UTHM
Universiti Tun Hussein Onn Malaysia

ACADEMIC PROFORMA 2018 / 2019

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DIPLOMA IN MECHANICAL ENGINEERING

Pusat Pengajian Diploma
Universiti Tun Hussein Onn Malaysia
86400, Parit Raja, Batu Pahat, Johor

Technically Above The Rest

Information contained in this proforma is true at the time of printing and the University has the right to make any ammendment according to needs.

Contents

Foreword from the Vice Chancellor

Assalamualaikum Warahmatullahi Wabarakatuh and Greetings

Congratulations and welcome to all new students. We appreciate your trust in us and thank you for choosing to be with UTHM in continuing your endeavour for success in your future careers and prosperous lives.

In line with the message given by the YBhg. Minister Ministry of Education Malaysia that wish to transform the process of teaching and learning more flexible, organic, dynamic and effective, several initiatives and innovations in delivery methods have been and will be implemented at UTHM by combining conventional methods with on-line / virtual meetings by introducing Full Online Classroom (FOC), Smart Class Room, Flip Learning, Massive Open Online Courses (MOOC) and more. In fact, the approach through Science, Technology, Engineering and Mathematics (STEM) will be enhanced to uphold the science and technology in line with the development of the Industrial Revolution 4.0. Additionally, elements such as fun, happiness, affection and courtesy will be applied in all curriculum at UTHM to ensure learning and teaching processes can achieve the University's aspirations in producing emotional, mental and physical equilibrium students based on the paradigm of tauhid.

For your knowledge, the top University's leadership continues to seek, design and adapt effective and efficient approaches that can have a big impact towards making UTHM a renowned Higher Education Institution. The achievement of four stars in the "QS STAR RATING 2017" and UTHM was recognized as Top 300 in QS World University Ranking by Subject 2017 in Mechanical, Aeronautical and Manufacturing Engineering and Electrical and Electronic Engineering categories, proving that UTHM continues to create excellence. These achievements convince us that they were the results of our effort in continuously strengthening and aligning the University mission and vision.

Lastly, I believe that you are the ones who will continue the University tradition of excellence. Also, when you graduate later you will be members of the community who are not only able to apply knowledge that has been acquired but also able to contribute efforts, deeds and expertise for the glory of Religion, Nation and Country.

"WITH WISDOM WE EXPLORE"

Your Sincrely,

PROFESSOR Ts. DR. WAHID BIN RAZZALY
Vice-Chancellor
Universiti Tun Hussein Onn Malaysia

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

Assalammualaikum Warahmatullahi Wabarakatuh and Greetings

It gives me great pleasure to congratulate all the new students who have been successfully selected to continue their studies in Universiti Tun Hussein Onn Malaysia (UTHM) for this 2017/2018 session. Congratulations to the Centre for Academic Development and Training for publishing this proforma that will function as a guide for students to plan their studies from the first semester until the end.

For your information, higher education in Malaysia has evolved from teacher/lecturer-centred learning to student-centred learning. Several initiatives have been conducted by the Ministry and the University to develop holistic graduates who are balanced in their knowledge and morale. In order to achieve UTHM mission and vision, a number of initiatives have been implemented such as introducing the iCGPA system, which is an integrated mechanism that combines assessment, achievement report and student's development that takes into account improvements in manners, knowledge and performance. Additional measures have also been taken to upgrade the teaching and learning quality by incorporating elements of Industry 4.0 and 2U2i in the curriculum content. This is to ensure the academic programmes offered in UTHM remain relevant to the requirements of the industry and current job market. In addition, knowledge and experience sharing sessions by local and international industrial leaders with students and the local community are carried out through the CEO@Faculty programme.

Other than that, online learning known as Massive Open Online Course (MOOC) has been introduced. The Full Online Classroom (FOC), which is implemented every semester, serves as a new initiative to give students the opportunity to explore knowledge without having to come to lecture rooms. Students also have the opportunity to leave the University for a certain period of time to participate in the Gap Year programme, which gives them the opportunity for self-reflection and exploration through volunteerism, entrepreneurship and sports programmes.

I hope the variety of initiatives that have been and will be implemented by UTHM will provide you with valuable experiences in your endeavour for knowledge and develop you to be holistic and balanced students. To ensure UTHM aspirations are achieved, it is hoped that this proforma will help you plan your studies and achieve the best results and attain excellence. Lastly, I wish you all the best and pray for your success in your studies here, with the hope that you will be able to contribute to the development of Religion, Nation and Country.

"WITH WISDOM WE EXPLORE"

Your Sincrely,

PROFESSOR DR. ISMAIL BIN ABDUL RAHMAN
Deputy of Vice Chancellor (Academic and International)
Universiti Tun Hussein Onn Malaysia

Foreword from the Dean of Centre for Diploma Studies

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 UTHM. 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 science and technology.

As a centre, we're responsible for 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 be increasing in the near future in phase to the increase needs of the nation manpower. I believe you have chosen a suitable programme that suits your qualifications and dreams. Furthermore, with the study duration of 2 years and 9 months the student will be successfully completed their studies in a shorter time and can be offered a direct entry to the bachelor's degree programmes in UTHM with respective to the terms and condition imposed.

In terms of infrastructure, the teaching and learning facilities provided for UTHM have been recognised to fulfil the standard required by the accreditation bodies. In addition, the rapid development of the campus UTHM now will ensure comfort to students with various facilities including a library, residential colleges, cafeterias, sports activities, networking, wireless internet and other amenities.

I hope that as a candidate of the diploma programme in UTHM, you will use this proforma as a guide to select a suitable course which is in line with your future needs. For the new student who will be pursuing the diploma programme in UTHM, I strongly advised to using this document to plan and thus completing your diploma studies with excellence.

Wishing You Success.

Your Sincrely,

ASSOCIATE PROFESSOR DR. MOHAMAD ZAKY BIN NOH
Dean
Centre for Diploma Studies
Universiti Tun Hussein Onn Malaysia

Vision

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

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 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 (TMJ)
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

Members

YBhg. Professor Ts. Dr. Wahid bin Razzaly
Vice-Chancellor
Universiti Tun Hussein Onn Malaysia

YB Dato' Haji Nooh bin Gadot
Advisor, Majlis Agama Islam Johor

YBhg. Datuk Dr. Pang Chau Leong
Alumni Representative, Universiti Tun Hussein Onn Malaysia

YBhg. Dato' Zainal Abidin bin Mat Nor
Deputy Secretary of Public Asset Management Division, Ministry of Finance

YBhg. Datuk Mat Noor bin Nawi
Chairman, Exim Bank Berhad

YBhg. Dato' Dr. Ir. Haji Abdul Rashid bin Maidin
Akademi Profesional Koperasi Serbaguna Anak-anak Selangor Berhad (KOSAS)

YBhg. Professor Dr. Mustafa bin Mat Deris
Professor Faculty of Computer Science and Information Technology
Universiti Tun Hussein Onn Malaysia

YBhg. Professor Dr. Arham bin Abdullah
Director, Industrial Relation Division, Department of Higher Education
Ministry of Higher Education Malaysia

Alternative Member

Mdm. Mazula binti Sabudin
Director of Student Enrollment Management Division
Department of Higher Education
Ministry of Higher Education Malaysia

Secretary

Mr. Abdul Halim bin Abdul Rahman
Registrar
Universiti Tun Hussein Onn Malaysia

Senate Members

Chairman

Professor Ts. Dr. Wahid bin Razzaly
Vice Chancellor

Members

Professor Dr. Ismail bin Abdul Rahman
Deputy Vice Chancellor (Academic and International)

