UTHM
Universiti Tun Hussein Onn Malaysia

ACADEMIC PROFORMA 2022/2023

CENTRE FOR DIPLOMA STUDIES
CEDS

Global Technopreneur University 2030

DIPLOMA IN ELECTRICAL ENGINEERING

EXCELLENT
QS

Universiti Tun Hussein Onn Malaysia
Is Rated as a Five-Star Institution

Teaching	Employability	Innovation	Online Learning	Inclusiveness	Engineering - Civil and Structural
QS	QS	QS	QS	QS	QS

Centre for Academic Development and Excellence
Universiti Tun Hussein Onn Malaysia
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PUSAT PENGAJIAN DIPLOMA
UTHM KAMPUS PAGOH, HAB PENDIDIKAN TINGGI PAGOH
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Universiti Tun Hussein Onn Malaysia
July 2022

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Foreword by the Vice Chancellor

Assalammualaikum Warahmatullahi Wabarakatuh and greetings.

First and foremost, I would like to congratulate and welcome all new students to UTHM. As the need for formal education progressed within each of you, you have entrusted us to become one of your milestones. And for this, the honour is mine.

Looking forward past the pandemic of Coronavirus, the endemic era seems promising - especially towards the nation's education landscape. Hardship over the past two years has made us mature and agile, where reliance on the traditional way of doing things has subsided. Thus, do expect an array of positive changes and implementation en route to your success.

Inline, due to our responsibility and mandate, continuous improvement is something that we have implanted in our DNA - since our inception. Critical consideration of your journey towards essential education lifecycle (i.e. before, during, and after) has been made perpetually. Thus, parallel to our direction towards a global technopreneur university by 2030, four main pillars have been established - Edu-Train, Technopreneur, Prihatin, and Governance. All pillars are being convoluted within a holistic ecosystem, which synergises the staff, the industries, the communities, the environment, and of course, you – as the focal point.

Nevertheless, given the current state of VUCA (volatile, uncertain, complex, and ambiguous) that we faced, initiatives within our pillars have been supported by the Ministry of Higher Education Malaysia (MoHE). Therefore, edges including Experiential Learning and Competency-Based Education (EXCEL), High Impact Educational Practices (HIEPs), Future Ready Curriculum (FRC), and Entrepreneurship Integrated Education (EIE) have been materialised especially in our curriculum. Thus, we strongly believe that the initiatives, together with our exceptional physical and non-physical facilities, will produce all-inclusive graduates and later professionals, as promised in our tagline, 'UTHM Produces Professional".

Last but definitely not least, I am openheartedly welcoming all new students to become our people. Notwithstanding striving to bring pleasant experiences along your journey, I prayed for your success throughout.

"Education is the passport to the future, for tomorrow belongs to those who prepare for it today" (Malcolm X)

Best wishes.

"WITH WISDOM WE EXPLORE"
"VISION OF COMMON PROSPERITY"

YBHG. PROFESSOR Ts. Dr. RUZAIRI BIN ABDUL RAHIM
Vice Chancellor
Universiti Tun Hussein Onn Malaysia

Foreword by the Deputy Vice Chancellor (Academic and International)

Assalammualaikum Warahmatullahi Wabarakatuh and greetings.

Primarily, I am profoundly congratulating and welcoming all new students of the academic session 2022/2023 to Universiti Tun Hussein Onn Malaysia (UTHM). Hopefully you will achieve success in education as desired, in addition to gaining experience while at UTHM.

I also would like to thank and congratulate the Centre for Academic Development and Excellence (CAD) and the faculties for successfully publishing this academic proforma. It is hoped that the information provided in this academic proforma can be a reference and help students in planning their learning path throughout their studies.

As is well known, the spread of COVID-19 which began at the end of 2019 has affected not only the daily lives of individuals and the national economy, but also educational institutions are also faced with the issue of sustainability of academic programs. To address these issues, UTHM has acted to adjust the operation and implementation of academic programs based on the situation. UTHM is also determined to remain agile and relevant in the academic field in the current endemic transition era. In addition, with the support of the adoption of new initiatives from the Ministry of Higher Education Malaysia (MOHE) and also UTHM itself, I am confident that the university's academic excellence will continue to be preserved and enhanced.

Allow me to share briefly about UTHM's focus on Technical and Vocational Education and Training (TVET) based education. UTHM's efforts started from before the registration of students, where UTHM has considered the need for credit transfer, especially for higher levels of study. UTHM also provides solutions either for the articulation of academic programs internally at UTHM or externally involving other institutions. Then during the study period, extensive improvements in terms of program content, physical and non -physical facilities continued to be carried out. Afterward, UTHM has also provided a centralized support system to graduates. All these stated efforts are only part of UTHM's sustainable academic ecosystem towards a Technopreneur University by 2030.

Finally, I hope that all the agendas that have been and will be implemented by UTHM will give you valuable experience in exploring and acquiring the competencies you dream of. I pray that you will continue to gain knowledge and forge outstanding success.

"The more that you read, the more things you will know,
the more that you learn, the more places you'll go" (Dr. Seuss)

"WITH WISDOM WE EXPLORE"
"VISION OF COMMON PROSPERITY"

YBHG. PROFESSOR TS. DR. AZME BIN KHAMIS
Deputy Vice Chancellor (Academic and International)
Universiti Tun Hussein Onn Malaysia

Foreword from Dean

Assalamualaikum Warahmatullahi Wabarakatuh and Warm Greetings

Congratulations and welcome to all of you that have made the right choice of taking the first step in joining Universiti Tun Hussein Onn Malaysia (UTHM) that is the 15th IPTA established in Malaysia. I wish to welcome all of you to the Centre for Diploma Studies (CeDS) which is always ready to support and train you to be a semi-professional in the field of engineering, science and technology.

As a center, we are responsible for running and operating the Diploma programmes at UTHM. CeDS has a clear vision and mission in developing and empowering all Diploma programmes offered. Currently, seven (7) Diploma programmes being offered and the number of programmes will be increasing in the future in line with the country's employment needs.

I believed you have chosen a right programme that suits with your qualifications and dreams. Furthermore, the study period for all programmes is only 2 years and 9 months, which the student will be completed their studies in a shorter time. In the meantime, Diploma graduates will be absorbed to continue study to follow the Bachelor Degree programmes at UTHM with respect to the terms and conditions imposed.

In terms of infrastructure and teaching and learning facilities provided, UTHM have been recognized to fulfill the standard required accreditation bodies. In addition, the rapid development of the UTHM campus will now ensure the comfort of students with various facilities provided including libraries, residential colleges, cafeterias, sports activities, wireless internet connection, and various other amenities.

I hope that as a new Diploma student in UTHM, you will use this proforma as a guide and reference to facilitate you to plan and subsequently complete your diploma study program with excellence.

Wishing You Success.

