit Theory Digital Electronics Electrical Engineering Laboratory	2 3 3 3 3 3 1	18
	III				
2	I	UQ* 1XXX1 DAS 12102 DAS 20603 DAE 21402 DAE 21603 DAE 21303 DAE 32103	Co-Curriculum II Chemistry Engineering MathematicsII Electrical Measurement& Instrumentation Logic System Electronics Control System	1 2 3 2 3 3 3	17
	II	UWA 10502 UWB 1**02 DAS 20502 DAE 21502 DAE 32003 DAE 32203 DAE 32303	Theology and Science Foreign Language Statistics Computer Aided Design Industrial Electronics Mikrocontroller Electrical Machines and Drives	2 2 2 2 3 3 3	17
	III	DAE 23904	Industrial Training (10 minggu)	4	4
3	I	DPK 20103 DAE 32403 DAE 32503 DAE 32603 DAE 32703	Business and Entrepreneurship Electrical Power System Robotics and Automation System Communication Engineering Electrical Engineering Project	3 3 3 3 3	15
Total Credit					95

Synopsis of University Courses

Year	Sem	Course Code	Courses	Credit	Total
	Special	UWB10102	Academic English	2	7
		UWS 10403	Nationhood and Current Development of Malaysia/ *Malaysian Studies and Culture	3	
		UWA 10402/ UWA 10202	Islamic Studies/Moral Studies	2	
1	I	UQ* 1***1	Co-Curriculum I	1	3
		UWB 10402	Technical Communication I	2	
	II	UWB 20502	Technical Communication II	2	2
2	I	UQ* 1***1	Co-Curriculum II	1	5
	II	UWA 10502	Theology and Science	2	
		UWB 1**02	Foreign Language	2	
3	I	DPK 20103	Business and Entrepreneurship	3	3
Total Overall Credit					20

Synopsis of Courses

UWB10102 Academic English

Synopsis

Academic English focuses on fulfilling students' academic requirements such as the acquisition of reading, writing, speaking and listening skills in English. The course also provides opportunities for students to acquire note taking and study skills. Students will be reinforced on aspects of English language oral and written skills that are most relevant to them in their academic work. By the end of the course, students should be able to use English for wide range of academic activities.

References

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2. Swan, Michael & Walter, Catherine (2004). How English Works: A Grammar Practice Book. Oxford: Oxford University Press. No. panggilan: PE1128.S92 2004.
3. Richards, Cynthia (2002). Panduan dan Praktis MUET: Malaysian University English Test. Petaling Jaya: Longman. No. panggilan: PE1128.P26 2002.
4. Majlis Peperiksaan Malaysia (2002). Koleksi Kertas Soalan MUET (800) December 2001. Petaling Jaya: Pearson Education Malaysia Sdn. Bhd. No. panggilan: PE1128.K643 2002.
5. Pfeiffer, William S. (2000). Technical Writing: A Practical Approach. New Jersey: Prentice-Hall. No. panggilan: PE1475.P47 2000.

UWS10403 Introduction to Nationhood and Malaysia Development

Synopsis

This course discusses the basic concepts, the process of formation and development of the country. The topics that will be discussed are the struggle against colonialism, independence and the establishment of the Federation of Malaysia. In addition, the elements of Rukun Negara and the policies of development related to economy, politics and social, such as Vision 2020 and the statesmen's contributions in strengthening the continuity of Malaysia's success will also be discussed.

References

1. Ahmad Esa, Harliana Halim, Khairul Azman Mohd Suhaimy, Ku Hasnan Ku Halim, Marwan Ismail, Mohd Akbal Abdullah, Shamsaadal Sholeh Saad dan Zahrul Akmal Damin (2004). "Ikhtisar Sejarah Kenegaraan & Pembangunan Malaysia." Johor Bahru : Muapakat Jaya Percetakan Sdn. Bhd. [DS596 .I33 2003]
2. Fauziah Ani, Harliana Halim, Khairul Azman Mohd. Suhaimy, Khairunesa Isa, Ku Hasnan Ku Halim, Lutfan Jaes, Mohd. Akbal Abdullah, Shamsaadal Sholeh Saad, Siti Sarawati Johar, Zahrul Akmal Damin (2009). "Kenegaraan & Pembangunan Malaysia". Batu Pahat : Penerbit UTHM. (Modul Kenegaraan dan Pembangunan Mutakhir Malaysia)
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4. Lembaga Penyelidikan Undang-undang (2003). "Perlembagaan Persekutuan: (hingga 15hb.Ogos 2003)." Petaling Jaya : International Law Book Services. [KPG1744.51963.A3 .A4 2003 rw]
5. Ruslan Zainudin, Mohd Mahadee Ismail dan Zaini Othman (2005). "Kenegaraan Malaysia." Shah Alam : Fajar Bakti. [JQ715 .R87 2005]
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UWA10402 Introduction to Islamic Studies

Synopsis

This course explains the concept of Islam as al-Deen. The scope of the discussion covers the study of the Qur'an and al-Hadith; faith of the Ahli Sunnah Wal Jamaah; principles of Islamic muamalat; introduction of Islamic Criminal Law; issues in Islamic Family Law and current issues.

References

1. Harun Din (Dr.) (2001), *Manusia Dan Islam*, cetakan pertama, Kuala Lumpur: Dewan Bahasa dan Pustaka. [BP174. M36 1990]
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5. Mustafa Haji Daud (1989), *Institusi Kekeluargaan Islam*, Kuala Lumpur: Dewan Pustaka dan Bahasa. [BP188.3. F3.M87 1989]

UWA10202 Moral Studies

Synopsis

This subject explores the moral concepts, some aspects related to the morality and its importance in our daily life, some western moral theories, moral values in great religions of the world, morality and ethics in professional careers and contemporary moral issues.

References

1. Mohd Nasir Omar. (2010). *Falsafah Akhlak*, Penerbit Universiti Kebangsaan Malaysia, Bangi. [BJ1291 .M524 2010].
2. Hussain Othman. (2009). *Wacana Asasi Agama dan Sains*. Batu Pahat: Penerbit UTHM. [BL 240.3 H87 2009^a].
3. Hussain Othman, S.M. Dawilah Al-Edrus, Berhannudin M. Salleh & Abdullah Sulaiman. (2009). *PBL Untuk Pembangunan Komuniti Lestari*. Batu Pahat: Penerbit UTHM. [LB 1027.42 P76 2009^a].
4. Eow Boon Hin. (2002). *Moral Education*. Longman. [LC268 .E48 2008].
5. Ahmad Khamis. (1999). *Etika Untuk Institusi Pengajian Tinggi*. Kuala Lumpur: Kumpulan Budiman. [LC315.M3 .A35 1999].

UQ* 1*1 Co-Curriculum I**

Synopsis

The course offer various form of activities for student of Bachelor Degree and Diploma. Eight fields of activities offer are Public Speaking, Entrepreneurship, Sports, Community Services, Volunteership, Leadership, Culture and Innovation.

UWB10402 Technical Communication I**Prerequisite: UWB 10102 Academic English**

Synopsis

This course introduces students to what technical communication comprises of. At this level, students will learn different types of technical documents such as technical definition and description; and also different types of reports which include informational and analytical reports. Students will also go through the basic skills of writing process in producing those documents such as analyzing audience, collecting data, and organizing information. In addition, grammar, usage, and mechanics of the reports are emphasized throughout to ensure that students produce good quality documents. Finally, students will also have on-going oral presentations in either small-groups or to the whole class.