Professor Ts. Dr. Ruzairi bin Abdul Rahim
Deputy Vice Chancellor (Research and Innovation)

Associate Professor Dr. Asri bin Selamat
Deputy Vice Chancellor (Student Affairs and Alumni)

Professor Dato' Dr. Abdul Razak Hj. Omar
Provost of UTHM Pagoh Branch Campus

Associate Professor Dr. Wan Fauziah binti Wan Yusoff
Assistant Vice-Chancellor (Financial Sustainability)

Associate Professor Dr. Afandi bin Ahmad
Assistant Vice-Chancellor (Strategic Planning and Corporate Relations)

Professor Dr. Ahmad Tarmizi bin Abd Karim
Dean Centre for Graduate Studies

Associate Professor Dr. Abd Halid bin Abdullah
Dean Faculty of Civil and Environmental Engineering

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

Associate Professor Dr. Shahruddin bin Mahzan @ Mohd Zin
Dean Faculty of Mechanical and Manufacturing Engineering

Associate Professor Dr. Mohd Lizam Bin Mohd Diah
Dean Faculty of Technology Management and Business

Professor Ts. Dr. W Mohd Rashid Bin W Ahmad
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
Dean Faculty of Applied Science and Technology

Associate Professor Dr. Ishak bin Baba
Dean Faculty of Engineering Technology

Associate Professor Dr. Mohamad Zaky bin Noh
Dean Centre for Diploma Studies

Professor Dr. Azme bin Khamis
Director Centre for Academic Development and Training

Professor Dr. Rosman bin Md. Yusoff
Dean Centre for liberal and co-currricular studies

Professor Dr. Noraini Binti Kaprawi
Director International Office

Ir. Shamrul-Mar bin Shamsuddin
Director Development and Mainteance Office

Professor Ir. Dr. Amir Hashim bin Mohd Kassim
Faculty of Civil and Environmental Engineering

Professor Dr. Sulaiman bin Hj Hassan
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 Applied Science and Technology

Professor Dr. Rosman bin Md Yusoff
Faculty of Applied Science and Technology

Mr. Abdul Halim bin Abdul Rahman
Registrar/Secretary

Mdm. Azizah binti Nasri
Bursary

Mr. Hj. Bharun Narosid bin Mat Zin
Chief Librarian

Centre for Diploma Studies

Centre Vision

Excellent in providing multidisciplinary education in science and technology

Centre Mission

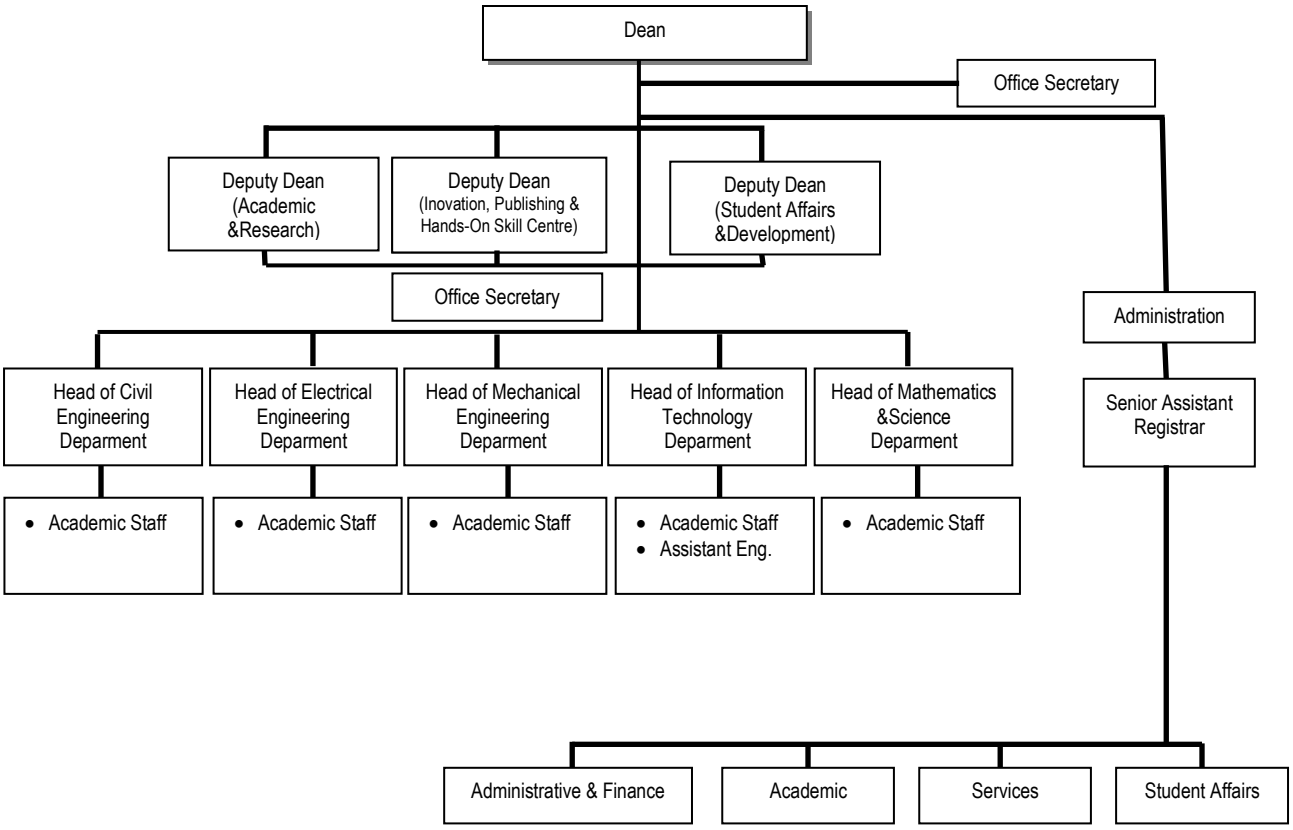
Producing graduates who contribute to national development through a holistic academic program

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 departments of concerned. All the programmes were than 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 competativeness 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-curricullum 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 Mecanical Engineering

External Examiner

Professor Dr. Md. Radzai bin Said
Professor in Stress Analysis, Static and Dynamic loading and Cellular Solid
Faculty of Mechanical Engineering
Universiti Teknikal Malaysia Melaka (UTEM)

Industrial Advisor

Ir Mohd Yuza bin Hj. Mohd Yusof
Senior Manager
Automotive Distribution, Manufacturing and Engineering
DRB-Hicom Berhad

En. Fareza Fazid B Fazi @Addie
Senior Manager
Malaysian Palm Oil Berhad

Faculty Staff Directory

Administration

Dean
Associate Professor Dr. Mohamad Zaky bin Noh
Ph.D (Physic)(USM), MSc. (Physic)(UTM), BSc. (Physic)(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)
Mdm. Mariam binti Abdul Hamid
Master of Information Technology Management (UTM), Bachelor Degree of Information Technology (UTM), Diploma in Electronic (UTM)

Deputy Dean (Development, Research and Publication)
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
Norfaizah binti Sai
Bachelor in Human Resources (UPM)

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

Assistant Administrative Officer (Administrative and Finance)
Nur Izzati Hazwani binti Muhammad Ridwan
BSc. (Administration)(UiTM), Dip. (Tech. Management) (UTM)

Administrative Assistant (Clerical & Operation) Student Affairs and Development
Jaiganesh a/l 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
Dorazi bin Md Noh
SC/MCE/SPM/SPVM (SEK. MEN. Dato Sulaiman)

