

ACADEMIC
PROFORMA
2022/2023



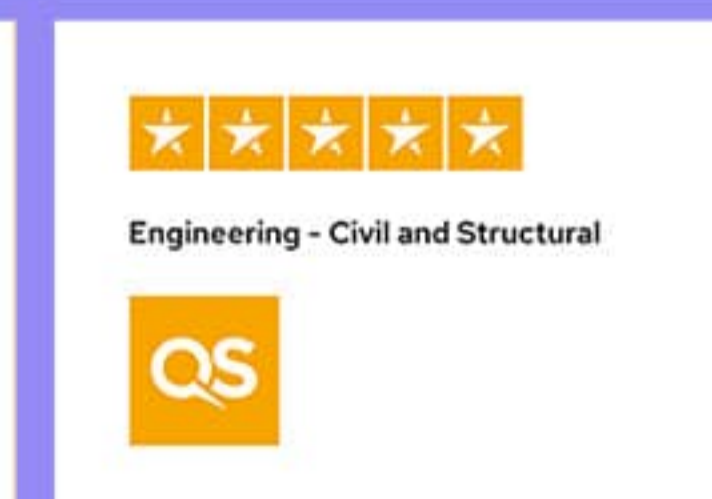
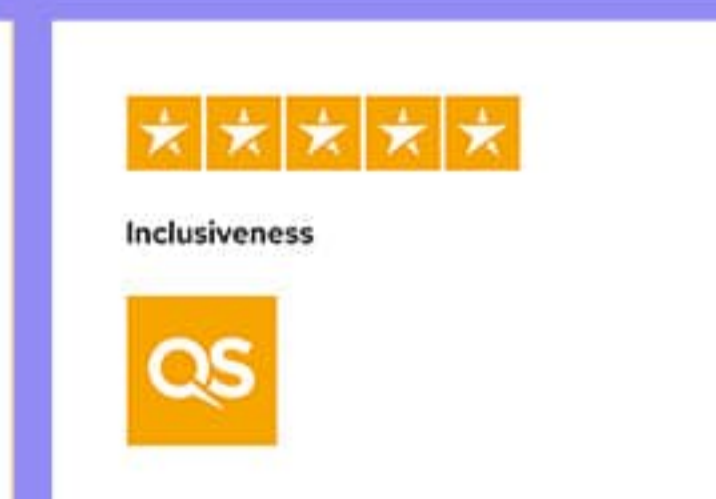
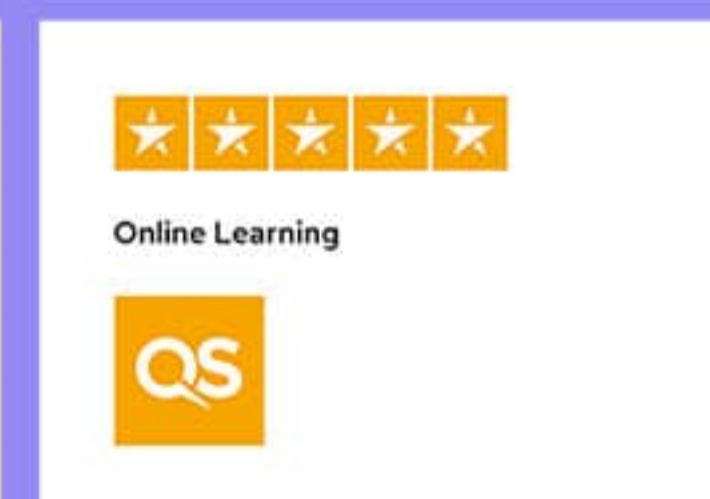
