UTHM
Universiti Tun Hussein Onn Malaysia

ACADEMIC PROFORMA

2020/2021

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CENTRE FOR DIPLOMA STUDIES
CEDS

DIPLOMA IN MECHANICAL ENGINEERING

QS STARS™ RATING SYSTEM

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

QS STARS™ RATING SYSTEM — Teaching
QS STARS™ RATING SYSTEM — Employability
QS STARS™ RATING SYSTEM — Facilities
QS STARS™ RATING SYSTEM — Social Responsibility
QS STARS™ RATING SYSTEM — Inclusiveness

UTHM Produces
Professionals

PUSAT PENGAJIAN DIPLOMA
UTHM KAMPUS PAGOH, HAB PENDIDIKAN TINGGI PAGOH
KM 1, Jalan Panchor, 84600, Panchor, Johor.

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Universiti Tun Hussein Onn Malaysia
September 2020

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Foreword from Vice Chancellor

Assalammualaikum Warahmatullahi Wabarakatuh and Greetings

Congratulations and welcome to the new students and thank you also for the trust you have chosen to be with UTHM to continue your efforts for success in career and well-being in the future.

The world has been shocked by the outbreak of Coronavirus Disease 19 (Covid-19) which until now has not shown any sign that it will end. In order to comply with standard operating procedures issued by competent bodies such as the Ministry of Health Malaysia and the Ministry of Higher Education, UTHM has undertaken various initiatives to curb the spread of epidemics in UTHM. Among the initiatives in the implementation of Learning and Teaching are through online methods namely Full Online Classroom (FOC), Smart Classroom, Flip Learning, Massive Open Online Course (MOOC) and more. Hopefully, continuous efforts at the highest management level and all UTHM staff will be able to prevent the spread of the epidemic and be able to provide a conducive learning environment for all UTHM students.

The year 2019, UTHM continue to move forward in its efforts to become a leader in the field of science and technology education. This is evidenced by the overall rating of 4 stars by QS Stars Rating with 5 out of 7 categories given a 5-star rating namely Teaching, Employability, Facilities, Social Responsibility and Inclusiveness categories. Apart from that, UTHM has also ranked 8th in Malaysia in Webometrics Ranging Web of Universities with 13th place ranking at the university level in the world. Apart from that, UTHM students are also not left behind in winning various awards at the international level as well as making UTHM's name famous at the world level.

Finally, I have full confidence that you will be a successful University citizen and can continue the tradition of University educational excellence. I am also confident that when you graduate, you will become a member of the community who is able to apply the knowledge that will be obtained and be able to contribute services, devotion and expertise for the sake of Religion, Nation and Country.

Good luck.

"**WITH WISDOM WE EXPLORE"**

Y. BHG. 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

I would like to take this opportunity to congratulate and congratulate the new students who have been successfully selected to further their studies at Universiti Tun Hussein Onn Malaysia for this 2020/2021 session. Congratulations also to the Center for Academic Development and Training who has successfully published a proforma which will be a guide for students to make learning plans starting from the first semester until graduation at this University.

The Coronavirus Disease 2019 (Covid-19) pandemic has changed the landscape of higher education in Malaysia. The learning and teaching (PdP) process, which was previously face-to-face, had to be changed to an online form of learning to comply with the Standard Operating Procedures aimed at curbing the spread of the Covid-19 epidemic. For Semester 1 Session 2020/2021, UTHM has also encouraged the implementation of hybrid PdP, face to face and online. It is hoped that this effort will reduce the risk of Covid-19 infection, especially to UTHM students and academic staff.

To ensure that the PdP process runs smoothly, UTHM has taken various proactive measures such as providing ICT infrastructure including increasing broadband line capacity, ICT infrastructure and providing online platforms such as Author applications, Google Classroom and e-Portfolio. In addition, UTHM lecturers have also been given training related to the online learning and teaching process to ensure that the teaching process runs efficiently.

I hope with the various initiatives that have been and are being done by UTHM will be able to provide a useful experience to you while exploring knowledge at UTHM. I would also like to call on you to take the opportunity to be at UTHM to explore your potential through various activities and co-curricular programs provided in making you a holistic and balanced student. To achieve the aspirations of UTHM, the initial planning through Proforma will be able to help you plan the journey throughout the study period at UTHM and it is hoped that you will be able to obtain the best results and achieve excellent success.

Finally, I would like to wish Good Luck and pray that you achieve excellent success in your studies at this University and in turn can contribute towards the provision of human capital that will contribute to the development of religion, race and country.

"**WITH WISDOM WE EXPLORE"**

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 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, six (6) 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 suitable programme that suits your qualifications and dreams. Furthermore, the study period for all programmes is only 2 years and 9 months, the student will be completed their studies in a shorter time. In the meantime, Diploma graduates will be absorbed to continue 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 at 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 student of the UTHM Diploma 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.