Administrative Assistant (Clerical & Operation) Academic and Research
Abu Bakar Siddeq bin Abd Jabar
SC/MCE/SPM/SPVM (SMK Tinggi Batu Pahat)

Administrative Assistant (Clerical & Operation) Academic and Research
Razali bin Ahmad
SC/MCE/SPM/SPVM, SMK Tinggi Batu Pahat

General Office Assistant
Dayang Fatimah binti Pohhaini
STPM (SM Munsyi Sulaiman), SPM (SMK Datin Onn Jaffar)

Department of Mechanical Engineering

Academic Staff

Head of Department
Rosdi Bin Ab Rahman
MEng. (Mechanical) (UTM)., BEng. (Hons.) (Agric.) (Power & Machinery) (UPM), Cert. (Oil Hydraulic & Mechatronic) (Kyushu Int. Centre)

En. Suhairi Bin Ismail
BEng. (Mechanical Eng.) (UTM), Dip. Eng.(Mechanical Eng.) (UTM)

En. Mahmod Abd Hakim bin Mohamad
M. Sc. (Aerospace) (UPM), BEng. (Hons) (Mechanical) (KUiTTHO), Dip. Eng. (Mechanical) (CEDS), Cert. Eng.(Mechanical) (PUO)

En. Khairulnizam Bin Othman
MSc. (Mechatronic) (UniMAP), BEng.(Hons.) (Mechatronic) (UniMAP)

Pn. Noor Azizah binti Sidek
MEng. (Mechanical) (UTHM), BEng (Mechanical) (UTHM), Dip. Tech. (Mechanical) (KUiTTHO)

Pn. Noraniah binti Kassim
M. Eng. (Mechanical)(UTHM), B. Eng. (Hons)(Mechanical) (UTHM), Dip Eng. Mechanical (Mechatronic)(Polytechnic)

En. Muhammad Hanafi bin Asril Rajo Mantari
M. Eng. (Mechanical Aeronautic)(UTM), B. Eng. (Hons)(Mechanical) (UTM), Dip. Eng. (Mechanical)(UTM)

En. Muhammad Qusyairi Bin Abdul Rahman
B. Eng. (Hons.)(Manufacturing) (UniMAP)

En. Syamsul Azrin bin Kamaruddin
BEng. (Mechatronic) (UTeM), Dip. Eng. (Mechatronic) (POLIMAS)

En. Mohd Hadri Bin Mohamed Nor
BEng. (Hons.) (Mechanical) (UiTM), Dip. Tech. (Mechatronics) (JMTi), Professional Cert. (Safety and Health Officer) (NIOSH)

En. Mohd.Najib bin Janon
BEng. (Mechanical-Industrial)(UTM), Dip. Eng.(Mechanical) (UTM)

En. Ghazali bin Kadis
Dip. Eng Mechanical (Manufacturing) (Poli), Cert.Eng Mechanical (Manufacturing)(Poli)

Cik Hafsa binti Mohammad Noor
M. Eng. (Mechanical)(UTHM), B. Eng. (Hons)(Mechanical) (UTHM), Dip. (Mechanical Engineering with Technology) (UTHM)

En. Hairul Mubarak bin Hassim
M. Eng. (Mechanical)(UTHM), B. Eng. (Hons)(Mechanical) (UMIST)

En. Tuan Mohd Hafeez bin Tuan Ibrahim
M. Eng. (Mechanical)(UTHM), B. Eng. (Hons)(Mechanical) (UTHM)

En.Mohd Shahir Bin Yahya
M.Eng. (Mechanical & Manufacturing Systems) (UPM),
B. Eng. (Hons)(Mechanical) (UTM)

Hj. Amin Shah Bin Omar
M.Eng. (Mechanical) (UTM), B. Eng. (Hons)(Mechanical) (UTM), Cert. Edu. (MPT)

Siti Mariam Bin Mohd Basharie
M.Eng. (Mechanical) (UTM), B. Eng. (Hons)(Mechanical) (UTM)

Programme Name

Diploma in Mechanical Engineering (DAM)

Programme Aims

To produce graduates who are more mature and competent to fulfill nation needs of skill and experts in the field of civil engineering whether in the public, private or self employed sector. The program also prepares students to further their studies to degree level at any university within or outside the country.

Programme Educational Objectives (PEO)

These are the PEOs for Diploma in Mechanical Engineering:

PEO 1 Apply the theoretical, techniques, skills and practical knowledge to assist in solving real mechanical engineering problems.

PEO 2 Solve engineering issues professionally and ethically in the society and environment.

PEO 3 Communicate effectively with professionals and communities in solving the mechanical engineering issues.

PEO 4 Practice management and entrepreneurship through long life learning in individual and organizational work.

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Programme Learning Outcomes (PLO)

These are the PLOs for Diploma in Mechanical Engineering:

PLO 1 Apply knowledge of mathematics, sciences, engineering fundamentals and engineering specialisation to mechanical engineering practical procedures and practices.

PLO 2 Apply appropriate techniques, resources, and modern engineering and IT tools to well defined engineering problems, with an understanding of the limitations.

PLO 3 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.

PLO 4 Conduct investigations of well-defined problems, locate and search relevant codes and catalogues, conduct standard tests and measurements to provide valid conclusion.

PLO 5 Function effectively as an individual, and as a member or leader in diverse technical teams and in multi-disciplinary settings.

PLO 6 Recognize the need for, and have the preparation to engage in independent and life-long learning in the broadest context of technological change.

PLO 7 Self-movitate and enhance entrepreneurship skills for career development.

PLO 8 Apply to professional ethics and responsibilities and norms of technician practices.

PLO 9 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.

PLO 10 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.

PLO 11 Identify and analyze well-defined mechanical engineering problems reaching substantiated conclusions using codified methods of analysis specific to their field of activity.

PLO 12 Able to describe the impact of engineering solutions in societal and environmental contexts and demonstrate knowledge of and need for sustainable development.

PLO 13 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.

Curriculum

Table 1: Summary of curriculum for Diploma in Mechanical Engineering.

Year	Semester	Course Code	Courses	Credit	Total
	Special	UHB 10302	English For Academic Survival	2	7
		UQU 10403	Introduction to Nationhood and Development of Malaysia	3	
		UQI 10402/ UQI 10202	Islamic Studies/Moral Studies	2	
1	I	UWB 1**02	Foreign Language	2	18
		UQ* 1**01	Co-Curriculum I	1	
		DAM 10303	Algebra	3	
		DAM 10403	Chemistry	3	
		DAM 10503	Applied Physics	3	
		DAM 10703	Statics	3	
		DAM 10803	Technical Drawing & CAD	3	
	II	UHB 20302	Academic Communication	2	18
		UQI 10502	Theology and Science	2	
		UQ* 1**01	Co-Curriculum II	1	
		DAM 10603	Engineering Mathematics I	3	
		DAM 10903	Dynamics	3	
		DAM 11002	Manufacturing Process	2	
		DAM 11102	Material Selection	2	
		DAM 11203	Solid Mechanics	3	
	III	DAM 11303	Computer Programming	3	7
		DAM 11402	Occupational Safety and Health	2	
		DAM 11502	Mechanical Engineering Practice	2	
2	I	UHB 30502	English For Workplace	2	18
		DAM 21303	Engineering Mathematics II	3	
		DAM 21403	Basic Electrical and Electronic	3	
		DAM 21503	Engineering Design	3	
		DAM 21603	Material Sciences	3	
		DAM 21703	Mechanics of Machine	3	
		DAM 21801	Engineering Project I	1	
	II	DAN 20103	Business and Entrepreneurship	3	18
		DAM 21903	Engineering Statistics	3	
		DAM 22003	Fluid Mechanics	3	
		DAM 22103	Industrial Engineering	3	
		DAM 22203	Thermodynamics	3	
		DAM 22303	Engineering Project II	3	
3	I	DAM 30109	Industrial Training (18 weeks)	9	9
Total Overall Credit					**95**

Synopsis of University Courses

Year	Semester	Course Code	Courses	Credit	Total
	Special	UHB 10302	English For Academic Survival	2	7
		UQU 10403	Introduction to Nationhood and Development of Malaysia	3	
		UQI 10402/ UQI 10202	Islamic Studies/Moral Studies	2	
1	I	UWB 1**02	Foreign Language	2	3
		UQ* 1**01	Co-Curriculum I	1	
	II	UHB 20302	Academic Communication	2	5
		UQI 10502	Theology and Science	2	
		UQ* 1**01	Co-Curriculum II	1	
	III				
2	I	UHB 30502	English For Workplace	2	2
	II	DAN 20103	Business and Entrepreneurship	3	3
3	I				
Total Credit					**20**

Synopsis of Courses

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.