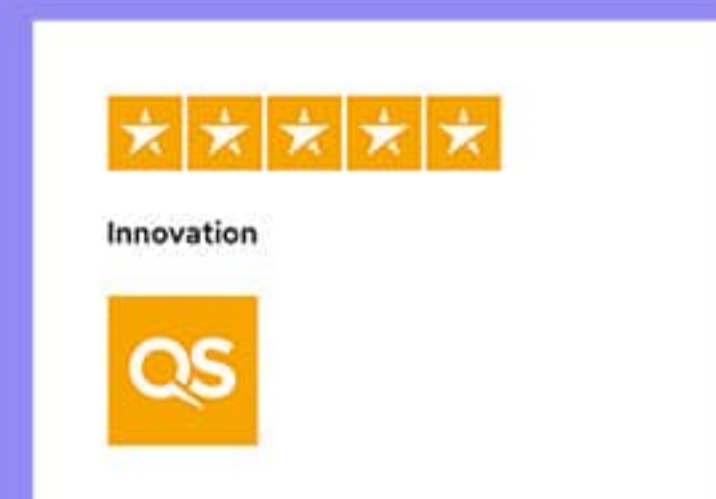
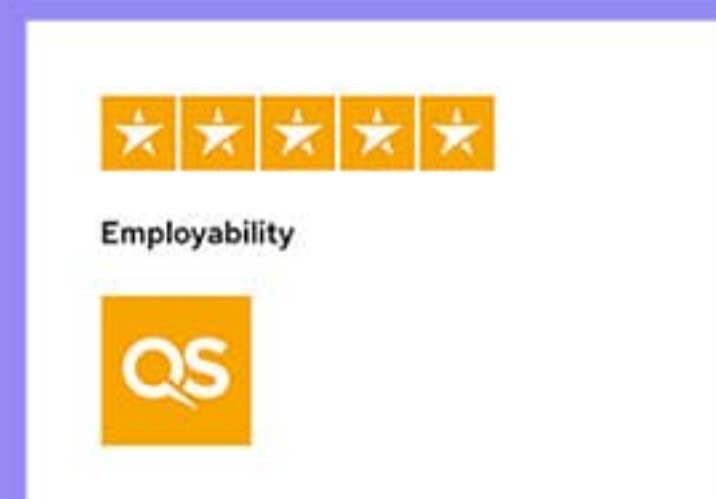
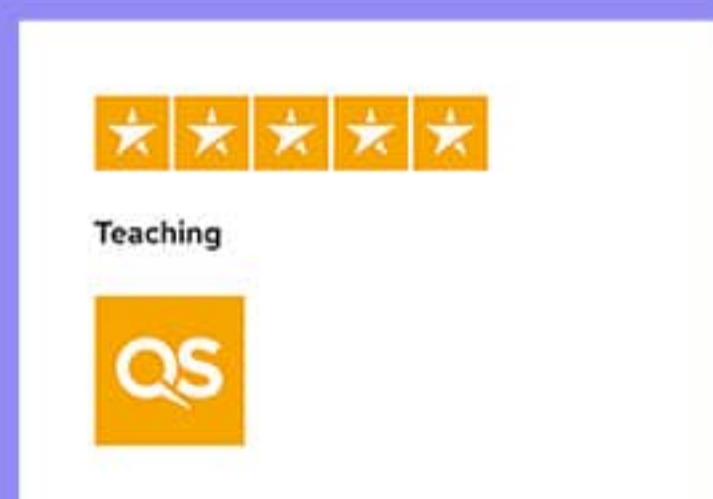
Global Technopreneur
University 2030