References

1. Richard Johnson-Sheehan (2005). Technical Communication Today. New York: Pearson. TK5105.S26
2. Cheesebro.T, O'Connor, L. & Rios, F. (2007). Communication skills : preparing for career success (3rd ed.) Upper Saddle River, NJ: Pearson. HF5718.C53
3. Ahmad. S, Kadir Shahar. H (2010). Technical Communication 1. Batu Pahat. Penerbit UTHM.
4. Kadir Shahar. H, Sukiman. SL, Murtadza. SF (2012). Technical Communication 1. Batu Pahat. Penerbit UTHM.

DAS 10103 Algebra

Synopsis

Real Number: Set for real numbers. Exponent, logarithm and radical. Polynomial: Quadratics equation. Inequalities and absolute value. Partial Fraction. Numerical methods solving non-linear equations: bisection and secant methods. Sequence and Series: Sequence. Arithmetic and geometric series and binomial expansion. Trigonometry: Trigonometric ratios of any angles and trigonometric equation. Matrices: Arithmetic operations. Row operations. System of linear equations: inverse matrices, Gauss Jordan elimination and numerical solution: Gauss-Seidel method. Vector: Dot and cross product. Line and plane equation in R3. Complex Number: Arithmetic operations. Polar form. Euler form. De Moivre theorem.

References

1. Nafisah@Kamariah Md. Kamaruddin et al. (2010). DAS 10103 Algebra. Centre for Science Studies, UTHM Publisher.
2. Abd. Wahid Md Raji et al. (2000). Matematik Asas, Jilid I&II. Jabatan Matematik, Fakulti Sains, UTM.
3. James, S. (2001). Intermediate Algebra. Boston: McGraw Hill. QA39.3 .S73 2002
4. Howard Anton. (1994) Elementary Linear Algebra. New York. Wiley. QA184 .A57 1994
5. Glyn James. (2001). Modern Engineering Mathematics. England. Prentice Hall. TA330 .J352 2001

DAS 14103 Physic I

Synopsis

Measurement and Unit: Measurement, base quantity, derived quantity, unit and dimension, definition of standard, scientific notation, order of magnitude estimation, conversion of unit, significant figures in addition, subtraction, multiplication and division. Vector: Introduction to vector, addition and resultant of vector, resolving vector. Linear and Rotational Kinematics: Concept of position, distance, displacement,

speed, velocity and acceleration, distance-time graph and velocity-time graph, linear motion with constant velocity, linear motion with constant acceleration, free fall motion, projectile motion. Rotational Motion: Angular displacement, angular velocity, angular acceleration and rotational motion equation with constant angular acceleration. Particle Dynamics: Newton's First Law and Inertia, Newton's Second Law and concept of mass, weight and momentum. Newton's Third Law and normal force and reaction, resultant of forces acted on a body, free-body diagrams, dynamics of motion of body on horizontal, incline and vertical plane, centripetal force. Work, Power and Energy: Principal of work-energy and principal of conservation of energy, linear momentum and impulse. Simple Harmonic Motion: Restoring force, definition and equation of SHM (displacement, velocity and acceleration), examples of SHM, simple pendulum and spring-mass system, energy of SHM, concept of free oscillations, damped oscillations, forced oscillations and resonance.

References

1. Giambattista, A., Richardson, B. M., Richardson, R. C. (2007). College Physics 2nd Ed. New York: Mc Graw Hill. QC21.3 .G52 2007
2. Serway, R. A., Faughn, J. S., Moses, C. J. (2006). College Physics. 6th Ed. USA: Pacific Grove, CA: Thomson Learning. QC21.3 .S47 2006 v.2
3. Bueche, F. J., Hecht, E., Hademenos, G. J. (2000). College Physics: based on Schaum's Outline of college physics. New York: McGraw-Hill. QC31 .C64 2000
4. Urone, P. P. (2001). College Physics. 2nd Ed. USA: Pacific Grove, CA: Brooks/Cole. QC23 .U76 2001.
5. Kramer, L. (2007). College Physics. 8th ed. San Francisco, CA : Pearson. QC23.2 .K72 2007

DAY 10102 Occupational Safety and Health

Synopsis

This course introduces students to knowledge and skills in occupational safety and health in workplace. Scope of study includes Health, Safety and Environment Managements: introduction to OSH, OSHA 1994 (Act 514), FMA 1967, EQA 1974, occupational safety and health management system, safety, health and environment culture; Risk Management and Assessment: introduction to risk management, risk assessment techniques, HIRARC; Physical Injury & Controls: introduction to physical injury, construction work, electrical work, mechanical work, chemical work; Health Hazards: introduction to health hazards & hygiene, chemical hazards, physical hazards, biological hazards, hygiene; Accident Investigation & Reporting: introduction, accident investigation, investigations and causes of incident, incident analysis and data collection method.

References

1. Occupational Safety and Health Act and Regulations. MDC Publishers Printer Sdn. Bhd. 2001. Call number: KPG1390.M34 2001 rw N2.
2. Factories and Machinery Act & Regulations. MDC Publishers Printer Sdn. Bhd. 2001. Call number: KPG1390.A31967 .A4 2001 rw N1.
3. Ismail Bahari (2006). Pengurusan Keselamatan dan Kesihatan Pekerjaan. Edisi ke-2.. McGraw Hill Education (Malaysia). Call number: T55.I85 2006.
4. Davies, V. J. and Tomasin K. (2006). Construction Safety Handbook. 2nd ed. London: Thomas Telford. Call number: TH443.R43 2006.
5. Anton, Thomas J. (2009). Occupational Safety and Health Management. 3rded. New York: McGraw-Hill. Call number: T55.A57 1989.

DAE 11003 Electrical Technology

Synopsis

This course provides a comprehensive introduction of electric circuits, including circuit analysis techniques and its laws. Related topics are circuit elements which covers the units in electrical measurement, voltage and current, power and energy; analyzing the resistive circuits using the Ohm's Laws and Kirchhoff's Laws in series/parallel circuits; circuit analysis using mesh analysis and nodal analysis; network theorems using superposition, thevenin and norton; maximum power transfer; inductor, capacitor and mutual inductance; first-order circuits - transient response and steady state analysis for RL and RC circuits; AC circuits – sinusoidal and phasor wave, impedance and admittance; AC power analysis.

References

1. Hughes, Edward (2005). Electrical and Electronic Technology, 9th ed. Harlow, England: Pearson/Prentice Hall. Shelf No: TK146 .H83 2005
2. Alexander, Charles K.; Sadiku, Matthew N. O. (2009). Fundamentals of Electric Circuits, 4th ed. Boston: McGraw-Hill. Shelf No: TK454 .A43 2009
3. Floyd, Thomas L.; Buchla, David M. (2010). Electric Circuits Fundamentals, 8th ed. Boston: Prentice Hall. Shelf No: TK454 .F56 2010
4. Floyd, Thomas L.(2007). Principles of Electric Circuits: Conventional Current Version, 8th ed. Upper Saddle River, NJ: Pearson. Shelf No: TK454 .F564 2007
5. Floyd, Thomas L.; Buchla, David M. (2010). Electric Circuits Fundamentals, 8th ed. Boston: Prentice Hall. Shelf No: TK454 .F56 2010

DAE 10403 Computer and Multimedia Technology

Synopsis

The course provides an overview of computer system and multimedia technology that covers hardware, software, networking and multimedia application development techniques. It also provides opportunity to employ multimedia technology particularly in development and design of multimedia presentation. Related topics are introduction to computing, hardware, software, networking, introduction to multimedia, multimedia applications, multimedia elements and web development.