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UQU 10403 Introduction to Nationhood and Development of Malaysia

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.

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1. Zahrul Akmal Damin, Fauziah Ani, Lutfan Jaes, Khairunesa Isa, Siti Sarawati Johar, Harliana Halim, Khairul Azman Mohd Suhaimy, Shamsaadal Sholeh Saad, Ku Hasnan Ku Halim dan Mohd Akbal Abdullah (2009). Kenegaraan & Pembangunan Malaysia. Batu Pahat: Penerbit UTHM.
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UQI 10402 Islamic Studies

Synopsis

This course explains about Islamic concept as ad-deen. It discusses the study of al-Quran and al-Hadith, Sunnism, schools of Islamic theology, development of schools of Fiqh, principles of muamalat, Islamic Criminal Law, Islamic work ethics, issues in Islamic family law and current issues.

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1. Harun Din (Dr.) (2001), Manusia Dan Islam, cetakan pertama, Kuala Lumpur: Dewan Bahasa dan Pustaka. (BP174. M36 1990)
2. Paizah Haji Ismail (1991), Undang-undang Jenayah Islam, Kuala Lumpur: Dewan Pustaka Islam, Angkatan Belia Islam Malaysia. (BP144. P35 1991)
3. Abdur Rahman I.Doi (1995), Undang-undang Syariah, terjemahan Rohani Abdul Rahim, Kuala Lumpur: Dewan Bahasa dan Pustaka. (BP173.6. A72 1995)
4. Adnan Alias (2002), Keusahawanan Islam, Kuala Lumpur: Prentice Hall. (BP173.75. A36 2002)

UQI 10202 Moral Studies

Synopsis

This course explains on concepts of moral, aspects of moral and its importance in daily lives, Western moral theories and moral values of great religions of the world, moral values in work and current moral issues.

References

1. Eow Boon Hin. 2008. Moral Education. Longman. (LC268.E48 2008)
2. Ahmad Khamis. 1999. Etika Untuk Institusi Pengajian Tinggi. Kuala Lumpur. Kumpulan Budiman. (LC315.M3.A35 1999)
3. Mohd Nasir Omar. 1986. Falsafah Etika; Perbandingan Islam dan . Kuala Lumpur. JPM.
4. Hussain Othman. 2009. Wacana Asasi Agama dan Sains, B. Pahat. Penerbit UTHM. (BL240.3.H87 2009)
5. Hussain Othman, S.M. Dawilah Al-Edrus, Berhannudin M. Salleh, Abdullah Sulaiman. 2009. PBL Untuk Pembangunan Komuniti Lestari. Batu Pahat: Penerbit UTHM. (LB1027.42.P76)

UWB 102 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 españolFirst 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

UQ* 101 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

DAM 10303 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.

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

DAM 10403 Chemistry

Synopsis

This course introduces students to chemistry knowledge needed in the engineering and technology field. The topics discussed are Atomic Concept and Mole, Electronic Structure of Atom, Periodic Table of Elements, Chemical Bondings, Gas Laws, Thermochemistry, Chemical Kinetics, Chemical Equilibrium, Acid-Base and Electrochemistry and some experiments on selected topics.

References

1. Chemistry DAS12203 Module (2018). Centre for Diploma Studies, UTHM.
2. Chang, R. (2013). Chemistry. 11th Edition. McGraw-Hill. [QD31.3.C38 2013]
3. McMurry, J & Fay, R. C. (2008). Chemistry. 5th Edition. Upper Saddle River, NJ. Pearson. [QD33.m68 2008]
4. Silverberg, M. S. (2015). Chemistry: The Molecular Nature of Matter and Change. 7th Edition. New York. McGraw-Hill. [QD33.2.S54 2015]
5. Brady, J. E. (2012). Chemistry. 6th Edition. Hoboken, NJ : John Wiley. [QD33.2.B724 2012]

DAM 10503 Applied Physics

Synopsis

This course introduces students to mechanic physics knowledge needed related to linear motion and angular motion. The application involves the concept of SI units, vector, position, distance, displacement, speed, velocity, mass, weight, momentum and acceleration into force, work, energy, power and SHM. The courses also discuss Newton's Law and dynamics motion of body on horizontal and incline planed. The laboratory experiments are carried out on selected topics, tabolism and cellular reproduction.

References

1. Giordano, Nicholas J. (2013) College physics : reasoning and relationships *2nd Ed*: Brooks/Cole QC21.3 .G564 2013
2. Serway, Raymond A (2014) Physics for scientist and engineers : a strategic approach with Modern Physics *3rd Ed*., Pearson QC23.2.S474 2014
3. Masrianis Ahmad et. al. (2014) DAS 14103 Physics I. Centre for Science Studies, UTHM Publisher, UTHM Publisher
4. Knight, Randall D. (2013) Physics for scientist and engineers : a strategic approach with Modern Physics *3rd Ed*., Pearson QC23.2.K54 2013
5. Giambatistta A., Richardson B.M., Richardson R.C., (2013) College Physics : with an integrated approach to forces and kinematics *4th Ed*., New York : Mc Graw-Hill QC21.3.G52 2013

DAM 10703 Statics

Synopsis

Introduction to static, static of particles, static of rigid bodies, centroids and centre of gravity, analysis of structures and friction.

References

1. Hibbeler, R.C, 2006. Engineering Mechanics - Statics, 11th SI Edition, Prentice Hall. (TA351 .H525 2007)
2. Meriam J.L. and Kraige L. G., 2007. Engineering mechanics Statics, 5th Edition, John Wiley & Sons, Inc. (TA350 .M47 2007)
3. Beer, F.P, and Johnson, E.R, 2004.Vector Mechanics For Engineers - Statics, 7th SI Edition, McGraw Hill. (TA350 .V42 2004)
4. Ghazali, Mohd. Imran, 2002. Mekanik Kejuruteraan : Statik Teori, Contoh Penyelesaian dan Masalah, Jilid 2, Unit Penerbitan Akademik, UTM. (TJ145 .M55 2002 v.2)

DAM 10803 Technical Drawing & CAD

Synopsis
This course provides the student with the skill to produce technical drawing using the following drafting skills i.e. manual lettering, technical drafting, basic geometric construction, single and multi-view drawings, scale measurement and the reading of technical drawings through drawings and related assignment. Students will also learn to develop their skill with the use of AutoCAD software.