DIPLOMA IN MECHANICAL ENGINEERING



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



Centre for Academic
Development and Excellence
Universiti Tun Hussein Onn Malaysia

<https://cad.uthm.edu.my>
cad@uthm.edu.my



PUSAT PENGAJIAN DIPLOMA

UTHM KAMPUS PAGOH, HAB PENDIDIKAN TINGGI PAGOH
KM1, Jalan Panchor, 84600, Panchor, Johor.

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Universiti Tun Hussein Onn Malaysia
July 2022

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Foreword by the Vice Chancellor



Assalamualaikum Warahmatullahi Wabarakatuh and greetings.

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

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

implementation en route to your success.

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

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

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

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

Best wishes.

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

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

Foreword by the Deputy Vice Chancellor (Academic and International)



Assalamualaikum Warahmatullahi Wabarakatuh and greetings.

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

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

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

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

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

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

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

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

Foreword from Dean



Assalamualaikum Warahmatullahi Wabarakatuh and Warm Greetings

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

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

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

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

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

Wishing You Success.

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

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



Vision

To be a global technical university in sustainable technology and transportation

Mission

Provide technical solution for industry and community based on tauhidic paradigm

Education Philosophy of University

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

Logo of University

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

Symbolism:

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

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

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

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

Chancellor



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

Board of Directors of University

Chairman

YBhg. Dato' Sri Ibrahim bin Ahmad

Members

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

Vice Chancellor, Universiti Tun Hussein Onn Malaysia

YB. Dato' (Dr.) Haji Nooh bin Gadot

Advisor, Majlis Agama Islam Johor

YBhg. Dato' Dr. Mohd. Padzil bin Hashim

Putra Business School, Universiti Putra Malaysia

YBhg. Dato' Seri Dr. Ir. Haji Abdul Rashid bin Maidin

Managing Director, Pusat Bertauliah Akademik Profesional Koperasi Serbaguna Anak-anak Selangor Berhad (KOSAS)

YBrs. Dr. Sharifah Adlina binti Syed Abdullah

Ministry of Finance Malaysia

YBrs. Mr. Shahril Anwar Mohd Yunos

Managing Partner, Virtus Capital Partners Sdn. Bhd.

YBrs. Mdm. Elain Lockman

Chief Executive Officer and Co-Founder, Ata Plus Sdn. Bhd.

YBrs. Ts. Zainab binti Ahmad

Director-General, Polytechnic and Community College Education Department, Ministry of Higher Education Malaysia

YBrs. Prof. Dr. Yusri bin Yusof

Professor, Universiti Tun Hussein Onn Malaysia

Alternate Member

YBrs. Ts. Haji Mohamad Amin bin Hamat

Deputy Chief Director, Ministry of Higher Education

Secretary

YBrs. Mr. Abdul Halim bin Abdul Rahman

Registrar/Chief Operating Officer (COO), Universiti Tun Hussein Onn Malaysia

Members of Senate

Chairman

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

Vice Chancellor

Members

Prof. Ts. Dr. Azme bin Khamis

Deputy Vice Chancellor (Academic and International)

Prof. Dr. Mohd Shahir Shamsir Bin Omar

Deputy Vice Chancellor (Research and Innovation)

Prof. Sr. Ts. Dr. Lokman Hakim bin Ismail

Deputy Vice Chancellor (Student Affairs and Alumni)

Assoc. Prof. Ts. Dr. Mohd Kamarulzaki bin Mustafa

Provost UTHM Pagoh Campus

Prof. Ir. Dr. Md Saidin Bin Wahab

Assistant Vice Chancellor / Chief Digital Officer (CDO) (Digitalization and Infrastructure)

Assoc. Prof. Dr. Mas Fawzi bin Mohd Ali

Assistant Vice Chancellor (Strategic Planning and Quality)

Prof. Dr. Shahrudin bin Mahzan @ Mohd Zin

Dean, Centre for Graduate Studies

Prof. Ir. Ts. Dr. Mohd Irwan bin Juki

Dean, Faculty of Civil Engineering and Built Environment

Assoc. Prof. Dr. Rosli bin Omar

Dean, Faculty of Electrical and Electronic Engineering

Assoc. Prof. Ir. Ts. Dr Bukhari bin Manshor

Dean, Faculty of Mechanical and Manufacturing Engineering

Prof. Dr. Wan Fauzi@Fauziah binti Wan Yusoff

Dean, Faculty of Technology Management and Business

Assoc. Prof. Ts. Dr. Abdul Rasid bin Abdul Razzaq

Dean, Faculty of Technical and Vocational Education

Ts. Dr. Azizul Azhar bin Ramli

Dean, Faculty of Computer Science and Information Technology

Assoc. Prof. Dr. Mohamad Zaky Bin Noh

Dean, Faculty of Applied Science and Technology

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Mdm. Zaharah Binti Abd Samad
Chief Librarian