References

1. Stallings, William (2011). Data and Computer Communications, 9th edition. London: Pearson Education. Shelf No: XX(132126.1)
2. Stallings, William (2011). Computer Organization and Architecture: Designing for Performance, 8th edition. Upper Saddle River: Prentice Hall. Shelf No: QA76.9.C643 .S72 2010
3. Huang, George Q. Mak, K. L.(2003). Internet Applications in Product Design and Manufacturing. Berlin: Springer. Shelf No: TS155.6 .H82 2003
4. Rahman, Syed Mahbubur (2008). Multimedia Technologies: Concepts, Methodologies, Tools and Applications. London: Information Science Reference. Shelf No: QA76.575 .R33 2008 v.3
5. Felke-Morris, Terry (2011). Web development and design foundations with XHTML, 5th ed. Boston : Addison-Wesley. Shelf No: QA76.76.H94 .F44 2011

UWB10502 Technical Communication II

Prerequisite: UWB 10402 Technical Communication I

Synopsis

This course emphasises on task- based learning approach and focuses on developing students' delivery of speech in oral interactions and presentations. Importance is given on mastery of self-directed learning, team-work, research, oral presentations, reasoning and creativity. This course also enables students to acquire knowledge and skills necessary for conducting and participating in meetings, including writing of meeting documents. Students will also be exposed to the techniques of writing job application letters, resumes and conducting job interviews.

References

1. Brantley, Clarice Pennebaker (2005). Effective Communication for Colleges (10th ed.) Ohio: Thomson Learning. HF5718.B72 2005
2. Cheesebro, T, O'Connor, L. & Rios, F. (2007). Communication skills: Preparing for Career Success (3rd ed.) Upper Saddle River, NJ: Pearson. HF5718.C53 2007
3. Gurak, L. J. & Lannon, J. M. (2010). Strategies for Technical Communication in the Workplace. New York: Longman Publishing Group. HF5718.G87 2010
4. Hanim Kamarudin, Mohammad Talha Mohamed Idris, Zulida Abdul Kadir, Noor Shahariah Saleh, & Norashikin Abdul Hamid (2012). Technical Communication II: Teaching Modul UWB20502. Batu Pahat: Penerbit UTHM.
5. Mohammad Talha Mohamed Idris & Zulida Kadir (2009). Technical Communication II: Teaching Modul UMB 1122. Batu Pahat: UTHM.
6. Zulida Abdul Kadir (2006). Technical Communication II: Teaching Modul UMB 1122. Batu Pahat: UTHM. T11.Z84 2006

DAS 10303 Engineering Mathematics I

Synopsis

Function: Relation and function, graph, algebra function, piecewise function, trigonometry, exponent, logarithm, hyperbolic and its inverse. Limits: Limit of functions. One-sided limits. Limits at infinity. Continuity. Differentiation: Techniques of differentiation: Sum and differences rule, product rule, quotient rule. Chain rule. Differentiation of exponent functions, logarithm functions, implicit functions, parametric equations, inverse trigonometric functions and higher derivatives. Application of differentiation: Rates of change. Maximum and minimum problem, graph sketching. L' Hôpital's Rule. Integration: Integration as inverse of differentiation. Integration of standard functions. Definite integrals. Techniques of integration: by substitution, by parts, by partial fraction, by table method. Numerical methods: Simpson's rule and Trapezium rule. Improper integrals: Integrals at infinity. Application of integration: Area of a region. Volumes by cylindrical shells. Arc length and surface area.

References

1. Abd Wahid Md Raji (et al.). (2006). Calculus, UTM & PP Sains.
2. Anton, Bivens, I., Davis, S. Calculus. (7th ed). (2002). John Wiley & Sons, Inc, USA. QA303 .A57 2002.
3. Douglas C. Montgomery, George C. Runger & Norma Faris Hubele. (2004) Engineering Statistics. John Wiley. QA276.12 .M66 2004
4. James, Glyn. Modern Engineering Mathematics third edition. (2001). Prentice Hall, Essex. TA330 .J352 2001
5. Thomas, G. B., Finney, R.L. and Weir, M.D. (1996). Thomas' Calculus and analytic geometry 9th Edition, Addison Wesley Publishing, Boston. QA303 .T46 1996

DAS 14203 Physic II**Prerequisite:** DAS14103 Physic I

Synopsis

Elasticity of Material: Stress and strain, Hooke's Law, Young's Modulus, Stress-strain diagram, shear modulus, bulk modulus, Poisson ratio. Hidrostatic: Pressure, density, Pascal principle, Archimedes principle, bouyancy. Heat and Temperature: Definitions of heat and temperature, thermal equilibrium, temperature scales, Heat: Heat capacity and specific heat, latent heat of fusion, latent heat of vaporization, calorimetry principles. Heat Transfer: Conduction and convection. Thermal Properties of Matter: Linear expansion, area expansion and volume expansion. Liquid Expansion: Apparent and absolute expansion. Mechanical Wave: Wave Definition, characteristics and types of mechanical wave, general equation of progressive wave, superposition principle, standing wave, stretched string, air column in open and closed pipes, wave velocity in mediums. Sound Wave: Sound intensity, sound level, Doppler's effect. Electromagnetic Wave: Lights as an electromagnetic wave, intensity and density of energy. Lighting: Candela, lumens. Interference: Conditions for interference, conditions for constructive and destructive interference, Young's double-slit interference. Diffraction: Fraunhofer diffraction (single slit). Polarization: Polarization method and Malus's Law. Geometrical Optics: Reflection of Light: Reflection Law, formation of image by plane mirror. Refraction of Light: Snell's Law, characteristics of spherical lens (Concave and Convex), formation of image by plane and spherical surface, magnification of image by spherical lens.

References

1. Giambattista, A., Richardson, B. M., Richardson, R. C. (2007). College Physics 2nd Ed. New York: Mc Graw Hill. QC21.3 .G52 2007
2. Serway, R. A., Faughn, J. S., Moses, C. J. (2006). College Physics. 6th Ed. USA: Pacific Grove, CA: Thomson Learning. QC21.3 .S47 2006 v.2
3. Bueche, F. J., Hecht, E., Hademenos, G. J. (2000). College Physics: based on Schaum's Outline of college physics. New York: McGraw-Hill. QC31 .C64 2000
4. Urone, P. P. (2001). College Physics. 2nd Ed. USA: Pacific Grove, CA: Brooks/Cole. QC23 .U76 2001.
5. Kramer, L. (2007). College Physics. 8th ed. San Francisco, CA : Pearson. QC23.2 .K72 2007

DAE 20103 Computer Programming

Synopsis

This course emphasizes the relationship between algorithm and programming to provide conceptual and practical aspects of designing, implementing and debugging a program. Topics covered are method of synthesizing knowledge in problems-solving and programming; introduction to C programming language; structured programming and control; functions; array; pointer and structure; text and binary file processing; application of parallel and series programming language.