References

1. Cecil Jensen, Jay D. Helsel, Dennis R. Short, 2008, ".Engineering drawing and design", Boston: McGraw-Hill, 2008(T353 .J46 2008)
2. Mohd Fadzil Daud, Khairul Anwar Hanafiah, 2000, "Lukisan kejuruteraan : panduan asas", Penerbitan UTM (TA175 .M42 2000 N.24)
3. Arshad N. Siddiquee, Zahid Akhtar Khan,2008, "Engineering drawing with a primer on AutoCAD", New Delhi: Prentice-Hall. (TA174 .S52 2004)
4. James A. Leach, 2005, "AutoCAD 2004 companion : essentials of autocad plus solid modeling", Boston: McGraw-Hill. (T385 .L428 2005)
5. Hamad, M. (2010). AutoCAD 2010 Essentials, Jones & Bartlett Learning. (T385 .H354 2010)

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. Fairbairn, Gavin J. (2011). Reading, Writing and Reasoning; A Guidefor Studerzrs. Maidenhead: Open University Press, 2011. LB2395 .F34 2011
2. Jordan, R. R. (2003). Academic Writing Course; study skills in English (3rd ed.). Essex: Longman. PE1408 .J67 2003.
3. Langan, John. (201I). College Writing Skilts (8th ed.). New York: McGraw-Hill. PE1471 .L36 2011.
4. Lewis, Jill. (2002). Reading for Academic Success : Reading and Strategies. Boston: Houghton Mifflin. LB2395.3 .L48 2002.
5. Metcalfe, Mike. (2006). Reading Critically at University, Los Angeles:Sage. LB2395.3.M47 2006.
6. Smith, Lorraine C. (2005). Exploring Content 1: Reading for Academic Success. White Plains, NY:Longman. PE1122.S64 2004.

UQI 10502 Theology and Science

Synopsis
Students need to understand the true concept of theology to make them balanced in physical, emotional, spiritual, and intellectual aspects. In addition, the course also talks about science that is closely related to the Qur'an.

References

1. Harun Din, 2003, Manusia dan Islam, Kuala Lumpur: Dewan bahasa dan Pustaka BP166.7 .H37 2003
2. Hussain Othman, Akidah ketuhanan dan Sains, 2007, Batu Pahat : Penerbit Universiti Tun Hussein Onn Malaysia BP166.2 .H87 2007
3. Maurice Bucaille, 2006, The Bible, The Quran and Sceince : The holy Scriptures examined in the light of modern knowledge, Gombak: A.S Noordeen BP190.5.S3 .B834 2006
4. Sulaiman Nordin (et. al.), 1995, Sains Menurut Perspektif Islam, Kuala Lumpur: Dewan Bahasa dan Pustaka BP134.S3 .S34 1995
5. Syed Muhammad Naquib Al-Attas, 1981, Islam dan Sekularisme, Bandung: Pustaka BP161.2 .A42 1981
6. Mir Aneesuddin, 2000, terj: Fatwa al-Quran Tentang Alam Semesta, cet.1, Jakarta: Serambi BP134.N3 .A53 2000
7. Mohammed Ali Albar, 1993, terj: Rusli Haji Nordin, cet. 2, Perkembangan Manusia Menurut al-Quran, Kuala Lumpur: Crescent News KL, Sdn. Bhd BP190.5 .A53 1992

UQ* 1**01 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

DAM 10603 Engineering Mathematics I

Synopsis

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. Laplace Transforms: Definition. Properties: linearity, first shift, and multiply with t^n. Inverse Laplace Transforms: Definition and properties. Initial and boundary value problems.

References

1. Nurhana Binti Mohamad. (2018). *Engineering Mathematics I (DAS 10303).* Centre for Diploma Studies, UTHM Publisher.
2. Abd Wahid Md Raji. (2013). *The first course of calculus for science and engineering students*. UTM Publication. [QA303 .F57 2013]
3. Arif, Mohamed. (2013). *Calculus.* Oxford UK. [QA303.2 .A74 2013].
4. Zill, Dennis G. (2013). *Differential equations with boundary-value problems.* Bostan, MA: Brooks/Cole, Cengage Learning. [QA371. Z54 2013]
5. Steward, James. (2012). *Calculus.* BCengage Learning, Belmont, CA. [QA303.2 .S73 2012]

DAM 10903 Dynamics

Synopsis
Introduction to Dynamic, Kinematic Particle, Particle Kinetic, Kinematic rigid body, rigid body kinetics.

References

1. Robert W. Soutas-Little, Daniel J. Inman, Daniel S. Balint, 2008, "Engineering mechanics : Dynamics", Toronto: Thomson Learning. (TA352. S684 2008)
2. Russell C. Hibbeler, 2004, "Engineering Mechanics: Dynamics Study Pack", Upper Saddle River, NJ: Prentice Hall. (TA352 .H533 2004 ca)
3. R. C. Hibbeler, 2007, "Engineering Mechanics: Dynamics",.Singapore: Pearson Education. (TA352 .H53 2007)
4. Abdul Ghani Mohamad, 1997. "Mekanik Badan Tegar - Dinamik", Penerbit UTM. (TJ170 .A33 996)

DAM 11002 Manufacturing Process

Synopsis
Introduction to manufacturing, the geometric distribution of manufacturing, the aspects of material, design and manufacturing, casting, plastic forming process, the process of forming, material removal processes, joining processes, measurement and verification of quality.

References

1. Serope Kalpakjian, Steven R. Schmid, "Manufacturing processes for engineering materials", Singapore: Prentice Hall. (TS176 .K34 2010)
2. Rob Thompson, 2007, "Manufacturing processes for design professionals",New York: Thames and Hudson. (TS183 .T46 2007)
3. J. P. Kaushish, 2008, "Manufacturing processes", New Delhi: Prentice-Hall. (TS183 .T46 2007)
4. Serope Kalpakjian, Steven R. Schmid, 2003, "Manufacturing processes for engineering materials*", Upper Saddle River, NJ: Prentice Hall. (TS183 .K34 2003)*

DAM 11102 Material Selection

Synopsis
Introduction to materials selection, process design, engineering materials and its characteristic, materials selection chart, selection of metallic materials, selection of non-metal.

References

1. Michael F. Ashby, 2005, "Materials selection in mechanical design",Boston: Butterworth-Heinemann. (TA403.6 .A83 2005)
2. Aravamudhan Raman,2007, "Materials selection and applications in mechanical engineering",New York: Industrial Press.(TJ151 .R35 2007)
3. Schaffer J.P. et al, 1999, "The Science and Design of Engineering Materials", 2nd Edition, McGraw-Hill. (TA403 .S34 1999)
4. Dieter G.E., 2000, "Engineering Design: A Materials And Processing Approach", 2nd Edition, McGraw-Hill. (TA174 . D53 2000)

DAM 11203 Solid Mechanics

Synopsis
The Stress and Strain, Shear Force and Bending Moment, Bending Stress, Torque, Thin Cylinder and Complex Stress.

References

1. Hibbeler, R.C., 2005. "Mechanics of Materials", SI Second Edition, Prentice Hall International. (TA405 .H43 2005)
2. James M. Gere, Barry J. Goodno, 2009, "Mechanics of materials", New York: Wadsworth/Cengage Learning. (TA405. G47 2009)
3. Ferdinand P. Beer ... [et al), 2011," Mechanics of materials", Boston, MA: McGraw-Hill' (TA351. S72 2011)

DAM 11303 Computer Programming

Synopsis
To provide an introduction to programming concepts through the use of high-level language like C. History and evolution of programming languages, data types, and input and output operations. Structured programming and control: the *while* loop, *for* loop, *switch*, *if-else*. Use of functions, arrangement, structures and pointers.