Mdm. Norliah Binti Yaakub
Legal Advisor

Centre for Diploma Studies

Centre Vision

Excellent in providing multidisciplinary education in science and technology

Centre Mission

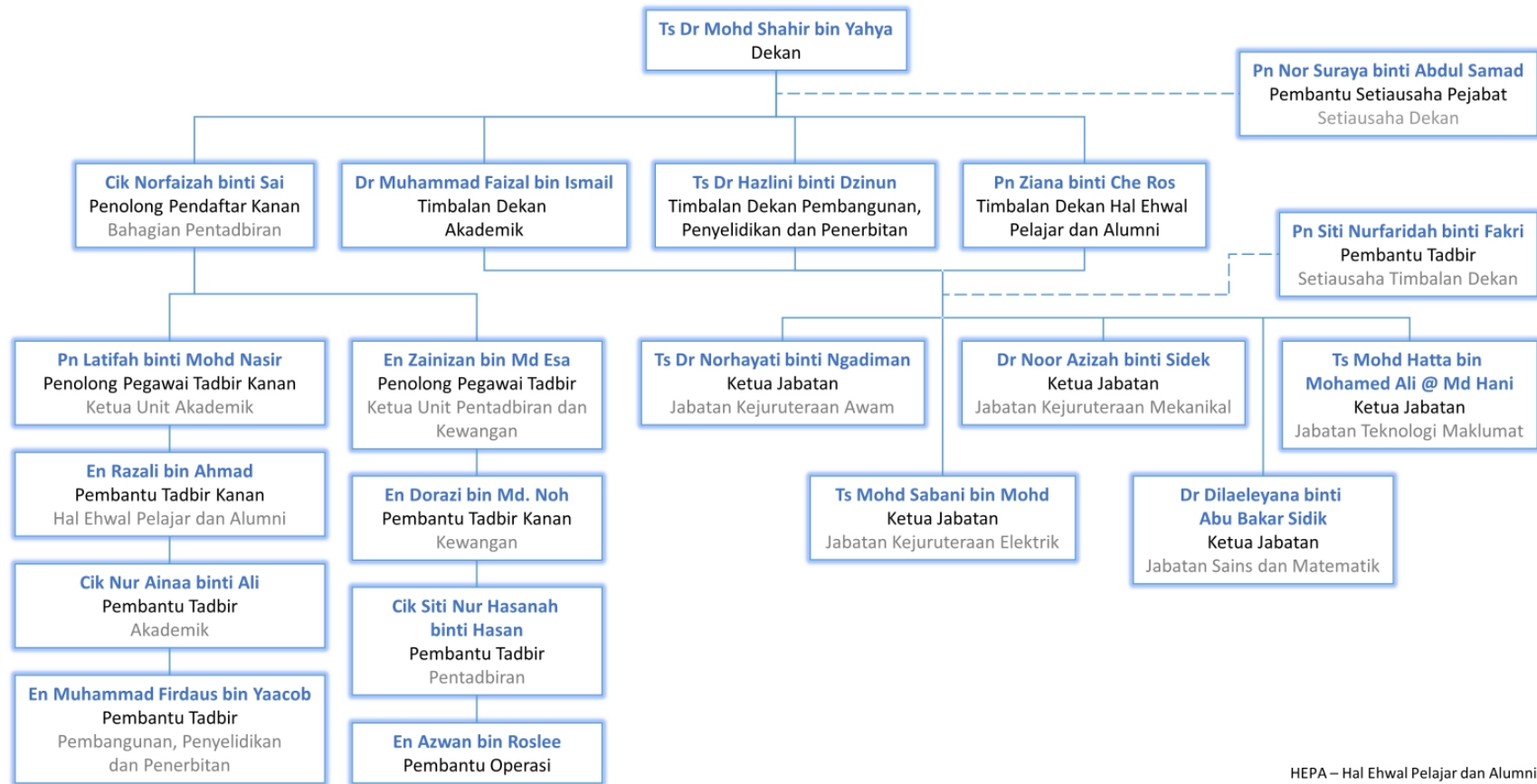
Producing graduates who contribute to national development through a holistic academic program