“WITH WISDOM WE EXPLORE”
“VISION OF COMMON PROSPERITY”

TS. DR. MOHD SHAHIR BIN YAHYA
Dean
Centre for Diploma Studies (CeDS)
Universiti Tun Hussein Onn Malaysia

Vision

To be a global technical university in sustainable technology and transportation

Mission

Provide technical solution for industry and community based on tauhidic paradigm

Education Philosophy of University

UTHM education and training, founded on the tauhidic paradigm, strive to produce competent, professional and entrepreneurial graduates, driven by advanced technologies for global development.

Logo of University

The logo of UTHM displays a proton, a book, a tiered mortar board (levels of learning), a book-rest and a shield.

Symbolism:

- Red — Bravery
- Blue — Collaboration
- Silver — Quality/ Prestige
- Book-rest — Knowledge
- Proton — Science and Technology
- Book — Knowledge
- Mortar board — Levels of study
- Circle — Resilient and related to global characteristics
- Shield — Confidence

The whole concept of the logo represents UTHM as a learning institution that supports knowledge expansion and development at all levels of study in science and technology.

Blue represents the close relationship among UTHM community in ensuring successful and resilient implementations of the University programmes as well as its education and research activities that are carried out for the benefit of mankind.

Red symbolises the adventurous nature of UTHM in exploring new fields to establish itself as a leader in the applications of science and technology. Thus, this reflects the spirit and self-esteem of the UTHM community.

Chancellor

Duli Yang Amat Mulia Tunku Mahkota Ismail Ibni Sultan Ibrahim
Pemangku Raja
D.K., SPMJ, P.I.S

Board of Directors of University

Chairman

YBhg. Dato' Sri Ibrahim bin Ahmad

Members

YBhg. Prof. Ts. Dr. Ruzairi Bin Abdul Rahim
Vice Chancellor, Universiti Tun Hussein Onn Malaysia

YB. Dato' (Dr.) Haji Nooh bin Gadot
Advisor, Majlis Agama Islam Johor

YBhg. Dato' Dr. Mohd. Padzil bin Hashim
Putra Business School, Universiti Putra Malaysia

YBhg. Dato' Seri Dr. Ir. Haji Abdul Rashid bin Maidin
Managing Director, Pusat Bertauliah Akademik Profesional Koperasi Serbaguna Anak-anak Selangor Berhad (KOSAS)

YBrs. Dr. Sharifah Adlina binti Syed Abdullah
Ministry of Finance Malaysia

YBrs. Mr. Shahril Anwar Mohd Yunos
Managing Partner, Virtus Capital Partners Sdn. Bhd.

YBrs. Mdm. Elain Lockman
Chief Executive Officer and Co-Founder, Ata Plus Sdn. Bhd.

YBrs. Ts. Zainab binti Ahmad
Director-General, Polytechnic and Community College Education Department, Ministry of Higher Education Malaysia

YBrs. Prof. Dr. Yusri bin Yusof
Professor, Universiti Tun Hussein Onn Malaysia

Alternate Member

YBrs. Ts. Haji Mohamad Amin bin Hamat
Deputy Chief Director, Ministry of Higher Education

Secretary

YBrs. Mr. Abdul Halim bin Abdul Rahman
Registrar/Chief Operating Officer (COO), Universiti Tun Hussein Onn Malaysia

Members of Senate

Chairman

YBhg. Prof. Ts. Dr. Ruzairi Bin Abdul Rahim
Vice Chancellor

Members

Prof. Ts. Dr. Azme bin Khamis
Deputy Vice Chancellor (Academic and International)

Prof. Dr. Mohd Shahir Shamsir Bin Omar
Deputy Vice Chancellor (Research and Innovation)

Prof. Sr. Ts. Dr. Lokman Hakim bin Ismail
Deputy Vice Chancellor (Student Affairs and Alumni)

Assoc. Prof. Ts. Dr. Mohd Kamarulzaki bin Mustafa
Provost UTHM Pagoh Campus

Prof. Ir. Dr. Md Saidin Bin Wahab
Assistant Vice Chancellor / Chief Digital Officer (CDO) (Digitalization and Infrastructure)

Assoc. Prof. Dr. Mas Fawzi bin Mohd Ali
Assistant Vice Chancellor (Strategic Planning and Quality)

Prof. Dr. Shahruddin bin Mahzan @ Mohd Zin
Dean, Centre for Graduate Studies

Prof. Ir. Ts. Dr. Mohd Irwan bin Juki
Dean, Faculty of Civil Engineering and Built Environment

Assoc. Prof. Dr. Rosli bin Omar
Dean, Faculty of Electrical and Electronic Engineering

Assoc. Prof. Ir. Ts. Dr Bukhari bin Manshor
Dean, Faculty of Mechanical and Manufacturing Engineering

Prof. Dr. Wan Fauzi@Fauziah binti Wan Yusoff
Dean, Faculty of Technology Management and Business

Assoc. Prof. Ts. Dr. Abdul Rasid bin Abdul Razzaq
Dean, Faculty of Technical and Vocational Education

Ts. Dr. Azizul Azhar bin Ramli
Dean, Faculty of Computer Science and Information Technology

Assoc. Prof. Dr. Mohamad Zaky Bin Noh
Dean, Faculty of Applied Science and Technology

Assoc. Prof. Ts. Dr. Jumadi bin Abdul Sukor
Dean, Faculty of Engineering Technology

Ts. Dr. Mohd Shahir Bin Yahya
Dean, Centre for Diploma Studies

Assoc. Prof. Dr. Khairul Azman bin Mohamad Suhaimy
Dean, Centre for General Studies and Co-curricular

Dr. Hj. Azmi Bin Abdul Latiff
Dean, Centre for Language Studies

Prof. Dr. Erween bin Abdul Rahim
Director, Centre for Academic Development and Excellence

Assoc. Prof. Ts. Dr. Razali bin Hassan
Director, Malaysia Research Institute for Vocational Education and Training

Assoc. Prof. Dr. Amran Bin Harun
Institute for Social Transformation and Regional Development (TRANSFORM)

Prof. Ts. Dr. Aeslina Binti Abdul Kadir
Faculty of Civil Engineering and Built Environment

Prof. Dr. Mohammad Faiz Liew bin Abdullah
Faculty of Electrical and Electronic Engineering

Prof. Dr. Yusri bin Yusof
Faculty of Mechanical and Manufacturing Engineering

Prof. Dr. Zawati Binti Harun
Faculty of Mechanical and Manufacturing Engineering

Prof. Dr. Abdul Talib bin Bon
Faculty of Technology Management and Business

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

Prof. Dr. Abdul Mutalib Bin Leman
Faculty of Engineering Technology

Prof. Dr. Nazri Bin Mohd Nawi
Director, Centre of Information Technology

Ir. Ts. Dr. Raha Binti Abdul Rahman
Industry Fellow

Mr. Abdul Halim bin Abdul Rahman
Registrar / Chief Operating Officer (COO) / Secretary of Senate

Mr. Norzaimi Bin Hamisan
Bursar / Chief Financial Officer (CFO)