ASSOCIATE PROFESOR 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 in order to produce well trained human resource and professionals who are catalysts for a sustainable development

University Logo

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

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

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

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

Symbolism:

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

Chancellor

Duli Yang Maha Mulia Sultan Ibrahim Ibni Almarhum Sultan Iskandar
Sultan Yang Dipertuan Bagi Negeri Dan Jajahan Takluk Johor Darul Ta'zim
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

University Board of Directors

Chairman

YBhg. Dato' Dr. Mohd Sofi Osman
Pengarah Urusan & Naib Presiden
PEN Operations

Members

Y. Bhg. Prof. Ts. Dr. Wahid bin Razzaly
Naib Canselor
Universiti Tun Hussein Onn Malaysia

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

YBhg. Datuk Ts. Pang Chau Leong
Wakil Alumni
Universiti Tun Hussein Onn Malaysia

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

YBrs. Encik Ahmad Luqman bin Mohd. Azmi
Ketua Pegawai Operasi Malaysia Airlines Berhad

YBrs. Dr. Sharifah Adlina binti Syed Abdullah
Kementerian Kewangan Malaysia

YBhg. Dato' Dr. Mohd. Padzil bin Hashim
Wakil Swasta

YBhg. Prof. Dr. Azme bin Khamis
Universiti Tun Hussein Onn Malaysia

YBrs. Ts. Dr. Mohommad Naim bin Yaakub
Kementerian Pendidikan Tinggi Malaysia

Secretary

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

Senate Members

Chairman

Y. Bhg. Professor Ts. Dr. Wahid bin Razzaly
Vice Chancellor

Members

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

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

Associate Professor Dr. Afandi bin Ahmad
Deputy Vice Chancellor (Student Affairs and Alumni)

Associate Professor Ts. Dr. Mohd Kamarulzaki bin Mustafa
Provost of UTHM Pagoh Branch Campus

Prof. Dr. Ahmad Tarmizi bin Abdul Karim
Assistant Vice Chancellor (Development, Facilities Management and ICT)

Associate Professor Dr. Mas Fawzi bin Mohd Ali
Assistant Vice Chancellor (Strategic Planning and Coporate Relations)

Prof. Dr. Azme bin Khamis
Dean Centre for Graduate Studies

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

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

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

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

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

Prof. Dr Hashim bin Saim
Dean Faculty of Applied Science and Technology

Associate Professor Dr Jumadi bin Abdul Shukor
Dean Faculty of Engineering Technology

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

Associate Professor Dr. Khairul Azman bin Mohamad Suhaimy
Dean Center for General Studies and Co-curriculum

Dr. Zailin Shah binti Yusoff
Dean Centre for Language Studies

Associate Professor Dr. Ishak bin Baba
Dean Centre for Academic Development and Training

Associate Professor Ts. Dr. Razali bin Hassan
Director of the Malaysian Institute of Vocational Education and Training Research (MyRIVET)

Prof. Dr. Hj. Rosman bin Md. Yusoff
Director of the Institute of Social Transformation and Regional Development

Prof. Ts. Dr. Abd Halid bin Abdullah
Faculty of Civil and Environmental Engineering

Prof. Dr. Noridah binti Mohamad
Faculty of Civil Engineering and Built Environment

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

Prof. Ir. Dr. Md Saidin bin Wahab
Faculty of Mechanical and Manufacturing Engineering

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

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

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

Prof. Dr. Nazri bin Mohd Nawi
Faculty of Computer Science and Information Technology

Prof. Dr. Rozaini bin Roslan
Faculty of Applied Science and Technology

Associate Professor Ts. Dr. Mohd Farhan bin Md. Fudzee
Director of the Information Technology Center