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

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

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

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



HEPA – Hal Ehwal Pelajar dan Alumni

CeDS Organization Chart

Centre External Examiner and Industrial Advisor

Department of Mechanical Engineering

External Examiner

Prof. Madya Dr. Mohd Rizal bin Salleh
Associate Professor
Faculty of Manufacturing Engineering
Universiti Teknikal Malaysia Melaka (UTeM)

Industrial Advisor

En. Maizul Zaihan bin Solehan
Assistant General Manager (Plant Head),
Anshin Precision Industries Sdn Bhd., Shah Alam

Staff Directory

Administration

Dean

Ts. Dr Mohd Shahir bin Yahya

Ph.D (Mechanical Engineering)(UTHM), M. Eng. (Mechanical & Manufacturing)(UPM),
B. Eng. (Mechanical Engineering)(UTM)

Deputy Dean (Academic)

Dr. Muhammad Faizal bin Ismail

PhD. (Electrical Engineering)(UTM), M. Eng. (Electrical Engineering)(UTM), B. Eng.
(Hons) (Electrical Engineering - Telecommunication.) (UTM)

Deputy Dean (Student Affairs and Alumni)

Hjh. Ziana bt Che Ros

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

Deputy Dean (Development , Research and Publication)

Ts. Dr. Hazlini binti Dzinun

PhD (Gas Engineering)(UTM), M. Eng. (Civil Engineering – Environment)(UTM), B.
Eng. (Hons)(Chemical Engineering.) (UTM)

Office Secretary

Nor Suraya binti Abdul Samad

BSc. (Computer Mathematics) (UiTM), Dip. (Computer Science)(UiTM)

Administrative Assistant (Deputy Dean Secretary)

Siti Nurfaridah binti Fakri

Dip. (Hotel & Catering Management) (Politeknik Sultan Ibrahim)

Senior Assistant Registrar

Cik Norfaizah binti Sai

BSc. Human Resources (UPM)

Assistant Administrative Officer (Academic)

Latifah binti Mohd Nasir

Dip.(International Business) (Politeknik Shah Alam)

Assistant Administrative Officer (Administrative and Finance)

Zainizan bin Md Esa

Dip. (Islamic Management & Administration) (Kolej Tek. Islam Antarabangsa Melaka)

Administrative Assistant (Clerical & Operation) Student Affairs and Alumni

Razali bin Ahmad

Administrative Assistant (Clerical & Operation) Administrative and Finance

Dorazi bin Md Noh

Administrative Assistant (Clerical & Operation) Administrative

Siti Nur Hasanah binti Hasan

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

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

General Office Assistant
Azwan bin Roslee

Department of Mechanical Engineering

Academic Staff

Head of Department

Dr. Noor Azizah binti Sidek
PhD. (Mechanical Eng.) (UTHM),
M.Eng. (Mechanical) (UTHM),
B. Eng (Mechanical) (UTHM),
Dip. Tech. (Mechanical) (KUiTTTHO)

Dr. Mohd Shahir bin Yahya
PhD. (Mechanical Eng.) (UTHM),
M.Eng.(Mechanical & Manufacturing Systems) (UPM),
B.Eng.(Hons)(Mechanical)(UTM)

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

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

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

En. Mahmud Abd Hakim bin Mohamad
M. Sc. (Aerospace) (UPM),
B.Eng. (Hons) (Mechanical) (KUiTTTHO),
Dip. Eng. (Mechanical) (PPD),
Cert. Eng.(Mechanical) (PUO)

En. Abdullah bin Wagiman
M.Eng. (Manufacturing) (UM),
B. Eng. (Hons) (Mechanical) (KUiTTTHO),
Dip. Eng.(Mechanical) (UTM)

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

Cert. Edu. (MPT)

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)

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)(PJB)

En. Muhammad Hanafi bin Asril Rajo Mantari

M. Eng. (Mechanical Aeronautic) (UTM),
B. Eng. (Hons)(Mechanical) (UTM),
Dip. Eng. (Mechanical) (UTM)

En. Ahmad Faiz bin Mat Zian @ Mat Zin

M.Eng. (Mechanical) (UTM),
B. Eng. (Hons)(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) (PPD),
Cert.Eng. Mechanical (Manufacturing) (PUO)

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)

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)

Nurmina Abdullah

M.Ed. (Technical and Vocational) (UTHM),

B. Eng (Mechanical) (UTHM),

Dip. Eng. (Mechanical) (Politeknik KK)

Programme Name

Diploma in Mechanical Engineering (DAM)

Programme Aims

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

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.