Mdm. Zaharah Binti Abd Samad
Chief Librarian

Mdm. Norliah Binti Yaakub
Legal Advisor

Centre for Diploma Studies

Centre Vision

Excellent in providing multidisciplinary education in science and technology

Centre Mission

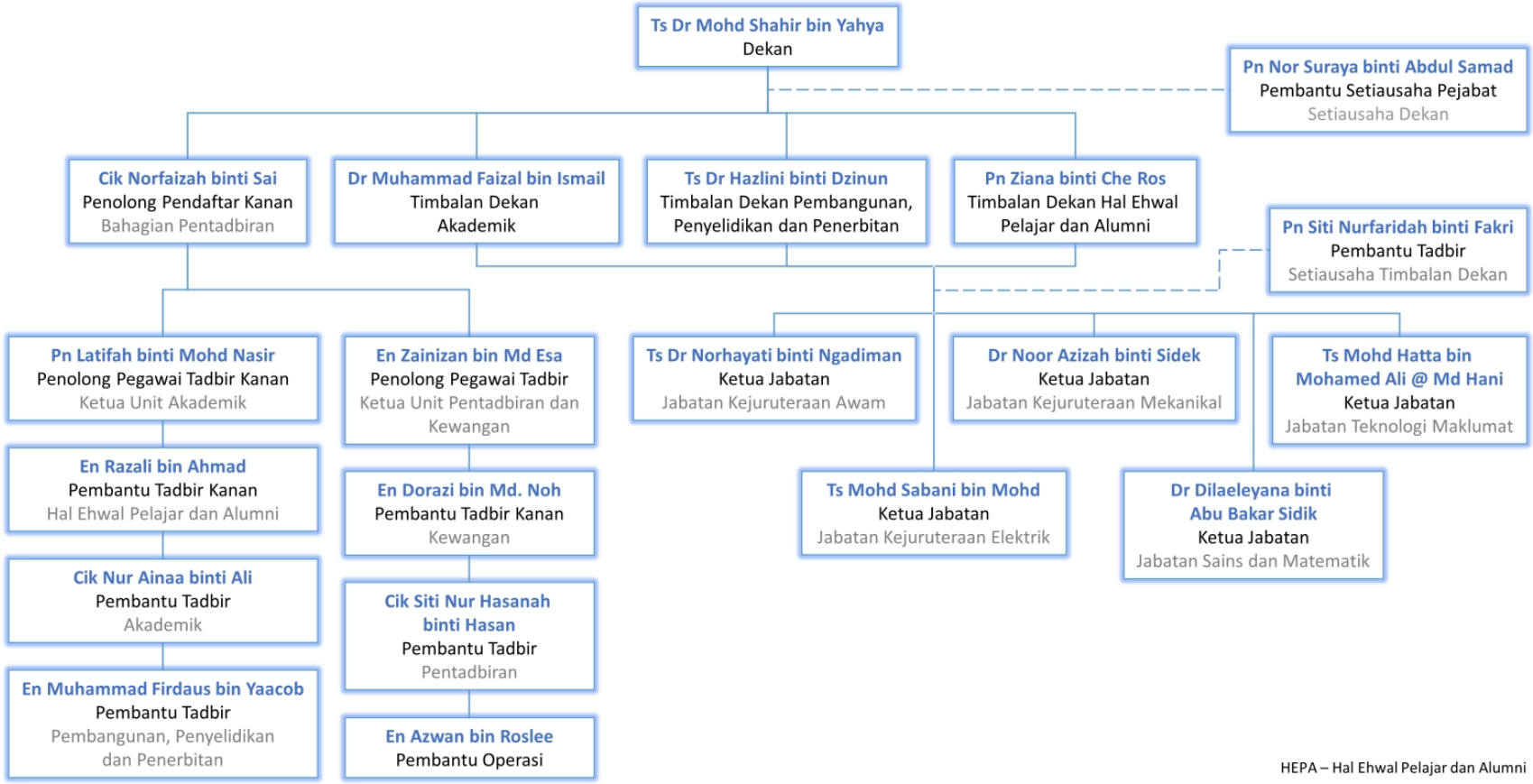
Producing graduates who contribute to national development through a holistic academic program

Diploma programmes had been offered in UTHM since the establishment of Pusat Latihan Staf Politeknik (PLSP) in 1994. It started with only three programmes which are managed by the respective departments. All were transferred to the corresponding faculties when Kolej Universiti Teknologi Tun Hussein Onn (KUiTTHO) was established in 2001.

The establishment of the Centre for Diploma Studies was announced by the Vice Chancellor on the 1st of August 2009. This enabled all the diploma programmes to be centrally managed under one roof which would increase the competitiveness of the programmes offered.

It is the aim of the Centre for Diploma Studies to offer diploma programmes at UTHM which are going to be the main choice of applicants. Students are expected to show academic excellence as well as participating in co-curriculum activities which will further develop their potential in order to achieve the quality needed to fulfill the global occupational market. In addition, graduates of these programmes also have the wides opportunity to further their studies at Bachelor Degree level at various faculties in UTHM.

Now, the Centre for Diploma Studies, offer seven (7) diploma programmes which are managed by five (5) departments and is led by a Dean who is assisted by three (3) Deputy Deans. The organizational chart of the Centre for Diploma Studies is shown in the next page:



CeDS Organization Chart

Centre External Examiner and Industrial Advisor

Department of Electrical Engineering

External Examiner

Prof. Dr. Mohamad Kamal bin A Rahim
Professor, Electrical Engineering Faculty, UTM
PhD (Elect Eng.) (Univ of Birmingham, UK), MSc (Communication Eng.) (NSW, Aust.,),
BEng (Electrical and Electronic Engineering) (University of Strathclyde, UK),
Diploma (Electrical and Electronic Engineering) (UiTM)

Industrial Advisor

Mr. Rizan bin Hj. Ali
Director, R&K Consolidated Sdn.Bhd
62A, Jalan Impian Putra 4/4,
Taman Impian Putra, 43000 Kajang, Selangor.
MBA and BBA (Twinning Programme), Dublin Metropolitan University
BEng (Electrical), Universiti Teknologi Malaysia (UTM)
Diploma in Electrical Engineering (Power), (UTM)

Ts. Khairul Anuar bin Ali Hassan
Manager Service Delivery Zone,
Network Operation Southern,
Telekom Malaysia, 81300 Skudai, Johor.
BEng (Electrical), Universiti Teknologi Malaysia (UTM)
Diploma of Electrical Engineering (Power), (UTM)
Certificate of Electrical Engineering (Power), (Politeknik Ungku Omar)

Staff Directory

Administration

Dean
Ts. Dr Mohd Shahir bin Yahya
PhD. (Mechanical Engineering) (UTHM), MEng. (Mechanical & Manufacturing) (UPM), BEng. (Mechanical Engineering) (UTM)

Deputy Dean (Academic)
Dr. Muhammad Faizal bin Ismail
PhD. (Electrical Engineering) (UTM), MEng. (Electrical Engineering) (UTM), BEng. (Hons) (Electrical Engineering - Telecommunication.) (UTM)