References

1. A. Chandra Babu, T. Joshva Devadas,2009, "Programming with C++", Oxford: Alpha Science (QA76.73.C153 .B32 2009)
2. M. Kumar, 2002, "Programming with C++ made simple",/New Delhi: Tata McGraw-Hill (QA76.73.C153 .K85 2002)
3. Deitel & Deitel, 2010. C, How to Program, 6th Edition. Pearson Education, Inc. (QA76.73.C15 .D45 2010)

DAM 11402 Occupational Safety and Health

Synopsis
Introduce 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). No Panggilan: (T55.I85 2006)

4. Davies, V. J. and Tomasin K. (2006). Construction Safety Handbook. 2nd ed. London: Thomas Telford. No Panggilan: (TH443.R43 2006)
5. Anton, Thomas J. (2009). Occupational Safety and Health Management. 3rded. New York: McGraw-Hill. No Panggilan: (T55.A57 1989)

DAM 11502 Mechanical Engineering Practice

Synopsis

Basic workshop safety, Fitting, Welding, Conventional Lathe, Conventional Milling, Foundry Workshop Safety, Wood and Wax Pattern, Sand Casting, Plaster, Pneumatic Control, Electro-pneumatic Control, Programmable Logic Controller, Basic Cutting, Material Cutting and Cutting Fluids, Lathe, Milling Machine, EDM wire cutting, EDM Die Sinking.

References

1. Raymond J. Sacks, Edward R. Bohnart, "Welding: principles and practices", 2005, Boston: McGraw-Hill (TS227. B63 2012)
2. Richard R. Kibbe [et al.], "Machine tool practices", 2006, Upper Saddle River, NJ: Prentice Hall. (TJ1185 .M32 2006)
3. Steve F. Krar, Arthur R. Gill and Peter Smid, "Technology of machine tools", 2005, Boston: McGraw-Hill
4. Serope Kalpakjian, Steven R. Schmid, "Manufacturing processes for engineering materials", 2008, Singapore: Prentice Hall (TJ1185. K72 2011)

UHB 30502 English for Workplace

Prerequisite: 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. Particular emphasis will be given to promote the mastery of self-directed learning, team-work, 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. PE1115.B327 2003.
3. Corfield, Rebecca. (2008). Preparing the Perfect Job Application: Application Forms and Letters Made Easy.New Delhi: Kogan Page. HF5383 .C67 2008.
4. Freitag-Lawrence, Anne. (2003). Business presentations. England: Pearson. PE1479.B87 .F73 2003.
5. Haynes, Marion E. (2009). Meeting Skills for Leaders: Make Meetings more Productive (4th ed.). Rochester, NY:Axzo Press. HD30.3.H39 2009.

DAM 21303 Engineering Mathematics II

Synopsis

This course explains in detail topics related to calculus. At the start of the course students understand the topic of integration as the inverse of differentiation. The techniques used are the method of substitution, by parts, partial fractions, rule schedule, numerical methods (Trapezoidal and Simpson rules) and improper integration of integration at infinity. Next, the topic of integration of applications which is area, volumes by cylindrical shells and arc length. In the next topic, students will introduce to the first order ordinary differential equation and generate their knowledge to differentiate between separable, linear, homogeneous and exact equation. Next, students will apply the knowledge to solve any application in real life that related to ODEs. Later on, they will extend their differential equation knowledge to higher order which is second order ODEs using method undetermined coefficient and variation of parameter.

References:

1. Abd. Wahid Md. Raji and Mohd Nor Mohamad. (2008). Differential Equations. Malaysia. UTM Publication.
2. Anton, Bivens, I., Davis, S. Calculus. (7th ed). (2002). John Wiley & Sons,Inc, USA.QA303 .A57 2002.
3. James, Glyn. Modern Engineering Mathematics third edition. (2001). Prentice Hall, Essex. TA330 .J352 2001
4. 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

DAM 21403 Basic Electrical and Electronics

Synopsis

This syllabus is designed to provide the basics of electrical and electronic, such as atomic structure, resistance, conductance, color codes, Ohm's law, power and energy, series circuits, parallel, series-parallel resistive, Kirchoff's laws, the magnetic field, magnetic force, intensity, permeability, magnetic circuits, hysteresis, the law of Faraday, Fleming, and Lenz, self and mutual inductance, charge, electric flux, capacitance, voltage alternating current, phase diagram, resonant circuits, single phase transformer, ideal, arrangements, the efficiency, semiconductor devices: diodes, zener diodes, rectifiers, transistors bi-polar and field effect transistors.

References

1. Edward Huges Revised by John Hiley, Keith Brown, Ian McKenzie (2006) "Electrical and Electronic Technology." 9th. Edition, Essex: Pearson. (TK146 .H83 2006)
2. Charles K. Alexander, Mathew N. O. Sadiku (2009). "Fundamentals of Electric Circuits." 4th edition, Boston: MGH. (TK454 .A43 2009)
3. Thomas L. Floyd (2007). "Electric Circuits Fundamentals." 7th edition, Upper Saddle River, NJ: Pearson. (TK454 .F56 2007)
4. Grob's Basic Electronics, 10th Edition; Schultz; McGraw Hill, 2007. (TK7816 .S384 2007)
5. Electronics Fundamentals : Circuits, Devices and Applications ; Thomas L. Floyd, 7th Ed., Prentice Hall, 2007. (TK7816 .F56 2007)

DAM 21503 Engineering Design

Synopsis

Introduction to Industrial Design and Mechanical Design, Introduction to the Design Process, Shafts, Connection, Spring, Gears, Bearings, Conveyor, Clutch and Brake.

References

1. Joseph E.Shigley, Charles R.Mischke, Richard G.Budynas, 2003, "Mechanical engineering design" , 7th edition, Boston: McGraw-Hill (TJ230.S44 2004).
2. Andrew E.Samuel, 2005, "Make and test projects in engineering design", New York: Springer. (TA174.S36 2006).
3. Mohammad Kasim Abdul Jalil, 2000, "Proses dan kaedah rekabentuk", Skudai : Penerbit Universiti Teknologi Malaysia. (TA174.M63 2000).
4. Clive L Dym, Patrick Little, 2000, "Engineering design: a project-based introduction",New York: John Wiley. (TA174.D95 2000)

DAM 21603 Material Sciences

Synopsis

Introduction, structure of materials, material characteristics, solidification, crystal defects and diffusion in solids, phase diagram, metal, Kinetic - Thermal Treatment, Other Materials, Environmental Effects on Materials.

References

1. Callister, W.D. Jr, 2007, "Materials Science and Engineering : An Introduction", 7th Edition, John Wiley. (TA403 .C33 2007)
2. James A. Jacobs, Thomas F. Kilduff, 2005, "Engineering materials technology : structures, processing, properties and selection", 5th edition, Upper Saddle River, NJ: Pearson/Prentice Hall (TA403 .J33 2005)
3. Shackelford, J.F., 2005, "Introduction to Materials Science For Engineers", 5th Edition, Prentice Hall. (TA403 .S52 2005)
4. William D. Callister, 2004, "Fundamentals of materials science and engineering : an integrated approach", 2nd edition, New Jersey: John Wiley (TA403 .C345 2004)
5. Smith, W.F., 2010, "Foundations of Materials Science and Engineering", 3rd edition, Mc Graw Hill. (TA403 .S64 2010)

DAM 21703 Mechanics of Machine

Synopsis

Gear system, belts, Wheel Balancing Energy, Friction and wear, Mechanism, Introduction to Vibration and Damped Vibration.