Programme Learning Outcomes (PLO)

These are the PLOs for Diploma in Mechanical Engineering:

- PLO 1 **Knowledge:**
Apply knowledge of mathematics, sciences, engineering fundamentals and engineering specialisation to mechanical engineering respectively in practical procedures and practices.
- PLO 2 **Problem analysis:**
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/development of solutions:**
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 **Investigation:**
Conduct investigations of well-defined problems, locate and search relevant codes and catalogues, conduct standard tests and measurements to provide valid conclusion.
- PLO 5 **Modern Tool Usage:**
Apply appropriate techniques, resources, and modern engineering and IT tools to well defined engineering problems, with an understanding of the limitations.
- PLO 6 **The Engineer and Society:**
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 **Environment and Sustainability:**
Understand and evaluate the sustainability and impact of engineering technician work in the solution of well-defined engineering problems in societal and environmental contexts.
- PLO 8 **Ethics:**
Understand and commit to professional ethics and responsibilities and norms of technician practice.
- PLO 9 **Individual and Team Work:**
Function effectively as an individual, and as a member in diverse technical teams.
- PLO 10 **Communications:**
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 **Project Management and Finance:**

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 **Lifelong Learning :**

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

Curriculum Structure

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 11502	Islamic Studies/Moral Studies	2	
1	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	19
		UQI 11402	Philosophy and Current Issues	2	
		UQ* 1**01	Co-Curriculum II	1	
		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	17
		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
					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	5
		UQI 11402	Philosophy and Current Issues	2	
		UQ* 1**01	Co-Curriculum II	1	
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

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

1. Modul Pengantar Kenegaraan dan Pembangunan Malaysia, (2018). Parit Raja : Penerbit UTHM
2. Mardiana Nordin dan Hasnah Hussin. (2014). Pengajian Malaysia. Shah Alam : Oxford Fajar
3. Mohamed Suffian Hashim. (1994). Mengenal Perlembagaan Malaysia. Edisi Kedua. Kuala Lumpur: Dewan Bahasa dan Pustaka.
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), Pemeraksanaan 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 Guide for 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. (2011). 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 assessment, marketing plans, operational plans, financial planning and business management plans.

References

1. Norliza Ghazali & Raudah Mohd Adnan: *Perniagaan dan Keusahawanan* (2016) Penerbit UTHM
2. Sarimah Hanim Aman Shah & Cecilia Soon Teik Lan (2016). *Entrepreneurship*. (4th ed). Oxford Fajar
3. Mohd Nor Hakimin Bin Yusoff & Fakhru Anwar Zainol. (2020). *Rancangan Perniagaan Untuk Keusahawanan*. Penerbit UMK
4. Kamal M.Y., Lukman Z.M. & Mazdan Ali Amaran. (2019). *Keusahawanan Konsep Dan Asas Pengurusan*. UNIMAS Publisher. ISBN 978-967-2298-02-1.
5. Abdul Aziz Ab Latif, Izaidin Abdul Majid, Mohd Abdullah Jusoh, Mohd Isnain Ali, Nur Asyikah Azahari, Mohamad Naim Idris (2018). *Asas Keusahawanan : Perusahaan Mikro, Kecil Dan Sederhana*. UMK Publisher. ISBN 978-967-22292-6-1

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 et 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. Giambatista 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, homogenous 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

This course introduces students 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)
5. Rahman, M. M. (2020). Statics. La Vergne: New Central Book Agency.
6. Potter, M. C., Nelson, E. W., Best, C. L., & McLean, W. G. (2021). Statics. McGraw-Hill
7. Meriam, J. L., Kraige, L. G., & Bolton, J. N. (2020). Statics, John Wiley & Sons, Inc.