Deputy Dean (Student Affairs and Alumni)
Hjh. Ziana bt Che Ros
MEng. (Electrical Engineering) (UTHM), BEng. (Hons) (Electrical Engineering.) (UTM), Diploma (Electrical Engineering) (UiTM)

Deputy Dean (Development, Research and Publication)
Ts. Dr. Hazlini binti Dzinun
PhD. (Gas Engineering) (UTM), MEng. (Civil Engineering – Environment) (UTM), BEng. (Hons) (Chemical Engineering.) (UTM)

Office Secretary
Nor Suraya binti Abdul Samad
BSc. (Computer Mathematics) (UiTM), Dip. (Computer Science) (UiTM)

Administrative Assistant (Deputy Dean Secretary)
Siti Nurfaridah binti Fakri
Dip. (Hotel & Catering Management) (Politeknik Sultan Ibrahim)

Senior Assistant Registrar
Cik Norfaizah binti Sai
BSc. Human Resources (UPM)

Assistant Administrative Officer (Academic)
Latifah binti Mohd Nasir
Dip. (International Business) (Politeknik Shah Alam)

Assistant Administrative Officer (Administrative and Finance)
Zainizan bin Md Esa
Dip. (Islamic Management & Administration) (Kolej Tek. Islam Antarabangsa Melaka)

Administrative Assistant (Clerical & Operation) Student Affairs and Alumni
Razali bin Ahmad

Administrative Assistant (Clerical & Operation) Administrative and Finance
Dorazi bin Md Noh

Administrative Assistant (Clerical & Operation) Administrative
Siti Nur Hasanah binti Hasan

Administrative Assistant (Clerical & Operation) Academic
Nur Ainaa binti Ali

Administrative Assistant (Clerical & Operation) Academic
Muhammad Firdaus bin Yaacob

General Office Assistant
Azwan bin Roslee

Department of Electrical Engineering

Academic Staff

Head of Department
Ts. Mohd Sabani bin Hj.Mohd
BEng. (Hons) (Electrical Engineering) (UKM)

Dr. Muhammad Faizal bin Ismail
PhD. (Electrical Engineering) (UTM), MEng. (Electrical Engineering) (UTM),
BEng. (Hons) (Electrical Engineering - Telecommunication.) (UTM)

Ts. Tn. Hj. Zulkarnain bin Md. Amin
BSc. (Electrical Engineering) (University of Bridgeport, Connecticut, USA), Diploma (Electrical Engineering) (DCC, SUNY, New York, USA), Post Graduate Certificate of Education (TTTC), Cert. (Microprocessor System Design) (JICA, Sendai, Japan), Cert. (Computer Networking) (SIEMEN, Manheim, Germany), Cert. (Supervisory Management) (SEAMEO VOCTECH, Brunei)

Zaurin bin Ali
BEng. (Hons) (Electrical Engineering) (UTM), Diploma (Electrical Engineering) (UTM),
Cert. (Education) (Maktab Perguruan Kinta, Ipoh Perak), Cert. (Electrical Installation & Maintenance- Single Phase and Three Phase) (JPK), Cert. (Basic Electrician) (Domestic and Industry) (MLVK), Cert. (Intermediate Electrician (Domestic & Industry) (MLVK), Cert. (Internal Evaluator) (MLVK)

Ts. Tn. Hj. Mohd Hamim bin Hj Sanusi@Ikhsan
MSc. (Information Technology, Management) (UTM), BEng. (Hons) (Electrical Eng (UTHM), Certificate (Electrical Eng.)(Polimas)

Norhafiza binti Samion
MSc. (Railway Engineering) (UTHM), BEng. (Hons) (Electrical Engineering) (UTHM), Diploma (Electronics Engineering) (UTM), Cert. (TTT Trainer) (HRDF).

Hjh. Ziana binti Che Ros
MEng. (Electrical)(UTHM), BEng. (Hons) (Electrical Engineering.) (UTM), Diploma (Electrical Engineering) (UiTM)

Eddy Irwan Shah bin Shadon
MEng. (Electrical)(UTHM), BEng. (Hons) (Electrical Telecommunication) (UTM)

Nor Faezah binti Adan
MEng. (Electrical)(UTHM), BEng. (Hons)(Mechatronic) (University of Leeds)

Nabiah binti Zainal
MEng. (Electrical) (KUiTTHO), BEng. (Hons) (Electrical) (UTM), Dip. (Electrical Engineering-Communication) (UTM)

Ts. Azli bin Yusop
BEng. (Hons) (Electrical Power) (UTM), Diploma (Electrical Eng. - Power) (UTM), Cert. (Chargeman (AO). (STM), Cert. (Electrical Installation & Maintenance- Single Phase and Three Phase) (JPK)

Ts. Mohd Muzaffar bin Zahar
MEng. (Electrical)(UTM), BEng. (Hons)(Electrical)(UTM)

Ts. Azmi bin Sidek
MEng. (Electrical)(UTHM), BEng. (Hons) (Electronic/Computer) (UPM)

Ts. Mohamad bin Md Som
MSc. (Information Technology, Management) (UTM), BEng. (Computer)(UTM).

Ts. Muhammad Shukri bin Ahmad
MEng. (Electrical) (KUiTTHO), BEng. (Hons) (Electrical)(KUiTTHO).

Ts. Ahmad Alabqari bin Ma'Radzi
MSc. (Micro Eng. & Nanoelectronics) (UKM), BEng. (Microelectronic)(UKM).

Ts. Tengku Nadzlin bin Tengku Ibrahim
MSc. (Electrical, Electronics & Information Engineering) (Nagaoka University of Technology, Japan) BEng. (Electrical, Electronics & Information Engineering) (Nagaoka University of Technology, Japan)

Mohd Faizal bin Mohamed Nor
MSc. (Telecommunications and Information Engineering) (UiTM), BEng. (Hons) (Electrical) (UTHM).

Dr. Zainab binti Zainal
PhD. (Industrial Automation and Control System) (USM), MSc. (Electronics System Design) (Manchester Metropolitan University, UK), BSc. (Electrical & Electronics Engineering) (University of Manchester, UK), Diploma (Electronics Engineering) (UTM).

Ts. Nur Azliza binti Ahmad
MEng. (Electrical-Electronics Engineering) (UTP), BEng. (Hons) (Electrical Engineering - Telecommunication.) (UTM), Cert. (TTT Trainer) (HRDF)

Mohd Nurul Al-Hafiz bin Sha'abani
MSc. (Electrical Engineering)(UTeM), BEng. (Hons)(Mechatronic) (UTeM)

Nadira binti Johari Halim Shah
MSc. (Electrical Power System Engineering), (University of Manchester), BEng. (Hons) (Electrical Power Engineering.) (UTHM), Diploma (Electrical Engineering with Education) (UTHM)

Programme Name

Diploma in Electrical Engineering (DAE)

Programme Aims

To produce graduates who are competent to fulfil the nation needs of skill and expert workers in the field of Electrical Engineering whether in the public, private or self-employed sector. The programme also prepares students to further their studies to degree level at any local or international university.