Ir. Dr. Raha bt. Abd. Rahman
Fellow Industry

Mr. Abdul Halim bin Abdul Rahman
Registrar/Secretary

En. Norzaimi bin Hamisan
Acting Bursar

Pn. Zaharah binti Abd Samad
Chief Libraria

Pn. Norliah binti Yaakub
Legal Advisor

Centre for Diploma Studies

Centre Vision

Excellent in providing multidisciplinary education in science and technology

Centre Mission

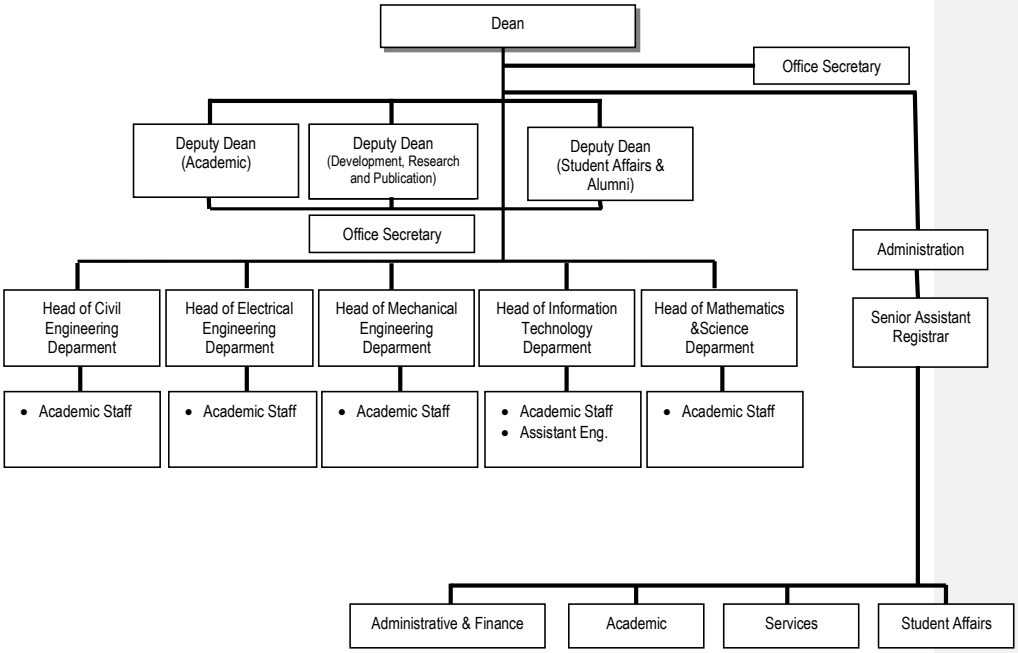
Producing graduates who contribute to national development through a holistic academic program

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 of 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 achieved 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 six (6) 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 for Diploma Studies External Examiner and Industrial Advisor

Department of Mecanical Engineering

External Examiner

Prof. Madya Dr. Mohd Rizal bin Salleh
Associate Professor
Faculty of Manufacturing 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

Commented [U1]: New added penasihat industri

Centre for Diploma Studies Staff Directory

Administration

Dean
Associate Professor Dr. Mohamad Zaky bin Noh
Ph.D (Physic)(USM), MSc. (Physic)(UTM), BSc. (Physic)(UTM)

Deputy Dean (Academic)
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 Alumni)
Hjh. Ziana bt Che Ros
M. Eng (Electrical)(UTHM), B. Eng. (Hons)(Electrical Engineering.) (UTM), Diploma (Electrical Engineering)(UiTM)

Deputy Dean (Development, Research and Publication)
Associate Professor Hj. Masiri bin Kaamin
MSc.(Land Survey-GIS) (UTM), BSc.(Land Survey) (UTM)

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

Administrative Assistant (Deputy Dean Secretary)
Nurul Farhana binti Ashaari
Dip. (Public Administration) (Diploma Vokasional Malaysia)

Senior Assistant Registrar
Cik Norfaizah binti Sai
BSc. Human Resources (UPM), STPM (SM.Ungku Aziz, Sabak Bernam), SPM(SM.Convent Klang)

Assistant Administrative Officer (Academic)
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)

Senior Administrative Assistant (Clerical & Operation) Student Affairs and Alumni
Ismade bin Niam
STPM (SM Tun Sardon Rengit)

Senior Administrative Assistant (Clerical & Operation) Administrative and Finance
Dorazi bin Md Noh
SPM (SM.Dato Sulaiman)

Administrative Assistant (Clerical & Operation) Academic
Razali bin Ahmad
SPM (SMK Tinggi Batu Pahat)

Administrative Assistant (Clerical & Operation) Development, Research and Publication
Muhammad Firdaus bin Yaacob
SPM (SMK Khir Johari)

Operation Assistant
Azwan bin Roslee
SPM (SMK Sultan Alauddin Riayat Shah 1, Pagoh)

Department of Mechanical Engineering

Academic Staff

Head of Department
En. Mohd Shahir bin Yahya
M.Eng. (Mechanical & Manufacturing Systems) (UPM),
B.Eng.(Hons)(Mechanical) (UTM)

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

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

Pn. Siti Mariam binti Basharie
M.Eng. (Mechanical) (UTM), B. Eng. (Hons)(Mechanical) (UTM)

En. Rosdi bin Ab Rahman
M.Eng. (Mechanical) (UTM)., BEng. (Hons.) (Agric.) (Power & Machinery) (UPM),
Cert. (Oil Hydraulic & Mechatronic) (Kyushu Int. Centre)

En. Suhairi bin Ismail
B.Eng. (Mechanical Eng.) (UTM), Dip. Eng.(Mechanical Eng.) (UTM)