References

1. Malik, D. S. (2011). C++ Programming: From Problem Analysis to Program Design, 5th ed. Boston, MA: Course Technology. Shelf No: QA76.73.C153 .M345 2011
2. Sprankle, Maureen; Hubbard, Jim (2006). Problem Solving and Programming Concepts, 7th ed. New York: Pearson Education Limited. Shelf No: QA76.6 .S67 2006
3. Allert, James (2009). Programming with Visual C++: Concepts and Projects. Boston, MA: Course Technology. Shelf No: QA76.73.C153 .A44 2009

4. Malik, D. S. (2009). Introduction to C++ Programming. Boston, MA: Course Technology. Shelf No: QA76.73.C153 .M346 2009
5. Ling, Huo Chong (2009). C Programming for Beginners. Kuala Lumpur: Prentice Hall. Shelf No: QA76.73.C15 .C74 2009

DAE 11103 Circuit Theory

Synopsis

This course provides a comprehensive introduction of electric circuits, including circuit analysis techniques and its laws. Related topics are circuit elements which covers the units in electrical measurement, voltage and current, power and energy; analyzing the resistive circuits using Ohm's Law and Kirchhoff's Law in series/parallel circuits; circuit analysis using mesh analysis and nodal analysis; network theorems using superposition, thevenin and norton; maximum power transfer; inductor, capacitor and mutual inductance; first-order circuits - transient response and steady state analysis for RL and RC circuits; AC circuits – sinusoidal and phasor wave, impedance and admittance; AC power analysis.

References

1. Alexander, Charles K.; Sadiku, Matthew N. O. (2009). Fundamentals of Electric Circuits, 4th ed. Boston : McGraw-Hill. Shelf No: TK454 .A43 2009
2. Nilsson, James William; Riedel, Susan A. (2011). Electric Circuits, 9th ed. Boston : Prentice Hall. Shelf No: TK454 .N54 2011
3. Irwin, J. David; Nelms, R. Mark (2011). Engineering Circuit Analysis, 10th ed. Hoboken : John Wiley. Shelf No: TK454 .I78 2011
4. Dorf, Richard C.; Svoboda, James A. (2011). Introduction to Electric Circuits, 8th ed. Shelf No: TK454 .D67 2011
5. Irwin, J. David; Nelms, R. Mark (2005). Basic Engineering Circuit Analysis, 8th ed. Hoboken, NJ : John Wiley. Shelf No: TK454 .I78 2005

DAE 21203 Digital Electronics

Synopsis

This course provides knowledge and understanding of basic combinational logic circuits as well as their applications. Related topics are digital concepts, numbering systems, logic gates, Boolean Algebra & Theorem, logic simplification, combinational logic circuit, digital arithmetic and combinational logic circuit functions (adders, comparators, decoders, encoder, multiplexers, demultiplexers). A hands-on laboratory is included in which students work in teams.

References

1. Floyd, Thomas L.(2009). Digital Fundamentals, 10th ed. Indianapolis, IN: Pearson. Shelf No: TK7868.D5 .F564 2009
2. Mandal, Soumitra Kumar (2010). Digital Electronics: Principles and Applications. New Delhi: Tata McGraw Hill. Shelf No: TK7868.D5 .M36 2010
3. Tokheim, Roger L. (2008). Digital Electronics: Principles and applications, 7th ed. New York : McGraw-Hill. Shelf No: TK7868.D5 .T644 2008
4. Tocci, Ronald J.; Widmer, Neal S.; Moss, Gregory L.(2011) Digital Systems: Principles and Applications, 11th ed. Upper Saddle River, NJ.: Prentice Hall. Shelf No: TK7868.D5 .T62 2011
5. Kharate, G. K. (2010). Digital Electronics. New Delhi: Oxford University Press. Shelf No: TK7868.D5 .K42 2010

DAE 21801 Electrical Engineering Laboratory

Synopsis

The course provides students with basic skills in electrical engineering practice. Topics include safety, wiring accessories, working equipments, electrical plan design, cable, wiring systems, consumer circuit, circuits grounding and protection, testing, cost estimation and wiring plan.

References

1. Md. Nasir Abd Manan (2004). Panduan Pendawaian Elektrik Domestik: I.E.E Edisi 16 BS7671:1992 Pindaan 2, 1997. Petaling Jaya: IBS Buku. Shelf No: TK9901 .M52 2004 a
2. Linsley, Trevor (2008). Basic Electrical Installation Work, 5th ed. Oxford: Newnes. Shelf No: TK452 .L564 2008.
3. Linsley, Trevor (2008). Advanced Electrical Installation Work, 5th ed. Oxford: Newnes. Shelf No: TK452 .L564 2008. Shelf No: TK452 .L56 2008
4. Smith, Robert L.; Herman, Stephen L.(2008). Electrical Wiring Industrial, 13th ed. Clifton Park, NY: Delmar Cengage Learning. Shelf No: TK3283 .S64 2008
5. Stokes, Geoffrey; Bradley, John (2009). A Practical Guide To the Wiring Regulations: 17th Edition IEE Wiring Regulations (BS 7671:2008). Boca Raton: CRC. Shelf No: TK3275 .S76 2009

UQ* 1*1 Co-Curriculum II**

Synopsis

The course offer various form of activities for student of Bachelor Degree and Diploma. Eight fields of activities offer are Public Speaking, Entrepreneurship, Sports, Community Services, Volunteership, Leadership, Culture and Innovation.

DAS 12102 Chemistry

Synopsis

This course introduces students to chemistry knowledge required in engineering and technology fields. The topics discussed include : Atomic and Mole Concept: Matter and states of matter (element, pure compound, mixture). Definition and naming of atoms, molecules and ions. Atomic, molecular and molar mass. Chemical equation and stoichiometry. Solution concentration and volumetric analysis. Electronic Structure of the Atom: Bohr's Atomic Theory. Quantum numbers and electron configuration. Periodic Table of the Elements: Classification and periodic properties. Chemical Bonding: Lewis structure. Ionic and covalent bond. Intermolecular forces. Gas Laws: Particles in gas. Gas laws. Thermochemistry: Enthalpy and enthalpy change. Hess's Law. Chemical Kinetics: Rate of reaction and rate law. Effect of temperature, concentration, pressure and catalyst on reaction rate. Chemical Equilibrium: Reversible reaction. Equilibrium constant. Le Chatelier's Principle. Acid-Base: Definition. Strong and weak acids and bases. pH and pOH. Electrochemistry: Redox reaction. Electrochemical cell. Nernst equation. Faraday's Law. Chemical Experiments: Experiments on selected topics.

References

1. Teaching and Learning Module, Chemistry DAS 12102 / 12203
2. Raymond Chang. 2010. Chemistry 10th. Edition. Burr Ridge, IL, McGraw-Hill. QD31.3 .C42 2010
3. John McMurry dan Robert C. Fay. 2008. Chemistry 5th. Edition. Upper Saddle River, NJ, Pearson. QD33 .M68 2008

4. Martin S. Silberberg. 2012. Chemistry: The Molecular Nature of Matter and Change, 6th Edition. New York, McGraw Hill. QD33.2 .S54 2012
5. Moore, John W. Stanitski, Conrad L. Jurs, Peter C. 2008. Chemistry The Molecular Science, 3rd. Edition. Belmont, CA, Thomson .QD33.2 .M66 2008

DAS 20603 Engineering Mathematics II

Synopsis

First Order Linear Differential Equations: Separable, homogeneous, linear and exact. Application of first order differential equations :Population, Newton's Law Cooling. Second Order Linear Differential Equations: Undetermined coefficients. Variation of parameters. Laplace Transforms: Definition. Properties: linearity, first shift, and multiply with tn. Inverse Laplace Transforms: Definition and properties. Convolution theorem. Initial and boundary value problems.