Programme Educational Objectives (PEO)

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

PEO 1:	Competent in Electrical Engineering field to fulfil the needs of organization and industry.
PEO 2:	Demonstrate a holistic practice of generic skill in a professional environment.
PEO 3:	Realize the importance of lifelong learning and contribute through ethical and social work to the society continuously.

Programme Learning Outcomes (PLO)

Upon graduation, a graduate should acquire the followings:

PLO 1	Apply knowledge of applied mathematics, applied science, engineering fundamentals and an engineering specialisation as specified in DK1 to DK4 respectively to wide practical procedures and practices.
PLO 2	Identify and analyse well-defined engineering problems reaching substantiated conclusions using codified methods of analysis specific to their field of activity. (DK1 to DK4)
PLO 3	Design solutions for well-defined technical problems and assist with the design of systems, components or processes to meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations. (DK5)
PLO 4	Conduct investigations of well-defined problems, locate and search relevant codes and catalogues, conduct standard tests and measurements.
PLO 5	Apply appropriate techniques, resources and modern engineering and IT tools to well-defined engineering problems, with an awareness of the limitations. (DK6)
PLO 6	Demonstrate knowledge of the societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to engineering technician practice and solutions to well-defined engineering problems. (DK7)
PLO 7	Understand and evaluate the sustainability and impact of engineering technician work in the solution of well- defined engineering problems in societal and environmental contexts. (DK7)

PLO 8 Understand and commit to professional ethics and responsibilities and norms of technician practice.

PLO 9 Function effectively as an individual, and as a member in diverse technical teams.

PLO10 Communicate effectively on well-defined engineering activities with the engineering community and with society at large by being able to comprehend the work of others, document their own work and give and receive clear instructions.

PLO11 Demonstrate knowledge and understanding of engineering management principles and apply these to one's own work, as a member or leader in a technical team and to manage projects in multidisciplinary environments.

PLO12 Recognise the need for and have the ability to engage in independent updating in the context of specialised technical knowledge.

Curriculum

Table 1: Summary of curriculum for Diploma in Electrical Engineering

Year	Semester	Course Code	Courses	Credit	Total
	Special	UWB 10*02 UQU10403 UQI10402/ UQI10202	Foreign Language Introduction to Nationhood and Malaysia Development Islamic Studies/Moral Studies	2 3 2	7
1	I	UQ* 1***1 UHB 10302 DAE 13003 DAE 13103 DAE 11003 DAE 10403 DAE 21403	Co-curriculum I English for Academic Survival Algebra Physic for Electrical Engineering Electrical Technology Computer and Multimedia Technology Electrical Measurement and Instrumentation	1 2 3 3 3 3 3	18
	II	UQ* 1***1 UHB 20302 DAE 12003 DAE 10102 DAE 20102 DAE 11103 DAE 21203 DAE 10202	Co-Curriculum II Academic Communication Engineering Mathematics Occupational Safety & Health Computer Programming Circuit Theory Digital Electronic Electrical Wiring	1 2 3 2 2 3 3 2	18
	III				
2	I	UHB 30502 DAN 20103 DAE 21303 DAE 32103 DAE 32203 DAE 32303 DAE 31001 DAE 21501	English for Workplace Business and Entrepreneurship Electronic Control System Microcontroller Electrical Machines and Drives Electrical Engineering Project I Computer Aided Design Laboratory	2 3 3 3 3 3 1 1	19
	II	UQI 11402 DAE 23602 DAE 22102 DAE 32403 DAE 32603 DAE 31203 DAE 31103	Philosophy and Current Issue Statistics Supervision Management Electrical Power System Communication Engineering Industrial Automation Electrical Engineering Project II	2 2 2 3 3 3 3	18
	III				
3	I	DAE 23910	Industrial Training (20 weeks)	10	10
Total Credit					**90**

Synopsis of University Courses

Year	Sem	Course Code	Courses	Credit	Total
	SPECIAL	UWB 10*02	Foreign Language	2	7
		UQU 10403	Introduction to Nationhood and Development of Malaysia	3	
		UQI 10402/ UQI 10202	Islamic Studies/Moral Studies	2	
1	I	UQ* 1***1	Co-Curriculum I	1	3
		UHB10302	English for Academic Survival	2	
	II	UHB 20302	Academic Communication	2	3
		UQ* 1***1	Co-Curriculum II	1	
2	I	UHB 30502	English for Workplace	2	5
		DAN 20103	Business and Entrepreneurship	3	
	II	UQI 11402	Philosophy and Current Issues	2	3
3	-	-	-	-	-
Total Overall Credit					**20**

Synopsis of Courses

UWB1**02 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 real daily situations which will help them to communicate using Foreign Language.

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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 españolFirst Edition Batu Pahat: Penerbit UTHM. (PC4445. N72 2010)
7. Purwanto, Eko (2011).Pepak bahasa Jawi : cara mudah belajar cepat dan tuntas bahasa Jawa, Diva Press. Jogjakarta. (PL5169. P87 2011)

UQU10403 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)
3. Nazaruddin Mohd Jali, Ma'rof Redzuan, Asnarulkhadi Abu Samah dan Ismail Mohd Rashid (2005). "Pengajian Malaysia." Petaling Jaya: Prentice Hall. [DS596.6. P46 2001 N2]
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]
6. Ting Chew Peh (1980). "Konsep Asas Sosiologi." Kuala Lumpur: Dewan Bahasa dan Pustaka. [HM51. T56 1985]

UQI10402 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]
2. Mustafa Abdul Rahman (1998), *Hadith 40*, Kuala Lumpur: Dewan Pustaka Fajar. [BP135. A2 M87 1998]
3. Ismail Haji Ali, (1995), *Pengertian dan Pegangan Iktikad yang benar: Ahli Sunnah Wal Jamaah:* Kuala Lumpur: Penerbitan al-Hidayah. [BP166.78. P46 1995]
4. Paizah Haji Ismail (1991), *Undang-undang Jenayah Islam*, Kuala Lumpur: Dewan Pustaka Islam, Angkatan Belia Islam Malaysia. [BP144. P35 1991]
5. Mustafa Haji Daud (1989), *Institusi Kekeluargaan Islam,* Kuala Lumpur: Dewan Pustaka dan Bahasa. [BP188.3. F3.M87 1989]

UQI11502 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 2009ª].
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 2009a].
4. Eow Boon Hin. (2002). *Moral Education*. Longman. [LC268. E48 2008].
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UQ* 1***1 Co-Curriculum I

Synopsis

The course offers various form of activities for student of bachelor's degree and Diploma. Eight fields of activities offer are Public Speaking, Entrepreneurship, Sports, Community Services, Volunteer ship, Leadership, Culture and Innovation.

UHB 10302 English for Academic Survival

Synopsis

This course focuses on developing students' acquisition of English language skills required for higher education. This course assists students to read, write, listen and speak effectively and to become informed, literate and lifelong learners. By the end of the course, students should be able to use English for a wide range of personal and academic activities in the context of tertiary education.