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 courses.

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)
10. Sharma, Vikrant, et al. Engineering Mechanics: : Statics, Alpha Science International, 2018. (TA351 .S537 2018)

DAM 13701 Mechanical Engineering Workshop I

Synopsis

This course introduces students to safety regulations and provides the student with the skills of 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)
6. Smith, D., Ramirez, A., & Fuller, A. (2020). Technical drawing 101 with Autocad 2021: A multidisciplinary guide to drafting theory and practice.

DAM 13903 Dynamics

Synopsis

This course introduces students 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)
5. Meriam, J. L., Kraige, L. G., & Bolton, J. N. (2016). Engineering mechanics: 2. New York [u.a.: Wiley.
6. Potter, M. C., Nelson, E. W., Best, C. L., & McLean, W. G. (2021). Engineering mechanics: dynamics.
7. Meriam, J. L., Kraige, L. G., & Bolton, J. N. (2020). Meriam's Engineering Mechanics: Dynamics SI Version.

DAM 14203 Material Sciences

Synopsis

This course introduces students to 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. Callister, W. D., & Rethwisch, D. G. (2020). Materials science and engineering: An introduction.
5. Chung, Y., & Kapoor, M. (2022). Introduction to materials science and engineering.

DAM 14101 Engineering Laboratory II

Synopsis

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

References

1. Robert W. Soutas-Little, Daniel J. Inman, Daniel S. Balint, 2008, "Engineering mechanics : dynamics", Toronto: Thomson Learning. (TA352 .S684 2008)
2. R. C. Hibbeler, 2007, "Engineering mechanics : dynamics", Singapore: Pearson Education. (TA352 .H53 2007)
3. Potter, M. C., Nelson, E. W., Best, C. L., & McLean, W. G. (2021). Engineering mechanics: dynamics.
4. Meriam, J. L., Kraige, L. G., & Bolton, J. N. (2020). Meriam's Engineering Mechanics: Dynamics SI Version.
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. Callister, W. D., & Rethwisch, D. G. (2020). Materials science and engineering: An introduction.
8. Chung, Y., & Kapoor, M. (2022). Introduction to materials science and engineering.

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. Sagoon. 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

This course introduces students 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)
5. Ugural, A. C. (2022). Mechanical Engineering Design (SI Edition). Milton: Taylor & Francis Group.

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

This course introduces students to 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.]
5. Hibbeler, R. C., & Yap, K. B. (2018). 'Mechanics of materials', 9th Edition, Pearson Prentice Hall.
6. Craig, R. R., & Taleff, E. M. (2021). 'Mechanics of materials', John Wiley & Sons.
7. Goodno, B. J., & Gere, J. M. (2018). "Mechanics of materials", 9th Edition, Australia: Cengage Learning.

DAM 23403 Thermodynamics

Synopsis

Introduction to energy, heat and work, properties of pure substance, 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
5. Cengel, Y. A., & Boles, M. A. (2020). Thermodynamics: An engineering approach. Singapore: McGraw-Hill Education.

DAM 23501 Engineering Laboratory III

Synopsis

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

References

1. Craig, R. R., & Taleff, E. M. (2021). 'Mechanics of materials', John Wiley & Sons.
2. Hibbeler, R. C., & Yap, K. B. (2018). 'Mechanics of materials', 9th Edition, Pearson Prentice Hall.
3. Hibbeler R.C, 2014. 'Mechanics of Materials', 9th Edition, Pearson Prentice Hall. [TA405 .H54 2014]
4. Gere, James M, 2013, "Mechanics of Material", 8th Edition, Stamford, CT : Cengage Learning. [TA405 .G47 2013]
5. Beer, Ferdinand P., 2012, "Mechanics of Material", 6th Edition, McGraw-Hill. [TA405 .M434 2012]
6. Cengel, Y. A., & Boles, M. A. (2020). Thermodynamics: An engineering approach. Singapore: McGraw-Hill Education.
7. Yunus A. Cengel, Michael A. Boles (2015), "Thermodynamics: an engineering approach", New York: McGraw-Hill Higher Education, 2015. TJ265 .C46 2015
8. Mohammad Fahmi Abd Ghaffir, Amir Khalid, Mohd Faizal Mohideen Batcha, Sofian Mohd, Mahmud 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)
5. Sullivan, W. G., Wicks, E. M., & Koelling, C. P. (2020). Engineering economy. Pearson Education Limited.
6. Leland T. Blank, Anthony J. Tarquin. (2018). "Engineering economy", 8th Edition, Boston: McGraw-Hill.