References:

1. Abd Wahid Md Raji (et al.). (2006). Calculus, UTM & PP Sains.
2. Anton, Bivens, I., Davis, S. Calculus. (7th ed). (2002). John Wiley & Sons, Inc, USA. QA303 .A57 2002.
3. Douglas C. Montgomery, George C. Runger & Norma Faris Hubele. (2004) Engineering Statistics. John Wiley. QA276.12 .M66 2004
4. James, Glyn. Modern Engineering Mathematics third edition. (2001). Prentice Hall, Essex. TA330 .J352 2001
5. Thomas, G. B., Finney, R.L. and Weir, M.D. (1996). Thomas' Calculus and analytic geometry 9th Edition, Addison Wesley Publishing, Boston. QA303 .T46 1996

DAE 21402 Electrical Instrumentation And Measurement

Synopsis

This course aims at developing the understanding and skills in the application of electrical and electronic instrumentation as well as measurement principles in the electrical and electronic engineering. Related topics are DC and AC analogue meters; digital meters; calibration procedures; bridge instrument; high voltage and high current AC and DC measurements; power measurements in AC and DC circuits; digital oscilloscope: construction and operation, waveform measurement and analysis; sensors and transducers: characteristics and applications.

References

1. Tumanski, Slawomir (2006) Principles of Electrical Measurement. Boca Raton, FL: Taylor and Francis. Shelf No: TK275 .T85 2006
 2. Cheattle, Keith (2006). Fundamentals of Test Measurement Instrumentation. Research Triangle Park, NC: ISA-Instrumentation, Systems, and Automation Society. Shelf No: TK7878.4 .C43 2006.
 3. Bhavani, V.(2008). Measurement and Instrumentation. Petaling Jaya: IBS Buku. Shelf No: TK7878 .B42 2008.
 4. Ghosh, Arun K.(2008). Introduction to Measurements and Instrumentation, 2nd ed. New Delhi: Prentice-Hall. Shelf No: TA165 .G46 2007
 5. Northrop, Robert B.(2005). Introduction to Instrumentation and Measurements, 2nd ed. Boca Raton, FL: Taylor and Francis. Shelf No: TK7870 .N66 2005
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DAE 21603 Logic System

Prerequisite:DAE 21203Digital Electronics

Synopsis

This course aims at developing an understanding of the sequential logic system and its applications. Related topics are monostable and bistable logic devices such as latches and flip-flops; asynchronous and synchronous counters; shift registers and its applications; memory and storage devices and introduction to PLD device.

References

1. Floyd, Thomas L.(2009). Digital Fundamentals, 10th ed. Indianapolis, IN: Pearson. Shelf No: TK7868.D5 .F564 2009
2. Mandal, Soumitra Kumar (2010). Digital Electronics: Principles and Applications. New Delhi: Tata McGraw Hill. Shelf No: TK7868.D5 .M36 2010
3. Tokheim, Roger L. (2008). Digital Electronics: Principles and Applications, 7th ed. New York: McGraw-Hill. Shelf No: TK7868.D5 .T644 2008
4. Tocci, Ronald J.; Widmer, Neal S.; Moss, Gregory L.(2011) Digital Systems : Principles and Applications, 11th ed. Upper Saddle River, NJ. : Prentice Hall. Shelf No: TK7868.D5 .T62 2011
5. Kharate, G. K. (2010). Digital Electronics. New Delhi: Oxford University Press. Shelf No: TK7868.D5 .K42 2010

DAE 21303 Electronics

Synopsis

This course introduces electronic principles related to the analysis and operation of basic amplifiers, and basic electronic devices (diodes, BJT and FET transistors) used in electronic systems. Related topics are semiconductor – characteristics, diode models and other types; theory and diode application – rectifier, filter and regulator, limiter and clamper; Bipolar Junction Transistor (BJT) – characteristics and parameter, bias circuits, AC model, voltage amplifier; JFET – characteristic and parameter, biasing, JFET amplifier, power amplifier- Class A, B, AB and C Amplifier; Oscillator – theory of sinusoidal oscillations, Colpitts Oscillator, Hartley Oscillator and 555 Timer.

References

1. Floyd, Thomas L. (2008). Electronic Devices, 8th ed. Upper Saddle River, NJ: Pearson. Shelf No: TK7870 .F564 2008.
2. Malvino, Albert; Bates, David J. (2007). Electronic Principles, 7th ed. Boston: McGraw-Hill. Shelf No: TK7816 .M34 2007
3. Schultz, Mitchel E. (2007). Grob's Basic Electronics, 10th ed. New York: McGraw-Hill. Shelf No: TK7816 .S384 2007
4. Floyd, Thomas L. (2007). Electronics Fundamentals: Circuits, Devices and Applications, 7th ed.; Upper Saddle River, NJ.: Pearson. Shelf No: TK7816 .F56 2007
5. Boylestad, Robert L.; Nashelsky, Louis (2006). Electronic Devices and Circuit Theory, 9th ed. Upper Saddle River, NJ: Pearson. Shelf No: TK7867 .B69 2006

DAE 32103 Control System

Synopsis

This course aims at developing an indepth understanding of the concepts, theory and applications of basic technologies in control systems engineering. The topics covered are introduction to control engineering; open and closed loop control systems; types of analog control systems; modelling of electrical, mechanical, and electromechanical systems; digital control systems; introduction to process control elements.

References:

- i. Nise, Norman S.(2011). Control Systems Engineering, 6th ed. Hoboken, NJ: John Wiley & Sons. Shelf No: TJ213 .N57 2011
- ii. Nagrath, I. J. (2008). Control Systems Engineering, 5th ed. Tunbridge Wells: Anshan. Shelf No: TJ213 .N33 2008
- iii. Golnaraghi, M. F.; Kuo, Benjamin C. (2010). Automatic Control Systems, 9th ed. Hoboken, NJ: John Wiley. Shelf No: TJ213 .K86 2010
- iv. Dorf, Richard C.; Bishop, Robert H. (2008). Modern Control Systems, 11th ed. Prentice Hall: Pearson. Shelf No: TJ216 .D67 2008
- v. Alavala, Chennakesava R. (2009). Principles of Industrial Instrumentation and Control Systems. Singapore: Cengage Learning Asia. Shelf No: TA165 .A42 2009

UWA 10502 Theology and Science

Synopsis

This course focuses on the concept of two basic things which are holding religious beliefs and looking at different views in science. As a result of this, the existence of the relationships between them can be distinguished through discussions based on the holistic concept of knowledge.

References

1. Mohd. Arip Hj. Kasmu, (2005). Pasak; Pengukuhan Akidah Menerusi Penghayatan Sains Dalam al-Quran, cet.2, Negeri Sembilan: Penerbitan Awan Biru.
2. Sulaiman Nordin, et. al., (1995). Sains Menurut Perspektif Islam, Kuala Lumpur: Dewan Bahasa dan Pustaka.
3. Ghazali Darussalam, (2001). Tamadun Islam dan Tamadun Asia, Kuala Lumpur: Utusan Publication.
4. Haron Din,et. al., Jilid 3, (1994). Manusia dan Islam, Kuala Lumpur: Dewan Bahasa dan Pustaka.
5. Mir Aneesuddin, (2000). terj: Fatwa al-Quran Tentang Alam Semesta, cet.1, Jakarta: Serambi.