References

1. Clark, Ruth Colvin. (2004). Graphics Learning: Provet in Training Materials. San Fransisco, CA: Ptd Ltd [1043.5 .C52 2004].
2. Dunne, Elisabeth. (1994). Talking and Learning in Group. London. [LC6519. D86 1990]
3. Effective Group Discussion: McGraw-Hill. t-IM736. G34 2013 Greasley, Pete. (2011). Doing essays and assignments Sage Publication. l-B 1047'3. G73 20ll
4. Lim, Phyllis L. (2014). Listening & Notetaking Skills2 PEI 128. L55 20l'l
5. Van Blerkom, Dianna L. (2012). College Study Skills (Learning. L82395. V36 2012.
6. Wong, Linda. (2012). Essential Study Skills (7th ed.). ILI3 l 049. W66 201) Study Strategies. Belmont, CA: Wadsworth.

DAE 13003 Algebra

Synopsis

Algebra is the most basic of the higher mathematics disciplines. Without the fundamentals taught in algebra, it is virtually impossible to deal with geometry, trigonometry or statistics. Related topics are Real Number: Set for real numbers. Exponent, radicals and logarithm. 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. Equation of a Line and plane. Complex Number: Polar form. Euler form. De Moivre theorem.

References

1. Nafisah@Kamariah Md. Kamaruddin el. 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

DAE 13103 Physic for Electrical Engineering

Synopsis

This course will interactively engage students cognitively and scientifically in areas of fundamental physics, electricity and magnetism. Related topics are units and measurements units; scalar and vectors; kinematics; work, energy and power; heat; electric field; electric potential; current and resistance; magnetism.

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:
3. Pacific Grove, CA: Thomson Learning. QC21.3. S47 2006 v.2
4. 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
5. Urone, P. P. (2001). College Physics. 2nd Ed. USA: Pacific Grove, CA: Brooks/Cole. QC23. U76 2001.
6. Kramer, L. (2007). College Physics. 8th ed. San Francisco, CA: Pearson. QC23.2. K72 2007
7. Thomas L.Floyd (2009). "Principles of Electric Circuits Conventional Current Version" 7th Edition.Prentice Hall (TK454.F56 2007)

DAE 11003 Electrical Technology

Synopsis

This course aims at developing understanding of electrical laws and quantities in direct current (DC) and alternating current (AC) circuits together with its applications. The topics include concepts of electrical measurements: voltage, current and resistance; electric circuits; series circuits, parallel circuits, series and parallel circuits; principle of magnetism; magnetic circuits; fundamental of AC circuit; Basic transformer fundamentals; fundamental of AC circuit; Basic transformer fundamentals; fundamental of DC machine; Contruction of DC generator and DC motor.

References

1. Zaurin Ali, Azli Yusop, Mohd Kamal Jaafar, Mohd Sabani Mohd, Norhafiza Samion & Ziana Che Ros (2017). ''Electrical Technology" Module DAE11003 (08-0212)
2. Thomas L.Floyd (2009). "Principles of Electric Circuits Conventional Current Version" 7th Edition.Prentice Hall (TK454.F56 2007)
3. Edward Huges Revised by John Hiley, Keith Brown, Ian McKenzie (2005) "Electrical and Electronic Technology" 9th. Edition. Pearson (TK146.H83.2005)
4. Charles K. Alexander, Mathew N. O. Sadiku (2009). "Fundamentals of Electric Circuits" 4th edition. MGH (TK454.A43 2009)
5. Thomas L. Floyd, David M.Buchla (2010) "Electric Circuits Fundamentals" 8th edition. Prentice Hall (TK454.F56 2010)
6. Thomas L. Floyd (2007) "Electric Circuits Fundamentals" 7th edition. Pearson (TK454.F56 2007)

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 an 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.
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

DAE 21403 Electrical Measurement and Instrumentation

Synopsis

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

References

1. Jones L D, Chin A F, Electronic Instruments and Measurements, Prentice-Hall, 2008. Shelf No. TK7878.B42 2008
2. Tumanski, Slawomir (2006) Principles of Electrical Measurement. Boca Raton, FL: Taylor and Francis. Shelf No: TK275. T85 2006
3. Cheatle, Keith (2006). Fundamentals of Test Measurement Instrumentation. Research Triangle Park, NC: ISA-Instrumentation, Systems, and Automation Society. Shelf No: TK7878.4 .C43 2006.
4. Bhavani, V. (2008). Measurement and Instrumentation. Petaling Jaya: IBS Buku. Shelf No: TK7878. B42 2008.
5. Ghosh, Arun K. (2008). Introduction to Measurements and Instrumentation, 2nd ed. New Delhi: Prentice-Hall. Shelf No: TA165. G46 2007

UQ* 1***1 Co-Curriculum II

Synopsis

The course offers various forms of activities for students of bachelor's degree and Diploma. Eight fields of activities offered are Public Speaking, Entrepreneurship, Sports, Community Services, Volunteer ship, Leadership, Culture and Innovation.

UHB 20302 Academic Communication

Prerequisite Course: UHB 10302 English for Academic Survival

Synopsis

This course introduces students to critical reading and writing skills. Students are expected to read and respond critically to academic materials. This course will also provide opportunities for students to develop their academic writing skills in producing technical papers.

References

1. Richard Johnson-Sheehan (2005). Technical Communication Today. New York:Pearson. TK5105.S26
2. Fairbairn, Gavin J. (20 ll). Reading, Writing and Reasoning; A Guidefor Studerzrs. Maidenhead: Open University Press, 2011. L82395. F34 20ll'
3. Jordan, R. R. (2003). Academic writing Course; study skills in English (3rd ed.). Essex: Longman. PEl408. J67 2003.

4. Langan, John. (201I). Cottege WritingSkilts (Sth ed.). New York: McGraw-Hill. PE1471. L36 2011.
5. Lewis, Jrll. Readingfor Academic Success: Reading and Strategies. Boston: Houghton Mifflin' LF.2395.3. L48 2002.
6. Cheesebro.T, O'Connor, L. & Rios, F. (2007). Communication skills: preparing for career success (3rd ed.) Upper Saddle River, NJ: Pearson. HF5718.C53

DAE 12003 Engineering Mathematics

Synopsis

This course explains in detail topics related to calculus. The first topic describes the limit of a function, one-sided limit, infinite limit, limit at infinity and continuity. Further topics are differentiation and integration techniques as well as their application like rate of change, L'hopital's rule, area of bounded region, volume and surface area. The topic followed by Laplace transform including the inverse Laplace transform. Finally, the students will gain knowledge on applications of Laplace transform.