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

En. Khairulnizam bin Othman
MSc. (Mechatronic) (UniMAP), B.Eng.(Hons.) (Mechatronic) (UniMAP)

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
B.Eng. (Mechatronic) (UTeM), Dip. Eng. (Mechatronic) (POLIMAS)

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

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

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

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

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

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

En. Khairulnizam bin Ngadimon
M.Eng. (Mechanical) (UTM), B. Eng. (Hons)(Mechanical) (UiTM)

En. Abdullah bin Wagiman
M.Eng. (Manufacturing) (UM), B. Eng. (Hons)(Mechanical) (KUiTTHO),
Dip. Eng.(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 mechanical 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 mechanical 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 respectively in practical procedures and practices.
PLO 2	Identify and analyze well-defined mechanical engineering problems reaching substantiated conclusions using codified methods of analysis specific to their field of activity.
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.
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	Apply appropriate techniques, resources, and modern engineering and IT tools to well defined engineering problems, with an understanding of the limitations.
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.
PLO 7	Able to describe the impact of engineering solutions in societal and environmental contexts and demonstrate knowledge of and need for sustainable development.
PLO 8	Demonstrate good ethics, responsibilities and norms of technician practices.
PLO 9	Function effectively as an individual, and as a member or leader in diverse technical teams and in multi-disciplinary settings.
PLO 10	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 11	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 12	Recognize the need for, and have the preparation to engage in independent and life-long learning in the broadest context of technological change.

Curriculum Structure

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

Year	Semester	Course Code	Courses	Credit	Total
1	Special	UHB 10302	English For Academic Survival	2	7
		UQU 10403	Introduction to Nationhood and Development of Malaysia	3	
		UQI 10402/ UQI 11502	Islamic Studies/Moral Studies	2	
	I	UWB 1**02	Foreign Language	2	18
		UQ* 1**01	Co-Curriculum I	1	
		DAM 13003	Algebra	3	
		DAM 13102	Chemistry	2	
		DAM 13202	Physics	2	
		DAM 13403	Statics	3	
		DAM 13503	Basic Electrical and Electronic	3	
		DAM 13601	Engineering Laboratory I	1	
		DAM 13701	Mechanical Engineering Workshop I	1	
	II	UHB 20302	Academic Communication	2	18
		UQI 11402	Philosophy and Current Issues	2	
		DAM 13303	Engineering Mathematics	3	
		DAM 13803	Technical Drawing & CAD	3	
		DAM 13903	Dynamics	3	
		DAM 14203	Material Sciences	3	
		DAM 14101	Engineering Laboratory II	1	
		DAM 14201	Mechanical Engineering Workshop II	1	
2	I	UHB 30502	English For Workplace	2	18
		UQ* 1**01	Co-Curriculum II	1	
		DAM 23003	Engineering Design	3	
		DAM 23102	Occupational Safety and Health	2	
		DAM 23202	Manufacturing Process	2	
		DAM 23303	Solid Mechanics	3	
		DAM 23403	Thermodynamics	3	
		DAM 23501	Engineering Laboratory III	1	
		DAM 24101	Engineering Project I	1	
	II	DAN 20103	Business and Entrepreneurship	3	18
		DAM 23603	Computer Programming	3	
		DAM 23702	Industrial Engineering	2	
		DAM 23803	Mechanics of Machine	3	
		DAM 23903	Fluid Mechanics	3	
		DAM 24001	Engineering Laboratory IV	1	
		DAM 24103	Engineering Project II	3	
3	I	DAM 33012	Industrial Training (24 weeks)	12	12
			Total Overall Credit		**91**

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 11502	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	4
		UQI 11402	Philosophy and Current Issues	2	
2	I	UHB 30502	English For Workplace	2	3
		UQ* 1**01	Co-Curriculum II	1	
	II	DAN 20103	Business and Entrepreneurship	3	3
3	I	-	-	-	-
				Total Credit	**20**

Synopsis of Courses

UQU 10403 Introduction to Nationhood and Development of Malaysia

Synopsis

This course discusses History and Politics, Malaysian Constitution, National Administrative System and Structure, Society and Unity, National Development as well as Religion and Beliefs. This course aims to produce graduates who have a national identity and a spirit of superior patriotism. Teaching and learning will be implemented in the form of lectures, assignments, examinations and learning experiences.

References

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4. Nazaruddin Haji Mohd Jail, Ma'rof Redzuan, Asnarulkhadi Abu Samah dan Ismail Hj Mohd Rashid. (2004). Pengajian Malaysia: Kenegaraan dan Kewarganegaraan.
5. Nazri Muslim. (2015). Islam dan Melayu: Tiang Seri Hubungan Etnik di Malaysia. Bangi: Penerbit UKM.

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.