References

1. W. L. Cleghorn, 2005, "Mechanics of machines", New York: Oxford University Press. (TJ170 .C53 2005)
2. V. Ramamurti, 2005, "Mechanics of machines", Harrow: Alpha Science. (TJ158 .R35 2005)
3. Ballaney P. L, 2003, "Theory of machines and mechanisms", Delhi: Khanna Publishers. (TJ145 .B35 2003)
4. J. Uicker John, Gordon R. Pennock and Joseph E. Shigley, 2003 "Theory of machines and mechanisms", New York: Oxford University. (TJ145. U43 2003)

DAM 21801 Engineering Project I

Synopsis

Engineering Project is the knowledge used for the training of academic systems, skills, engineering concepts and problem solving techniques. This project involves (1) reviewing phenomena / processes / systems, (2) design / construction of components / products, (3) software development or (4) case studies. The project is also taken from industry or laboratory basis. The Engineering Project is divided into two sections: (1) Engineering Project I and (2) Engineering Project II. The Engineering Project I is a prerequisite to the Engineering Project II.

References

1. Guideline for Implementation of Diploma Engineering Project, UTHM

DAN 20103 Business and Entrepreneurship

Synopsis

This course aims to help students understand and know the basics of starting a business, business law, business plan as well as making budget and spending budget and able to market products efficiently. This course will cover topics related to business fundamentals and entrepreneurship such as introduction to entrepreneurship, regulation and business support services, marketing plans, operational plans, financial planning and business management plans.

References

1. Norliza Ghazali & Raudah Mohd Adnan: *Perniagaan dan Keusahawanan,* Penerbit UTHM, 2016
2. Universiti Teknologi Mara. Entrepreneurship Study Group (2004). Fundamentals of Entrepreneurship. Rev. ed. Prentice Hall. (HB615.F86 2004)
3. Norman M. Scarborough (2010), Essentials of Entrepreneurship and Small Business Management, Sixth Edition. Pearson. (HD62.7.S32 2010)
4. Rosli Mahmood etl. (2010), Prinsip-prinsip Keusahawanan:Pendekatan Gunaan. 2nd ed. Cernage Learning Asia Pte Ltd. (HB615.P74 2010)
5. Bessant J. Tidd, Joseph. (2011). Innovation and Entrepreneurship. 2nd ed. West Sussex: Wiley. (HD53.B48 2011)
6. Mariotti, Steve.(2012). Entrepreneurship & Small Business Management, Boston:Prentice Hall.(HD62.7.M38 2012).
7. Oxford Fajar (2013). Third Edition. Entrepreneurship. Sarimah Hanim Aman Shah & Cecilia Soon Teik Lan

DAM 21903 Engineering Statistics

Synopsis

Statistics: Measure of Central Tendency: mean, mode, median. Measure of Dispersion: range, variance, standard deviation. Probability: Independent event. Conditional probability. Bayes theorem. Random variables: Discrete and continuous random variables. Probability distribution functions, cumulative distribution functions, expected value and variance. Special Probability Distributions: Binomial distribution, Poisson distribution and Poisson approximation to Binomial distribution. Normal distribution and Normal approximation to Binomial and Poisson distribution. Sampling distribution: Sampling distribution for mean and difference of two means. Estimation: Point

estimation. Confidence interval for mean and difference of two means. Hypothesis Test: Type 1 and Type 2 errors. Hypothesis test for single mean and difference of two means. Simple Linear Regression**:** Graphical method, least square method, coefficient of determination, correlation coefficient.

References

1. Nafisah@Kamariah Md. Kamaruddin el. al. (2010). DAS 20502 Statistics. Pusat Pengajian Diploma, UTHM Publisher.
2. Wadpole – Mayer (2007). Probability and Statistics For Engineers And Scientists. Prentice Hall. 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) EngineeringStatistics. John Wiley. QA276.12 .M66 2004

DAM 22003 Fluid Mechanics

Synopsis

Introduce the fundamental principles of fluid mechanics, including fluid statics, fluid kinematics, and fluid dynamics equations for fluid mass, momentum and energy conservation. This course will cover the Basic Principles of Fluid, Hydrostatic Pressure and Buoyancy, Continuity Equations, Bernoulli Equation, Momentum Equation, Fluid Flow in Pipes, Dimensional Analysis and Similarity.

References

1. Yunus A. Cengel and John M. Cimbala, 2014, “Fluid Mechanics Fundamentals and Applications”, McGraw Hill, 3rd Edition. (TA357 .C46 2014)
2. Bruce R. Munson, 2013 “Fluid mechanics”, Wiley, 10th Edition. (TA357 .M86 2013)
3. Bruce R. Munson et. al., 2010 “Fundamentals of Fluid Mechanics”, Wiley, 6th Edition. (TA357 .M86 2010)
4. J.F. Douglas, 2005 “Fluid Mechanics”, Prentice Hall, 6th Edition. (TA357. D684 2005)
5. Frank M. White, 2008 “Fluid Mechanics”, McGraw Hill, 6th Edition. (TA357.W44 2008)

DAM 22103 Industrial Engineering

Synopsis

Introduction and history of industrial engineering, the basic concepts of statistics, study methods, concurrent engineering, work measurement, facilities planning and design, ergonomics, inventory control, production control, Material Resources Planning (MRP), Just In Time (JIT), Supply Chain Management.

References

1. Leland T. Blank, Anthony J. Tarquin. (2002). “Engineering economy”, Boston: McGraw-Hill. (TA177.4 .B52 2002)
2. WU., B., (1994). “Manufacturing Systems Design and Analysis”, 2nd Edition, Chapman & Hall. (TS176 . W8 1994)

3. Jack R. Meredith. (1992). “The Management of Operation – A Conceptual Emphasis”, John Wiley. (TS155 .M47 1992)
4. Philip E. Hicks.(1994). “Industrial Engineering & Management: A New Perspective”, Mc Graw Hill. (T56 .H43 1994)

DAM 22203 Thermodynamics

Synopsis

Basic concepts and definitions, energy, heat and work, properties of pure materials can be compressed, the first law of thermodynamics, second law of thermodynamics, entropy and the thermodynamic cycles.

References

1. Yunus A. Cengel, Michael A. Boles (2015), “Thermodynamics: an engineering approach”, New York: McGraw-Hill Higher Education, 2015. TJ265 .C46 2015
2. Yunus A. Cengel, Michael A. Boles (2011), “Property tables booklet to accompany thermodynamics: an engineering approach”, New York: McGraw-Hill, 2011. TJ265 .C464 2011
3. Rajput, R. K. (2010), “Engineering Thermodynamics 3rd ed.”, Jones and Bartlett Publishers. TJ265 .R34 2010
4. J.B. Jones, R. E. Dugan (1996), “Engineering thermodynamics”, Englewood Cliffs, New Jersey: Prentice-Hall. TJ265 .J67 1996

DAM 22303 Engineering Project II

Prerequisite Course: DAM 21801 Engineering Project I

Synopsis

Students are required to create and implement one project for this semester. This project basically focuses on identification, problem solving, method or approach to a system being studied. The project focused on areas of problem solving, project planning, innovative design, analysis and testing.This engineering projects are primarily industrial-based in the field of mechanical and manufacturing engineering which include the aspects of product development, fabrication and testing.The project is to realize the understanding gained from the theory by using the principles or concepts.This projects will shape students who are proficient in socializing with the creation of partnerships and individuals or co-operatives, proficient in applying and selecting solutions and proficiency in applications. It also serves as a training in teamwork. Students are also required to present proposals and project progress reports in seminars held at the end of the semester.