References

1. Abd. Wahid Md. Raji. (2018). Differential Equations for Engineering Students. Johor Bahru. UTM Publication. TA347.A32 2018.
2. Roland E. L. (2014). Calculus. Boston, MA: Brooks Cole, Cengage Learning. [QA303.2. L377 2014]
3. *Arif, Mohamed. (2013). Calculus. Oxford, U.K.: Alpha Science Int'l. [QA303.2. A74 2013]*
4. John, B (2014). Engineering Mathematics 7th Edition. London: Routledge. TA330.B57 2014.
5. Srimanta P. and Subodh C. B. (2015). Engineering Mathematics. New Delhi: Oxford Univ.Press. [TA330. P35 2015]

DAE 10102 Occupational Safety and Health

Synopsis

This course introduces students to knowledge and skills in occupational safety and health in the 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 20102 Computer Programming

Synopsis

This course introduces the programming development environment and enhances their skills in problem solving and program coding related to the electrical engineering field. Topics covered are software development method; introduction to C++ programming language; Control structures; functions; array; string; pointer and structures.

References

1. P.J. Deitel and H.M. Deitel (2010). C How to Program 6th Ed, Pearson International Edition. QA76.73.C15. D45 2010
2. J.R. Hanly; E.B. Koffman (2009). Problem Solving and Program Design in C, Pearson International Edition.
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. Boylestad, Robert L. (2010) Introductory Circuit Analysis 12th ed. Shelf No: TK454. B69 2010.

DAE 21203 Digital Electronics

Synopsis

This course provides knowledge and understanding of basic combinational logic circuits as well as their applications. Related topics are Introduction to digital, Number systems and codes; Codes and Digital Arithmetic; Basic gates and combinational logic circuit; Boolean Algebra and logic simplification; Combination logic function; Latch and flip-flop; Counters and registers functions; 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 10202 Electrical Wiring

Synopsis

The course provides students with basic skills in electrical engineering laboratories such as assembling, installing, inspecting and testing electrical installation and wiring. Topics include safety, electrical wiring accessories, domestic and industrial wiring system, electrical wiring plan and design, cost estimation.

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

DAE 21501 Computer Aided Design

Synopsis

This course aims at developing skills of electronic simulation and design with the aid of computer design software. Emphasise on the fundamental electronic design simulation, printed circuit board design and electrical drawing using computer aided engineering tools.

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. Sidek, Azmi (2010). Modul Rekabentuk Berbantu computer, Penerbit UTHM
6. Floyd, Thomas L. (2005). Digital fundamentals, 7th Edition, Prentice-Hall, Inc.

7. Robbins, Allan H., Miller, W.C. (2004). Circuit analysis Theory and Practice, 3rd Edition, Thomson Learning

UHB 30502 English for Workplace

Prerequisite Course: UHB 20302 Academic Communication

Synopsis

This course employs a task-based learning approach and focuses on developing students' delivery of speech in oral interactions and job interviews. Emphasis will be given to promote the mastery of self-directed learning, teamwork, research, reasoning and creativity. This course also enables students to acquire knowledge and skills necessary for conducting and participating in meetings, which include writing of meeting documents and event proposals based on specific themes. Students will also be exposed to interview techniques.

References

1. Allen, Jeffrey G. (2004). The Complete Q and A job interview book (4th ed.). Hoboken, NJ: John Wiley. HF5549.5.16. A44 2004.
2. Badger, Ian. (2003). Everyday Business Writing. Essex: Pearson. PEI I 15 .8327 2003.
3. Corfield, Rebecca. (2003). Preparing the Perfect Job Application: Application Forms qnd Letters Made Easy.New Dethi: Kogan Page. HF5383 .C67 2008.
4. Freitag-Lawrence, Anne. (2003). Business presentations. England: Pearson. P81479.887. F73 2003.
5. Mohammad Talha Mohamed Idris & Zulida Kadir (2009). Technical Communication II: Teaching Modul UMB 1122. Batu Pahat: UTHM.

DAN 20103 Business and Entrepreneurship

Synopsis

This course gives students exposure to business and entrepreneurship knowledge. It will go through the business and economy environment, forms of rules and business support facilities, entrepreneurship, identifying methods, studying and choosing business opportunities, business plan and small and medium sized business management, marketing plan, operational plan, financial plan and current issues 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 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 32203 Microcontroller

Prerequisite: DAE 21203 Digital 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, communication, timer unit, AD conversion, PWM, C programming language, type of sensors and hardware interfacing.

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. Lucio, D. J. (2012). Programming 16-Bit Microcontroller in C, 2nd ed. United States of America: Newnes. Shelf No: TJ223.P76 .D54 2012
3. Martin, B (2011). PIC Microcontrollers an Introduction to Microelectronics, 3rd ed. United States of America: Newnes.Shelf No: TJ223 .P76. B374 2011
4. Sandhu. H. S. (2009). Making PIC Microcontroller Instruments & Controllers, United States of America: McGraw Hill. Shelf No: TJ 223 .P76. S28 2009
5. Valdes-Perez, F. and Pallas-Areny, R. (2009). Microcontrollers Fundamentals and Applications with PIC,
6. Robbins, Allan H., Miller, W.C (2004). Circuit Analysis: Theory and Practice, 3rd Edition; Thomson Learning.
7. Simon Monk (2014). Programming Arduino Next Steps: Going Further with Sketches,Mc Graw Hill Education

DAE 32303 Electric Machines and Drives

Synopsis

This course introduces the knowledge of electrical machines and drives. The topics include DC machine; structure, electromagnetic forcé, generation, characteristics and speed control; transformer; parameter determination, equivalent circuit and losses; synchronous machine; structure and characteristics; special motor and single-phase motor; functional and operational concept and application; driver; DC and AC motor speed controller.

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 32103 Control System

Synopsis

This course aims at developing an in-depth 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 analogue control systems; modelling of electrical, mechanical, and electromechanical systems; digital control systems; introduction to process control elements.

References:

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

DAE 31001 Electrical Engineering Project 1

Synopsis

This course is the first part of a 2-part Final Year Electrical Engineering Diploma Project. In this course, students are introduced to multiple types of electrical engineering technologies, methodologies of research and project development through a series of lectures. Hopefully after this introduction students can select the best project suit with industrial trend and standard. Students are required to form a project team group consisting of several students as per department requirement. Students are guided through a step-by-step practice to complete the initial stages of proposal, planning and design of a project. Students must also meet regularly with supervisor(s) who will monitor their continuous progress. Students are required to prepare a report and present their initial work at the end of semester.

References

1. Panduan Pelaksanaan Projek Akhir Diploma, PPD
2. Books, journals and other information which relates with the research project.

UQI 11402 Philosophy and Current Issues

Synopsis

This course covers the relationship of philosophy with the Philosophy of National Education and Rukun Negara. The use of philosophy as a tool to purify the culture of thought in life

through art and thinking methods as well as human concepts. The main topics in philosophy namely epistemology, metaphysics and ethics are discussed in the context of current issues. Emphasis is given to philosophy as the basis for inter-cultural dialogue and fostering common values. At the end of this course, students will be able to see the disciplines of knowledge as a comprehensive body of knowledge and related to each other.