UWB102 Foreign Language**

Synopsis

This course is designed for students to learn the basic Foreign language. Students are exposed to the skills of listening, reading, speaking, and writing with basic vocabulary, grammar and structure. Students are also exposed to the real daily situations which will help them to communicate using Foreign language.

References

1. Booth, Trudie Maria, 2008. French Verbs Tenses. Mc Graw-Hill. Call no. : P 2271, U66 2008.
2. Lim Hong Swan, Yeoh Li Cheng, 2010. Mandarin Made Easy Through English. Batu Pahat: Penerbit UTHM. PL1129.E5 .L554 2009

3. Mohd Hisyam Abdul Rahim; Ahmad Sharifuddin Mustapha; Mohd Zain Mubarak. 2008. Bahasa Arab UMR 1312. Batu Pahat: Penerbit UTHM. PJ6115 .M445 2008
4. Surie Network, (2000) : Minna no Nihongo : Kaite Oboeru, Tokyo : 3A Corporation. PL539.3 M56 2000
5. Gabriele Kopp, Siegfried Büttner, 2004. Planet 1: Deutsch für Jugendliche: Kursbuch. Ismaning: Germany: Hueber Verlag. PF3129. K664 2004
6. Nurul Sabrina Zan, (2010). Hola! Hablo español First Edition Batu Pahat: Penerbit UTHM. PC4445 .N72 2010
7. Yrama, Widya (2008). Cara belajar membaca dan menulis huruf jawa, jilid 1. Yrama Widya. Publication info: 2008 131738.1

DAS 20502 Statistics

Synopsis

The course covers topics such as an introduction to statistics and probability statistics. In the introduction topic, students are introduced to the measure of central tendency, mean, median and mode while the measure of dispersion such as range, variance and standard deviation. The topic of probability contains independent event, conditional probability and Bayes theorem. Next, the course involves discrete and continuous variables, probability distribution functions and cumulative distribution function and also expectation and variance. Three new probability distributions introduced are Binomial, Poisson and normal distribution, and the approximation for; Binomial distribution to Poisson and normal approximation. Next, students learn the sampling distribution and estimation for single mean and the difference between the two mean. At the end of this course, students learn hypothesis testing for the mean and the difference between the two mean. And simple linear regression with graphical methods, method of least squares, the coefficients of determination and correlation coefficient.

References:

1. Nafisah@Kamariah Md. Kamaruddin el. al. (2015). Statistics (DAS20202). Pusat Pengajian Diploma, UTHM Publisher.
2. Wadpole - Mayer. Probability And Statistics For Engineers And Scientists. Prentice Hall. 2007. TA340 .W35 2007
3. Douglas C. Montgomery & George C. Runger (2011). Applied Statistics and Probability for Engineers. John Wiley. QA276.12 .M664 2011
4. Allan G. Bluman (2007) Elementary Statistics, A step by Step Approach. MacGraw Hill International Edition. QA276.12 .B58 2007
5. Douglas C. Montgomery, George C. Runger & Norma Faris Hubele. (2004) Engineering Statistics. John Wiley. QA276.12 .M66 2004

DAE 21503 Computer Aided Design

Synopsis

This course aims at developing skills in the use of computer aided design software to simulate analog and digital circuit and design PCB layout. Related softwares are OrCAD, Electronics Workbench and Ultiboard which will be used for schematic drawing, analog and digital circuit simulation and printed circuit board design.

References

1. Muhammad H. Rashid (2004). Introduction to PSpice Using OrCAD for Circuits and Electronics, 3rd ed. Upper Saddle River, NJ: Prentice Hall. Shelf No: TK454 .M83 2004
2. Mitzner, Kraig (2009). Complete PCB Design Using OrCAD Capture and PCB Editor. Boston: Newnes. Shelf No: TK7868.P7 .M57 2009

3. Snyder, Gary D.; Buchla, David M.(2011). Multisim Experiments for DC/AC, Digital, and Devices Courses. Shelf No: TK7867 .S96 2011
4. Reeder, John (2005). Using MultiSIM: Troubleshooting DC/AC Circuits, 3rd ed. Albany, NY: Thomson Learning. Shelf No: TK7818 .R43 2006
5. Baker, R. Jacob (2008). CMOS: Circuit Design, Layout and Simulation, Rev. 2nd ed. Hoboken, NJ: John Wiley. Shelf No: TK7871.99.M44 .B34 2008

DAE 32003 Industrial Electronics

Synopsis

This course aims at developing an in-depth understanding of the concepts, theory and applications of electronic devices and circuits used in the manufacturing and process industries. Topics include introduction to the types of electromechanical control devices, ladder diagrams, DC motor controllers, stepper motors and programmable logic controller.

References

1. Rehg, James A.;Sartori, Glenn J. (2006). Industrial Electronics. Upper Saddle River, NJ: Pearson. Shelf No: TK7881 .R43 2006
2. Rehg, James A.;Sartori, Glenn J. (2009). Programmable Logic Controllers, 2nd ed. Upper Saddle River, NJ: Pearson. Shelf No: TJ223.P76 .R43 2009
3. Bartelt, Terry (2006). Industrial Control Electronics: Devices, Systems and Applications, 3rd ed. Clifton Park, NY: Thomson. Shelf No: TK7881 .B37 2006
4. Wilamowski, Bogdan M.; Irwin, J. David (2010). Fundamentals of Industrial Electronics. Boca Raton: Taylor & Francis. Shelf No: TK7881 .F86 2010
5. Gurevich, Vladimir (2008). Electronic Devices on Discrete Components for Industrial and Power Engineering. Boca Raton: CRC. Shelf No: TK7881.15 .G87 2008

DAE 32203 Microcontroller

Pre Requisite:DAE 21203Digital Electronics

Synopsis

This course aims at developing a comprehensive understanding of the architecture, programming, interfacing and applications of microcontrollers. Topics covered are concepts of microcontroller, microcontroller architecture, memory unit, CPU, bus, I/O unit, serial communication, timer unit, AD conversion, microcontroller instruction set, PIC programming language, hardware interfacing and PWM.

References

1. Rafiquzzaman, M. (2011). Microcontroller Theory and Applications With The PIC18F. Hoboken, N.J. : John Wiley & Sons Inc. Shelf No: TK7895.E42 .R33 2011
2. Predko, Myke (2008). Programming and Customizing the PIC Microcontroller, 3rd ed. New York: McGraw-Hill. Shelf No: TJ223.P76 .P73 2008
3. Patmanapan, T. R. (2007). Introduction to Microcontrollers and Their Applications. Oxford: Alpha Science. Shelf No: TJ223.P76 .P38 2007
4. Wilmshurst, Tim (2007). Designing Embedded Systems with PIC Microcontrollers: Principles and Applications. Amsterdam: Elsevier. Shelf No: TK7895.E42 .W544 2007
5. Gaonkar, Ramesh (2007). Fundamentals of Microcontrollers and Applications in Embedded Systems (with The PIC18 Microcontroller Family). Clifton Park, NY: Thomson Delmar Learning. Shelf No: TJ223.P76 .G36 2007

DAE 32303 Electric Machines And Drives

Prerequisite: DAE 11103Circuit Theory

Synopsis

This course introduces the knowledge of electrical machines and drives. The topics include DC, induction and synchronous machines; transformer; induction and special motor; synchronous motor driver.