References

1. Nik Kamal Wan Mohammed dan Lain-lain (2018), Modul Pembelajaran Pengantar Pengajian Islam (UQI10402), cetakan keempat 2018, Batu Pahat: Penerbit UTHM.
2. Roziah Sidik (2011), Pengajian Islam, Selangor: Oxford Fajar. (BP42 .R69 2011)
3. Al-Anjari, Fouzi (2013), Al-Asya'irah: Akidah Sebenar Ahli Sunnah Wal Jamaah, Seremban: Creative Publika. (BP166.14 .A54 2013)
4. Mohd Fauzi Mohd Amin (2011), Pemerkasaan Fardhu Kifayah berteraskan al-Quran dan al-Sunnah, Negeri Sembilan: USIM. (BP130.8 .P45 2011)
5. Azzam, Abdul Aziz Muhammad (2010), Fiqh Muamalat: Sistem Transaksi dalam Fiqh Islam, Jakarta: Amzah. (BP158.C59 .A99 2010)

UQI 11502 Moral Studies

Synopsis
This course explains about the introduction to moral concepts, moral aspects and their importance in daily life. Western moral theory as well as the pure values of the great religions of the world. Morality in various fields of employment, ethics in science and technology and finally 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.

UQI 11402 Philosophy and Current Issues

Synopsis
This course covers the relationship of philosophy with the Philosophy of National Education and Rukunegara. 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.

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, R. C. (2004). Graphics learning: Proven guidelines for planning and evaluating visuals in training materials. San Fransisco, CA: Pfeiffer. LB1043.5 .C52 2004
2. Dunne, E. (1994). Talking and learning in groups. London: Routledge. LC6519 .D86 1990 N1

3. Galanes, G. J. (2013). Effective group discussion: Theory and practice (14th ed.). New York: McGraw-Hill. HM736 .G34 2013
4. Greasley, P. (2011). Doing essays and assignments: Essential tips for students. Thousand Oaks, CA: Sage Publication. LB1047.3 .G73 2011
5. Lim, P. L. (2014). Listening & notetaking skills 2 (4th ed.). Boston: National Geographic Learning. PE1128 .L55 2014

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. Anderson, P.V. (2014). Technical communication : a reader-centered approach. Boston : Cengage Learning.PE1475 .A52 2014
2. Fairbairn, Gavin J. (2011). Reading, Writing and Reasoning; A Guidefor Studerzrs. Maidenhead: Open University Press, 2011. LB2395 .F34 2011
3. Jordan, R. R. (2003). Academic Writing Course; study skills in English (3rd ed.). Essex: Longman. PE1408 .J67 2003.
4. Langan, John. (201I). College Writing Skilts (8th ed.). New York: McGraw-Hill. PE1471 .L36 2011.
5. Lewis, Jill. (2002). Reading for Academic Success : Reading and Strategies. Boston: Houghton Mifflin. LB2395.3 .L48 2002.

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 the knowledge 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, J. G. (2004). The complete Q and A job interview book (4th ed.). Hoboken, NJ: John Wiley. HF5549.5.16 . A44 2004.
2. Corfield, R. (2008). Preparing the perfect job application: Application forms and letters made easy. New Delhi: Kohan Page. HF5383 .C67 2008.
3. Haynes, M. E. (2009). Meeting skills for leaders: Make meetings more productive (4th ed.). Rochester, NY: Axzo Press. HD30.3 .H39 2009.
4. Wendleton, K. (2014). Mastering the job interview and winning the game (5th ed.). Boston: Cengage Learning. HF5549.5.I6 .W46 2014.
5. Wrathall, J. (2011). Event management: Theory and practice. North Ryde, N.S.W: McGraw-Hill. GT3405 .W72 201.

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

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

UQ* 101 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.

DAN 20103 Business and Entrepreneurship

Synopsis
This course aims nurturing an entrepreneurial culture among students and exposed them to the basics of entrepreneurial concept, entrepreneurial attributes as well as the development of creative and innovative skills that allow them to identify business opportunities and non-business. This course is designed to ensure students gain knowledge and skill related to fundamental of business and entrepreneurship such as introduction to entrepreneurship, business ownership, regulations and support services, business environment asessment, marketing plans, operational plans, financial planning and business management plans.
References

1. Norliza Ghazali & Raudah Mohd Adnan: *Perniagaan dan Keusahawanan,* Penerbit UTHM, 2016
2. UiTM Entrepreneurship Study Group (2011). Engineering Entrepreneurship. Prentice Hall. (HB615.F86 2004)

3. Ariffin, S, Hamidon, S (2017). Introduction to Entrepreneurship. Oxford Fajar, Kuala Lumpur
4. Bessant J. Tidd, Joseph. (2011). Innovation and Entrepreneurship. 2nd ed. West Sussex: Wiley. (HD53.B48 2011)
5. Oxford Fajar (2013). Third Edition. Entrepreneurship. Sarimah Hanim Aman Shah & Cecilia Soon Teik Lan

DAM 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.