References

1. Al-Attas, S.M. Naquib. (1991). The Concept of Education in Islam. Kuala Lumpur: ISTAC.
2. Al-Farugi, I.R. (1994). Al-Tawhid: Its Implications for Thought and Life, (2nd Ed.). Herndon: IIIT.
3. Phillips, D.C. (Ed.) (2014). Encyclopaedia of Educational Theory and Philosophy, (1st Ed.). SAGE Publication.
4. Dzulkifli, A.R. & Rosnani, H. (2019) Pentafsiran Baharu Falsafah Pendidikan Kebangsaan dan Pelaksanaannya Pasca 2020. Kuala Lumpur: IIUM Press.
5. Hospers, J. (1997). An Introduction to Philosophical Analysis, (4th Ed.). London: Routledge.

DAE 23602 Statistic

Synopsis

The course covers topics such as Statistics: Ungrouped Data: Measure of Central Tendency - mean, mode, median. Measure of Dispersion - variance, standard deviation. Grouped Data: Measure of Central Tendency - mean, mode, median. Measure of Dispersion - variance, standard deviation. Probability: Independent event. Conditional probability. Bayes theorem. Random variables: Discrete random variables - Expected value and variance. Continuous random variables - Expected value and variance. Probability Distributions: Binomial distribution. Poisson distribution. Normal distribution. Sampling distribution: Sampling distribution for single mean. Sampling distribution for difference of two means. Estimation: Point estimate. Confidence interval for single mean. Confidence interval for difference of two means. Hypothesis Test: Type 1 and type 2 errors. Hypothesis test for single mean. Hypothesis test for difference of two means. Simple Linear Regression: Graphical method. Coefficient of determination. Least square method.

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

DAE 22102 Supervision Management

Synopsis

To develop supervision skills and technology-based organisation and leadership. Part one, covers topics on the roles of supervisor, decision-making, ethics and organisational politics and time management. Part two emphasises on planning and organisational skills. Part three focuses on aspects of the staff recruitment process, staff development, performance appraisal, employees' rights and union. Part four deals with humanity relationship skills and part five emphasises on the roles of monitoring in assisting supervision process. Commitment in providing services in safety and environment issues.

References

1. Supervision: Concepts and practices of management. Edwin C. Leonard Jr., Raymond L.Hilgert. 2007
2. Best practices: Managing people: secrets to leading for new managers. Barry Silverstein. 2007
3. Supervisory management. Charles R. Greer, W.Richard Plunkett. 2007.
4. Supervision: Concepts and skill-building. Samuel C. Certo. 2008.
5. Supervisory Management: the art of inspiring, empowering and developing people. Donald C. Mosley, Paul H.Pietri, Donald C.Mosley, Jr. 2008.

DAE 32603 Communication Engineering

Synopsis

This course is about the exposure to the basic concepts in electronic communication systems including the introduction to communication systems, signal and noise, modulation schemes for analogue and digital systems, signal transmission, antenna and communication systems application.

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, Wayme (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 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 31203 Industrial Automation

Synopsis

This course introduces the concept of industrial automation system. The topics covered are introduction to basic industrial automation, automation system and programmable logic controller.

References

1. Sharma, Kls.,(2011). Overview of Industrial Process Automation, Elsevier. [TS182. S52 2011]
2. Niku, Saeed (2011). Introduction to Robotics: Analysis, Control, Applications, 2nd ed. Indianapolis, IN: Wiley. [TJ211. S24 2011]
3. Gupta, A.K., Arora, S.K., (2016). Industrial Automation and Robotics: An Introduction, Mercury Learning & Information.
4. Manesis, S. Nikolakopoulos, G., (2018). Introduction to Industrial Automation, CRC Press, Taylor & Francis Group.
5. Miller, Rex. & Miller, M.R., (2017). Robots and Robotics: Principles, Systems, and Industrial Applications, McGraw Hill Professional.

DAE 31103 Electrical Engineering Project II

Synopsis

This course is the second part of a 2-part Final Year Electrical Engineering Diploma Project. In this course, students are required to continue the next phase of their project development from Final Year Electrical Engineering Diploma Project 1 Student are required to develop the solution by applying all their electrical engineering knowledge and techniques based on previous project proposal. The project should be tested and verified by using standard industry practice. Students must meet regularly with supervisor(s) who will monitor their continuous progress. Students are required to prepare a final report and present their final product.

References

1 Panduan Pelaksanaan Projek Akhir Diploma, PPD

2. Books, journals and other information which relates with the research project.

DAE 23910 Industrial Training

Synopsis

Students are to undergo industrial training in the electrical engineering field for 16 weeks. They will be trained by the agency/organization such as planning, management, design, field investigation, evaluation and assessment in related industries.

References

Pejabat Hubungan Universiti dan Industri, (2012) Industrial Training Guidebook (Bachelor and Diploma Programme), 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 most 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

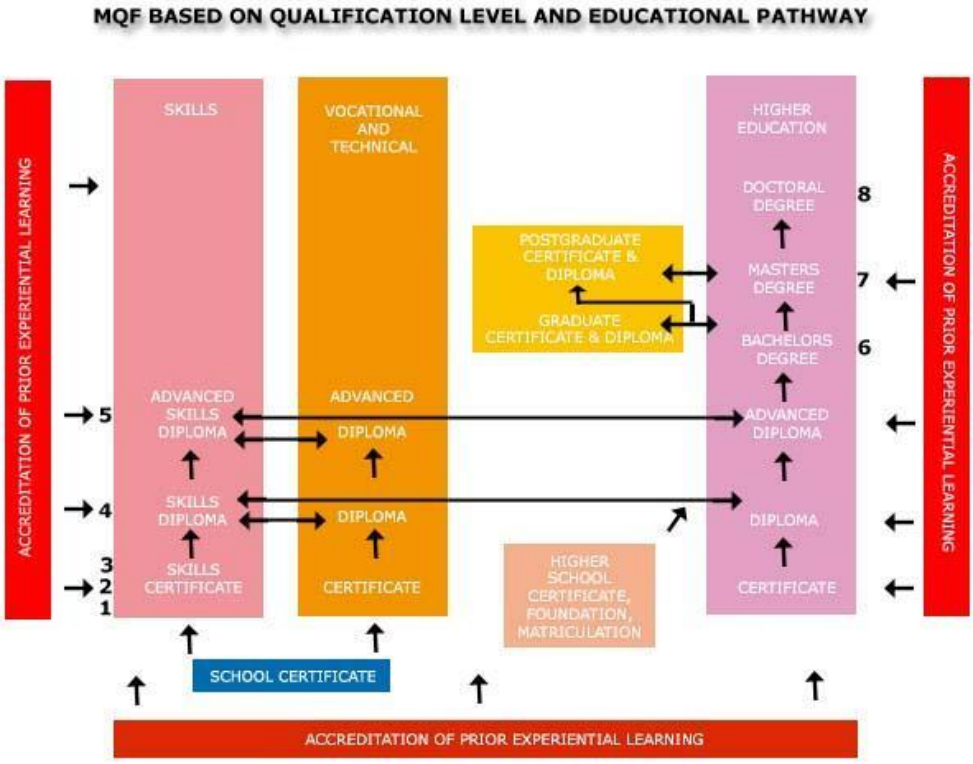
2. Engineering in manufacturing, consultancy, research & development and academic.

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



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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