References

1. Wildi, Theodore (2006). Electrical Machines, Drives, and Power Systems, 6th ed. Upper Saddle River, NJ: Pearson. Shelf No: TK2182 .W54 2006
2. Rajput, R. K. (2006). Electrical Machines, 4th ed. New Delhi: Laxmi Publications. Shelf No: TK2182 .E43 2006
3. Salam, M. Abdus (2005). Fundamentals of Electrical Machines. Oxford: Alpha Science. Shelf No: TK2000 .S34 2005
4. Kissell, Thomas E.(2003). Industrial Electronics: Applications for Programmable Controllers, Instrumentation and Process Control, and Electrical Machines and Motor Controls, 3rd ed. Upper Saddle River, NJ: Prentice Hall. Shelf No: TK7881 .K57 2003
5. Herman, Stephen L.(2010). Industrial Motor Control, 6th ed. Clifton Park: Delmar Cengage Learning. Shelf No: TK2851 .H47 2010

DAE 23904 Industrial Training

Synopsis

Students has to undergo an industrial training programme as a trainee assistant engineer in any electrical engineering field at any organization listed by the Centre of Diploma Studies for 10 weeks duration. During the period, the industrial supervisor will assess the student performance and at least once by the an appointed supervisor form the Centre of Diploma Studies. The students will be trained by the agency and organization in site supervision, planning, management, design, field investigation and assessment for a electrical engineering project.

References

Industrial Training Guidebook, UTHM

DPK 20103 Business and Entrepreneurship

Synopsis

This course gives students exposure of business and entrepreneurship knowledge. It will go through the business and economy environment, forms of rules and business support facilities, entrepreneurship, identifying method, studying and choosing business opportunities, business plan and small and medium sized business management, marketing plan, operational plan, financial plan and current issued in entrepreneurship.

References

1. Wan Liz Ozman, Wan Omar Sulzari Mohamed (2002). *Memperkasakan Usahawan : Panduan Lengkap Pengurusan Perniagaan dan Penjanaan Usahawan*. Kuala Lumpur: Utusan Publications and Distributors. Shelf No: HB615 .W54 2002
2. Bamford, Charles E.; Bruton, Garry D. (2011). *Entrepreneurship: a Small Business Approach*. New York: McGraw-Hill. Shelf No: HD62.5 .B35 2011
3. Schaper, Michael (2011). *Entrepreneurship and Small Business*, 3rd ed. Milton, : John Wiley. Shelf No: HD2341 .E57 2011
4. Bessant, John; Tidd, Joseph. (2011). *Innovation and Entrepreneurship*, 2nd ed. Chichester, West Sussex, UK : Wiley. Shelf No: HD53 .B48 2011
5. Uchino, Kenji (2010). *Entrepreneurship for Engineers*. Boca Raton : CRC Press. Shelf No: HB615 .U23 2010

DAE 32403 Electrical Power System

Synopsis

This course introduces the concept of electrical power system. The topics covered are introduction to basic electrical power systems, electrical energy generation, basic concepts of circuit analysis, distribution of electrical energy and damage analysis.

References

1. Fardo, Stephen W.; Patrick, Dale R.(2009). *Electrical Power Systems Technology*, 3rd ed. Lilburn, GA: Fairmont. Shelf No: TK1001 .F37 2009
2. Wadhwa, C. L. (2009). *Electrical Power Systems*. Tunbridge Wells, KY: New Age Science. Shelf No: TK1001 .W32 2009
3. Bandyopadhyay, M. N. (2006). *Electrical Power Systems: Theory and Practice*. New Delhi: Prentice-Hall of India. Shelf No: TK1005 .B36 2006
4. Glover, J. Duncan; Sarma, Mulukutla S.; Overbye, Thomas J. (2007). *Power System Analysis and Design*, 4th ed. Victoria: Thomson. Shelf No: TK1005 .G56 2007
5. Gill, Paul (2009). *Electrical Power Equipment Maintenance and Testing*, 2nd ed. Boca Raton, FL: CRC. Shelf No: TK401 .G54 2009

DAE 32503 Robotic and Automation System

Synopsis

This course is intended to provide an introduction to automation system and robotics. The topics include introduction of robotics, robotics technology, robotics classification, automation system and application.

References

1. Kandray, Daniel E. (2010). *Programmable Automation Technologies: An Introduction to CNC, Robotics and PLCs*. New York: Industrial Press. Shelf No: TS183 .K36 2010
2. Rehg, James A. (2003). *Introduction to Robotics in CIM Systems*, 5th ed. Upper Saddle River, NJ: Prentice Hall. Shelf No: TJ211 .R43 2003
3. Kok Kiong, Tan (2011). *Drives and Control for Industrial Automation*. New York: Springer. Shelf No: TS156.8 .K644 2011
4. Niku, Saeed (2011). *Introduction to Robotics: Analysis, Control, Applications*, 2nd ed. Indianapolis, IN: Wiley. Shelf No: TJ211 .S24 2011
5. Soloman, Sabrie (2010). *Sensors and Control Systems in Manufacturing*, 2nd ed. New York: McGraw Hill. Shelf No: TS158.6 .S64 2010

DAE 32603 Communication Engineering

Synopsis

This course provides an overview of communication system engineering. In this course, the related topics are introduction to communication systems, amplitude modulation and frequency modulation. Noise analysis, transmission line, wave propagation and antenna will also be discussed in this course.

References

1. Ziemer, Rodger E.; Tranter, William H (2010). Principles of Communications: Systems, Modulation, and Noise, 6th ed. Hoboken, NJ: John Wiley. Shelf No: TK5105 .Z54 2010
2. Fitz, Michael P. (2007). Fundamentals of Communications Systems. New York: McGraw-Hill. Shelf No: TK5101 .F57 2007
3. Tomasi, Wayne (2004). Electronic Communications Systems: Fundamentals Through Advanced, 5th ed. Upper Saddle River, NJ: Pearson Education. Shelf No: TK5101 .T65 2004
4. Frenzel, Louis E. (2008). Principles of Electronic Communication Systems, 3rd ed. New York: McGraw-Hill. Shelf No: TK5101 .F744 2008
5. Carlson, A. Bruce; Crilly, Paul B. (2010). Communication Systems: an Introduction to Signals and Noise in Electrical Communication, 5th ed. Boston: McGraw-Hill. TK5102.5 .C37 2010

DAE 32703 Electrical Engineering Project

Synopsis

This course aims to provide students with the opportunity to study and implement a project related to the courses undertaken. This course involves developing problem-solving using engineering theories and techniques. Various problems associated with soldering and desoldering; realize a given circuit diagram into a fully-functional hardwired circuit; assemble a functional circuit on a board; process of producing a printed circuit board. At the end of the project, it is expected that the student submit a proper written report and to carry out a presentation.

References

1. Thesis writing guideline, UTHM.
2. Guideline for Implementation of Diploma Engineering Project, UTHM

Career and Further Education Prospect

Diploma in Electrical Engineering is a field of study that is concerned with the use of electricity in the design , testing and development of circuits and electrical equipment for power transmission systems , control of machines, appliances and high-powered systems .