References

1. Gustafson, R.D. and Hughes, J. (2017) College algebra. Boston, MA : Cengage Learning. ISBN: 9781305652231
2. Larson, R. (2016) College algebra. Boston, MA : Cengage Learning. ISBN: 978137282291
3. Miller, M. (2014) Beginning algebra. New York : McGraw-Hill. ISBN: 9780073384481
4. Nafisah@Kamariah Md. Kamaruddin el. al. (2010). DAS 10103 Algebra. Centre for Science Studies, UTHM Publisher.
5. Raji et al. (2002) Matematik asas. Skudai, Johor, Malaysia : Penerbit Universiti Teknologi Malaysia. ISBN: 98302567

DAM 13102 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.

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 13202 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.

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. Knight, Randall D. (2013) Physics for scientist and engineers : a strategic approach with Modern Physics *3rd Ed*., Pearson QC23.2.K54 2013
4. 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 13303 Engineering Mathematics

Synopsis

This course explains in detail topics related to calculus. The first topic is function. It includes a description of the relationship and functions, sketching graphs of algebraic functions and piecewise function and determination of range and domain. The second topic describes the limit of a function, one-sided limit, limit at infinity and continuity. Further topics include the differentiation techniques as well as the application. It includes chain rule, differential of the exponential function, logarithms, implicit, parametric, and higher derivatives. Then the topic followed by integration as the inverse of differentiation. The techniques used are the method of substitution, by parts and partial fractions. This topic also includes the application of integration such as area (and surface area) and volume of bounded region. Finally, the topic of first order differentiation and its application was introduced. It contains a four type of equation (separable, linear, homogenenous and exact) to be solve and lastly the application related such as Newton's law of cooling and growth-decay problem.

References

1. Srimanta P. and Subodh C. B. (2015). Engineering Mathematics. New Delhi : Oxford Univ Press. [TA330 .P35 2015]
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. Abd. Wahid Md. Raji. (2018). Differential Equations for Engineering Students. Johor Bahru. UTM Publication. TA347.A32 2018.

DAM 13403 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 13503 Basic Electrical and Electronics

Synopsis

This course 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 13601 Engineering Laboratory I

Synopsis
This course related to experiments of certain topics in Statics and Basic Electrical & Electronic course.

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

DAM 13701 Mechanical Engineering Workshop I

Synopsis

Safety regulations, fitting, sheet metal forming, turning, grinding, welding and milling.

References

1. Richard R. K., John E.N., Roland O. M., Warren T. W. (2010). Machine Tool Practices. 11thed. Prentice Hall. TJ1185 .M32 2014
2. Serope Kalpakjian & Steven R. S. (2014) Manufacturing Engineering and Technology. 7th ed., Prentice Hall. TS176 .K34 2014
3. Hoffman, P.J. (2012). Precision Machining Technology. 2nd ed. Clifton Park, NY: Delmar Cengage Learning. TJ1189 .P73 2014
4. Sacks, R.J. & Bohnart, E.R. (2012). Welding: Principles and Practices, 4th edition, McGraw-Hill. TS227 .B63 2012

DAM 13803 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)

DAM 13903 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 14203 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)

DAM 14101 Engineering Laboratory II

Synopsis
This course related to experiments of certain topics in Dynamics and Material Sciences course.

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)
5. Callister, W.D. Jr, 2007, "Materials Science and Engineering : An Introduction", 7th Edition, John Wiley. (TA403 .C33 2007)

6. 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)
7. Shackelford, J.F., 2005, “Introduction to Materials Science For Engineers”, 5th Edition, Prentice Hall. (TA403 .S52 2005)

DAM 14201 Mechanical Engineering Workshop II

Synopsis
This course is designed to give exposure to the foundry process and automation systems and focuses on aspects of safety in the workshop.

References
1. Sahoon. M. (2014). Principles of Metal Casting. 3rd. ed. Mc Graw Hill. TS230 .S23 2014
2. Serope Kalpakjian & Steven R. S. (2014) Manufacturing Engineering and Technology. 7th ed., Prentice Hall. TS176 .K34 2014
3. Martin, J. (2014). Handbook of hydraulic machines: fundamentals of hydraulic power systems. United Kingdom : Auris Reference. TC160 .H36 2014
4. Hanssen, D.H. (2015). Programmable Logic Controllers. New Jersey: John Wiley & Sons. TJ223.P76 .H37 2015
5. Parr, A. (2011). Hydraulics and Pneumatics: A Technicians and Engineers Guide. Oxford: Butterworth-Heinemann. TJ840.P37 2011
6. Kandray, D.E. (2010). Programmable Automation Technologies: An Introduction to CNC, Robotics and PLCs. New York: Industrial Press. TS183.K36 2010