References

1. Guideline for Implementation of Diploma Engineering Project, UTHM

DAM 30109 Industrial Training

Prerequisite Course: Completed 60% of total credit requirement for Diploma graduation

Synopsis

Students are required to undergo industrial training in mechanical engineering field for 18 weeks. They will undergo training to be set by the industry as planning, management, design, evaluation, project supervision and etc.

References

1. Buku Panduan Latihan Industri UTHM Edisi Ketiga, Disember 2016.

Career and Further Education Prospect

Assistant Mechanical Engineer or technologist is involved with the machine design, machines troubleshooting and any of a huge range of projects in mechanical engineering.

Their role is central to ensuring the safe, timely and well-resourced completion of projects in many areas, including:

- Process Industry;
- Assembly Industry;
- Engineering consultancy;
- Heavy Industry.

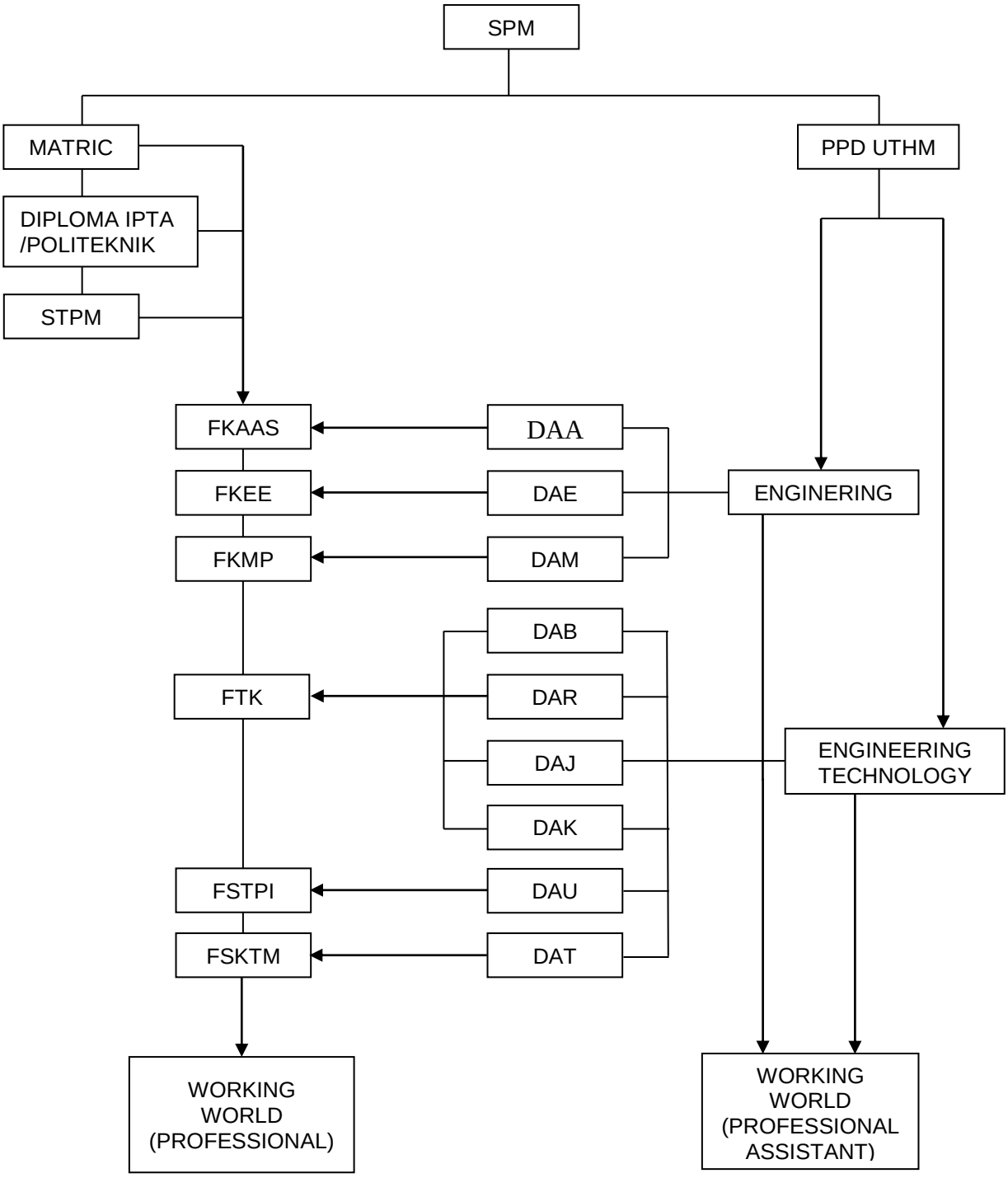
Assistant of consulting mechanical engineers liaise with clients to plan, manage, design and supervise the mechanical of projects.

Mechanical engineering offers many opportunities as well as the satisfaction of helping to improve and enhance public quality of life in many settings.

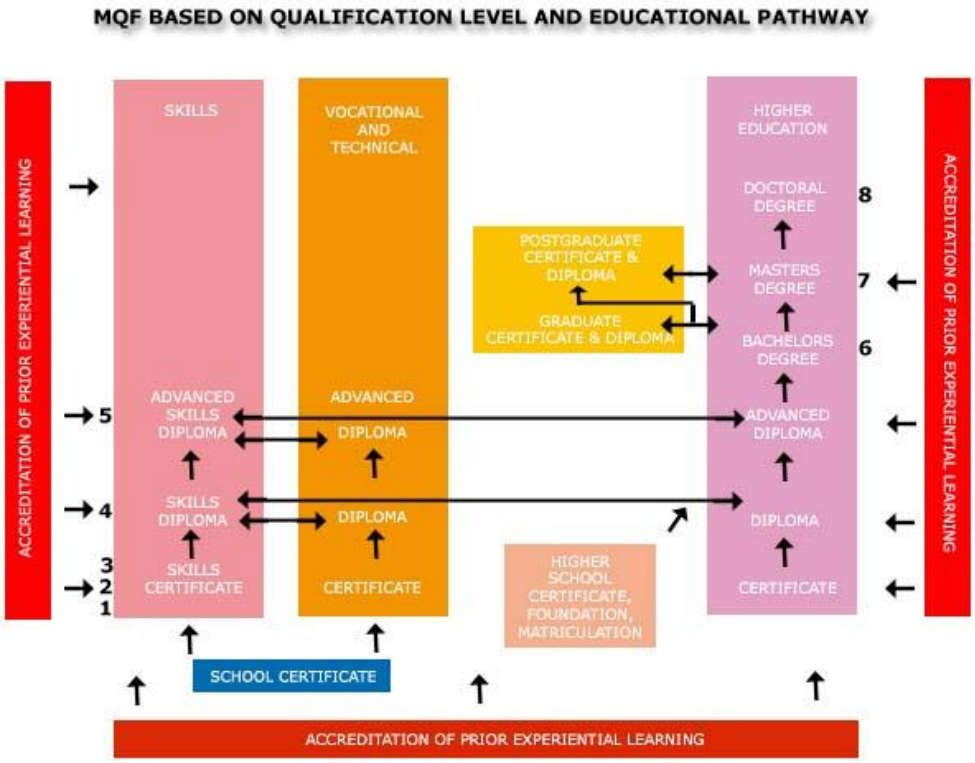
Further education is procpect to any bachelor degree in technology mechanical engineering and mechanical engineering.

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 Apllied Sciences



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			

Malaysian Qualification Framework

Centre for Academic Development and Training
Universiti Tun Hussein Onn Malaysia
86400 Batu Pahat, Johor Darul Ta'zim
www.uthm.edu.my