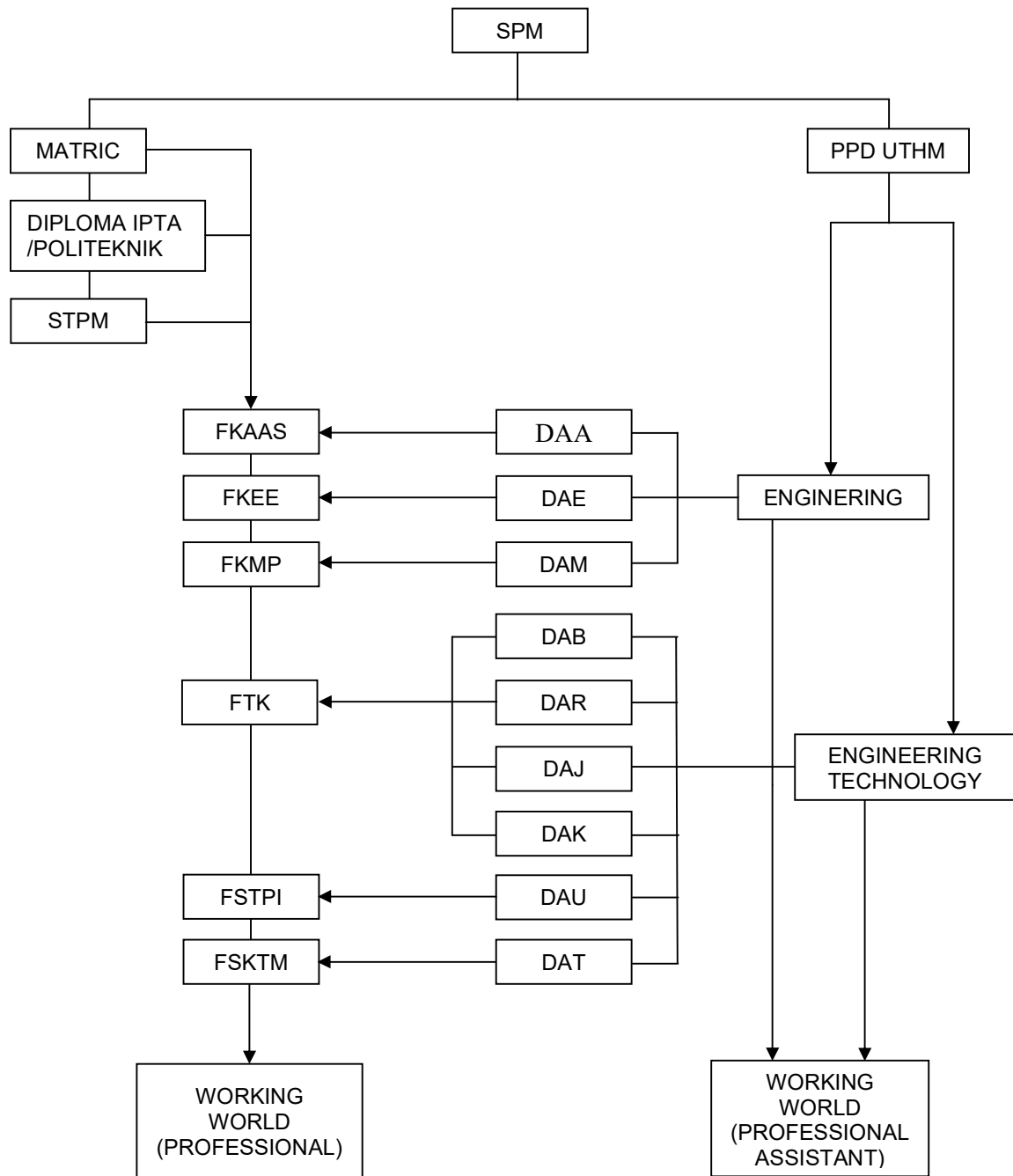
Graduates are prepared for their future role in the economy by building a solid foundation in technical knowledge and skills related to the field of electrical engineering. The program provides knowledge and skills in the field of electrical engineering that can be applied to a variety of careers in the majority of suppliers of power generation and the manufacturing industry.

The graduates of this programme are eligible to begin their career in these fields :

1. Authority/ Utilities
Example: Energy Commission, DOSH, Niosh, TNB, IPPs
2. Engineering in manufacturing, consultancy, research & development and academic.
3. Procurement and Business Development
Example: Sales and Project
4. Construction
Examples: Project Management
5. Testing and Commissioning

Figures below show examples of jobs and career pathway in Centre of Diploma Studies UTHM and according to Malaysian Qualification Framework

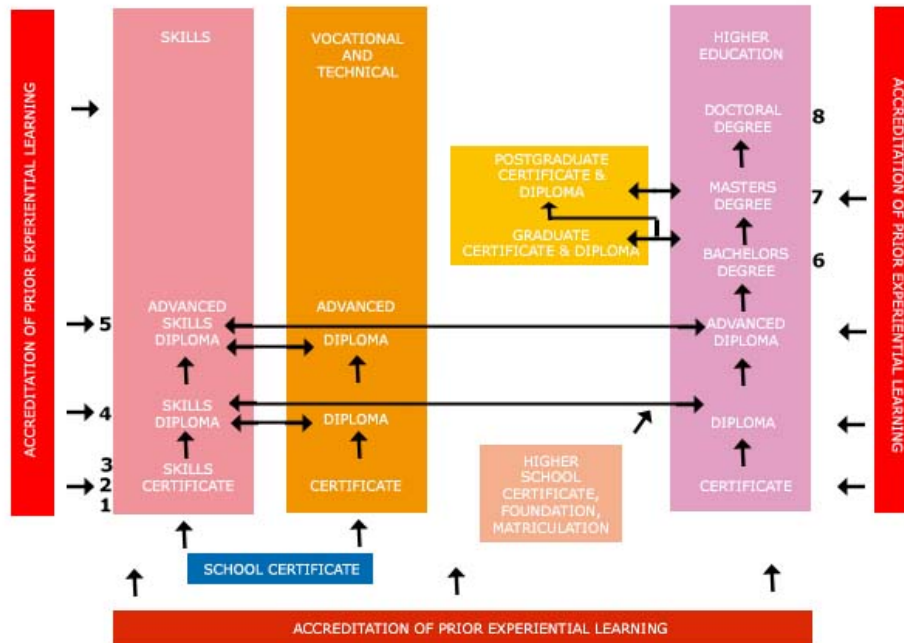




Legend:

DAA – Diploma in Civil Engineering
 DAB – Diploma in Civil Engineering Technology
 DAE – Diploma in Electrical Engineering
 DAR – Diploma in Electrical Engineering Technology
 DAM – Diploma in Mechanical Engineering
 DAJ – Diploma in Mechanical Engineering Technology
 DAT – Diploma in Information Technology
 DAK – Diploma in Chemical Engineering Technology
 DAU – Diploma in Applied Sciences

MQF BASED ON QUALIFICATION LEVEL AND EDUCATIONAL PATHWAY



Educational Pathway according to Malaysian Qualification Framework

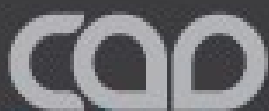
**MALAYSIAN QUALIFICATIONS FRAMEWORK:
QUALIFICATIONS AND LEVELS**

MQF Levels	Sectors			Lifelong Learning
	Skills	Vocational and Technical	Higher Education	
8			Doctoral Degree	Accreditation of Prior Experiential Learning (APEL)
7			Masters Degree	
			Postgraduate Certificate & Diploma	
6			Bachelors Degree	
			Graduate Certificate & Diploma	
5	Advanced Diploma	Advanced Diploma	Advanced Diploma	
4	Diploma	Diploma	Diploma	
3	Skills Certificate 3	Vocational and Technical Certificate	Certificate	
2	Skills Certificate 2			
1	Skills Certificate 1			

Qualifications and Levels of Education according to Malaysian Qualification Framework

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