DAM 23003 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 23102 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. (KPG1390.M34 2001 rw N2)
2. Factories and Machinery Act & Regulations. MDC Publishers Printer Sdn. Bhd. 2001. (KPG1390.A31967. A4 2001 rw N1)
3. Ismail Bahari (2006). Pengurusan Keselamatan dan Kesihatan Pekerjaan. Edisi ke-2. McGraw Hill Education (Malaysia). (T55.I85 2006)
4. Davies, V. J. and Tomasin K. (2006). Construction Safety Handbook. 2nd ed. London: Thomas Telford. (TH443.R43 2006)
5. Anton, Thomas J. (2009). Occupational Safety and Health Management. 3rded. New York: McGraw-Hill. (T55.A57 1989)

DAM 23202 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 23303 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, 2014. ‘Mechanics of Materials’, 9th Edition, Pearson Prentice Hall. [TA405 .H54 2014]
2. Gere, James M, 2013, “Mechanics of Material”, 8th Edition, Stamford, CT : Cengage Learning. [TA405 .G47 2013]
3. Beer, Ferdinand P., 2012, “Mechanics of Material”, 6th Edition, McGraw-Hill. [TA405 .M434 2012]
4. E. J. Hearn, 1997, “Mechanics of Materials 1”, 3rd Edition, Pergamon Press. [TA405 .H33 1997 v.]

DAM 23403 Thermodynamics

Synopsis
Introduction to energy, heat and work, properties of pure substance, the First Law of Thermodynamics, Second Law of Tthermodynamics, 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 23501 Engineering Laboratory III

Synopsis
This course related to experiments of certain topics in Solid Mechanics and Thermodynamics course.

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), 2009, ” Mechanics of materials”, Boston, MA: McGraw-Hill’ (A350 .V42 2009)
4. John P. O'Connell and J. M. Haile,2005, “ Thermodynamics : fundamentals for applications”, Cambridge: Cambridge University Press. (QC311 .O26 2005)
5. Mohammad Fahmi Abd Ghaffir, Amir Khalid, Mohd Faizal Mohideen Batcha, Sofian Mohd, Mahmod Abd Hakim Mohamad, 2007, “Termodinamik I (BDA 2033”,) Batu Pahat: Penerbit Universiti Tun Hussein Onn Malaysia. (TJ265 .T47 2007 a)

DAM 23603 Computer Programming

Synopsis
To introduce 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 23702 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 23803 Mechanics of Machine

Synopsis
Introduction to 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 23903 Fluid Mechanics

Synopsis
This course will cover the Basic Principles of Fluid Mechanics, Hydrostatic Pressure and Buoyancy, Continuity Equation, 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 24001 Engineering Laboratory IV

Synopsis
This course related to experiments of certain topics in Mechanics of Machine and Fluid Mechanics course.

References

1. Bernard Massey, John Ward-Smith, 2006, “Mechanics of fluids" Oxon: Taylor & Francis. (TA357 .M36 2005)
2. Bruce R. Munson, Donald F. sYoung and Theodore H. Okiishi , 2010, “Fundamentals of fluid mechanic”, 6th Ed. Hoboken, NJ: John Wiley. (TA357.M86 2010)
3. W. L. Cleghorn, 2005, “Mechanics of machines”, New York: Oxford University Press. (TJ170 .C53 2005)
4. Jerry R. Dunn, 2008, “Applied fluid mechanics : a student guide to solving problems”, New York: McGrawHill Higher Education. (TA357 .D86 2008)
5. V. Ramamurti, 2005, “Mechanics of machines”, Harrow: Alpha Science. (TJ158.R35 2005)

DAM 24101 Engineering Project I

Prerequisite Course: Acquired 40% of total credit requirement for Diploma graduation

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

DAM 24103 Engineering Project II

Prerequisite Course: DAM 24101 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 33012 Industrial Training

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

Synopsis

Students are required to undergo industrial training in mechanical engineering field for 24 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:

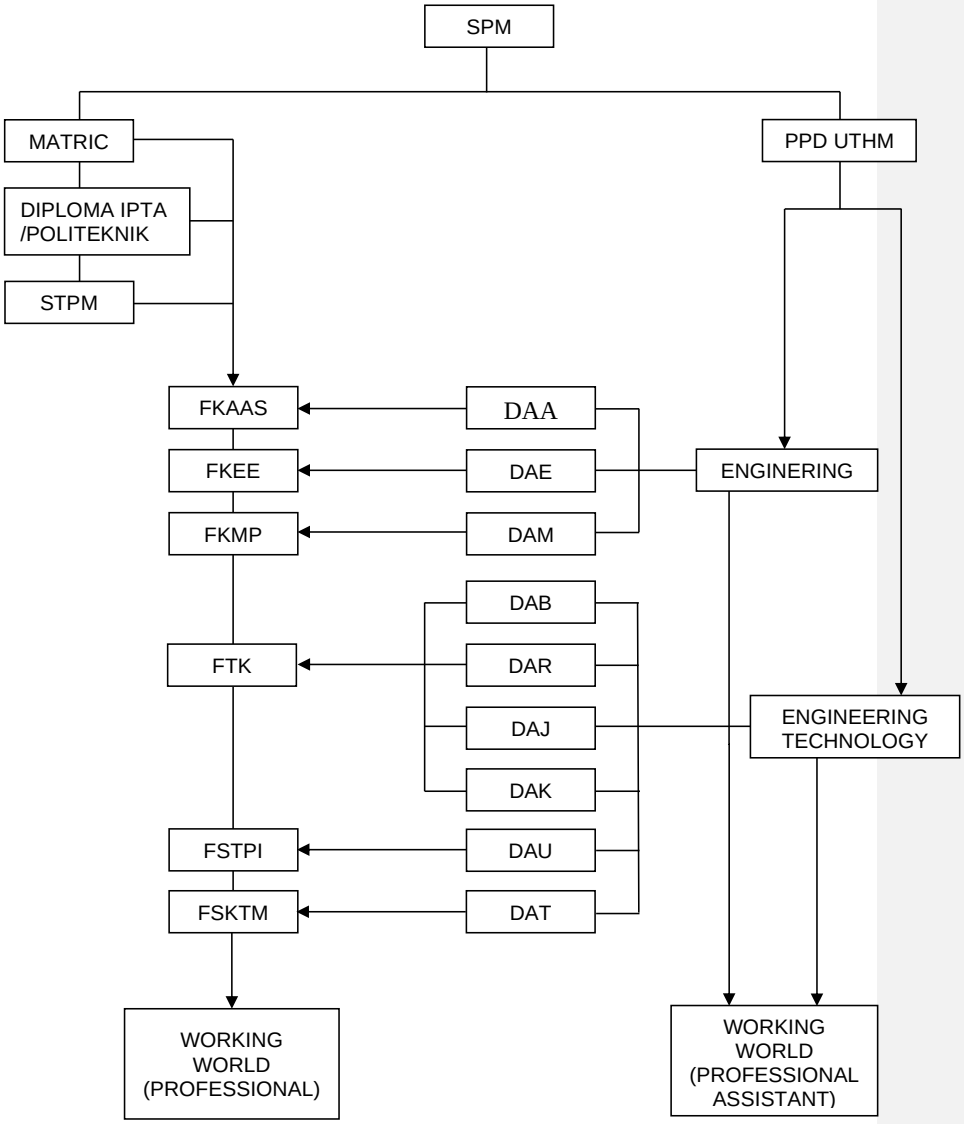
- Process Industry;
- Assembly Industry;
- Engineering consultancy;
- Heavy Industry.

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

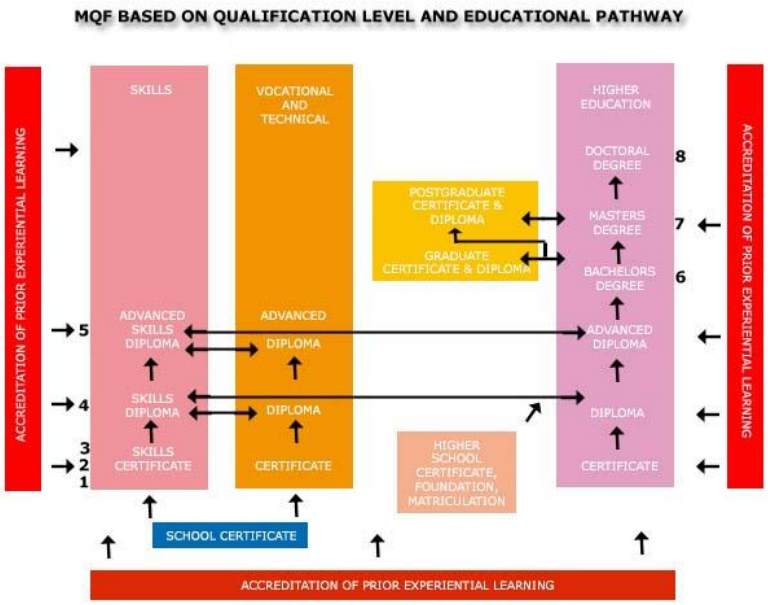
Mechanical engineering offers many opportunities as well as the satisfaction of helping to improve and enhance public quality of life in many settings.

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
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