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)
5. J. Uicker John, Gordon R. Pennock and Joseph E. Shigley, 2018 "Theory of machines and mechanisms", New York: Oxford University

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)
6. Cengel, Y. A., & Cimbala, J. M. (2018). Fluid mechanics: Fundamentals and applications. New York, NY: McGraw-Hill Education.

DAM 24001 Engineering Laboratory IV

Synopsis

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

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. Frank M. White, 2008 "Fluid Mechanics", McGraw Hill, 6th Edition. (TA357.W44 2008)
4. J. Uicker John, Gordon R. Pennock and Joseph E. Shigley, 2018 "Theory of machines and mechanisms", New York: Oxford University
5. W. L. Cleghorn, 2005, "Mechanics of machines", New York: Oxford University Press. (TJ170 .C53 2005)
6. Jerry R. Dunn, 2008, "Applied fluid mechanics : a student guide to solving problems", New York: McGrawHill Higher Education. (TA357 .D86 2008)
7. 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, Desember 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.

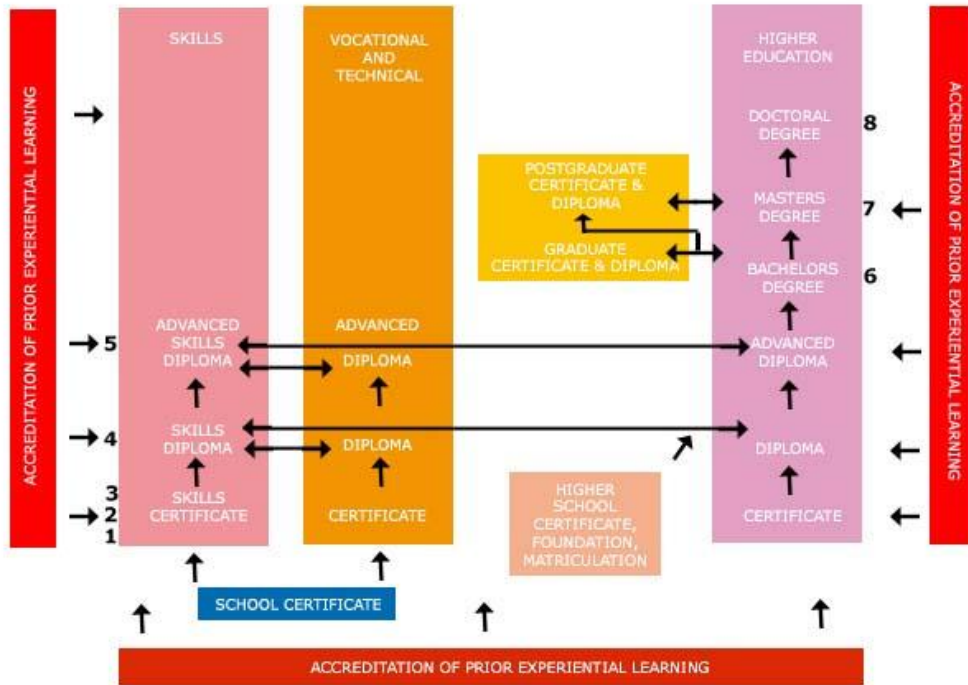
Mechanical engineering offers many opportunities as well as the satisfaction of helping to improve and enhance public quality of life in many settings.

Further education is prospect 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



MQF BASED ON QUALIFICATION LEVEL AND EDUCATIONAL PATHWAY



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



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