



ACADEMIC PROFORMA 2025/2026

DIPLOMA IN MECHANICAL ENGINEERING



WE ARE RANKED #1001-1200
(Overall 8,467 Evaluated Institutions)
Malaysia ranked #28
QS World University Rankings 2026



248
Universiti Tun Hussein Onn University of
Malaysia (UTHM)



PUSAT PEMBANGUNAN
AKADEMIK DAN TVET
CENTER FOR ACADEMIC AND TVET DEVELOPMENT
UNIVERSITI TUN HUSSEIN ONN MALAYSIA



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Universiti Tun Hussein Onn Malaysia
July 2025

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Foreword by the Vice Chancellor



Assalamualaikum Warahmatullahi Wabarakatuh and greetings.

I extend heartfelt congratulations and a warm welcome to each of you as you embark on your academic journey with us. Your decision to join UTHM marks a significant milestone, and I am deeply **honoured** by your trust and commitment.

As an academic institution, we not only recognize the importance of the intertwined dimensions of economic, social, and sustainability (ESG) factors in the post-pandemic era but also embrace our responsibility to actively contribute to their advancement. Our commitment is unwavering as we strive to strengthen our core business pillar by focusing on various crucial aspects.

Firstly, we are dedicated to enhancing our academic delivery to ensure our students receive the highest quality education in today's rapidly evolving world. This commitment involves continually refining our curriculum, integrating innovative teaching methods, and cultivating critical thinking skills. Our aim is to equip students with the knowledge and capabilities needed to effectively address complex societal challenges. Secondly, we place significant emphasis on research efforts that contribute to sustainability objectives. By fostering a culture of interdisciplinary collaboration, we strive to generate pioneering research and innovative solutions that tackle pressing economic, social, and environmental issues. Our goal is to make meaningful contributions to the sustainable development of both local and global communities.

In addition to our core priorities, we actively enhance our impact by engaging with diverse stakeholders. Through partnerships, community outreach programs, and knowledge exchange initiatives, we aim to extend our positive influence beyond our institution. By leveraging our expertise and resources, we seek to address societal needs, promote inclusive growth, and enhance well-being. Furthermore, our efforts are guided by a commitment to good governance. We uphold the highest standards of transparency, accountability, and ethical practices. By fostering responsible decision-making and cultivating a culture of integrity, we aim to create an environment that builds trust, encourages collaboration, and ensures the long-term sustainability of our institution.

In summary, our dedication centers on achieving dynamically synergistic sustainability. We reinforce our core business pillar through enhanced academic delivery, impactful research endeavours, and enriched services. Upheld by our unwavering commitment to good governance, we believe these principles empower us to actively contribute to shaping a more sustainable and resilient future for all.

Lastly, but certainly not least, I extend a heartfelt welcome to all new students. I invite you to become valued members of our community. As you embark on this transformative journey, rest assured that my commitment is to ensure your experiences are enriching and enjoyable. Additionally, I sincerely wish you success in all your endeavours as you navigate this educational path.

"With Wisdom, We Explore"

Best wishes.

PROFESSOR. DR. MAS FAWZI BIN MOHD ALI
Vice-Chancellor
Universiti Tun Hussein Onn Malaysia

Foreword by the Vice Chancellor



Assalamualaikum Warahmatullahi Wabarakatuh and Salam Sejahtera, Salam Malaysia Madani.

Firstly, congratulations and a warm welcome to all new students joining Universiti Tun Hussein Onn Malaysia (UTHM) for the academic session 2025/2026. Rest assured, at UTHM, we stand out with unique qualities and offerings that set us apart from others. We are fully committed to upholding our promises and ensuring you receive an exceptional educational experience. We are committed to your success with unwavering dedication, striving tirelessly to exceed your expectations.

Secondly, I extend my gratitude and congratulations to the Centre for Academic Development and TVET (CAD) and the faculties for their successful publication of this academic proforma. It is indeed a valuable resource that offers concise information about the various programs available. This proforma offers concise information about the various programs available and serving as a guiding tool for students, as well as assisting them in effectively planning their learning journey. By providing essential details and insights, it empowers students to make knowledge-based decisions and navigate their educational paths with clarity.

In addressing the nation's academic priorities, the Ministry of Higher Education Malaysia (MoHE) has recently initiated enhancements to academic infrastructures and infostructures, as well as emphasizing digitalization. These efforts are geared towards achieving conducive, safe, efficient, and high-quality education, while maintaining innovation, flexibility, and global competitiveness.

Additionally, to sustain students' interest and enrollment, several impactful steps being taken including hybrid programs and shortening the duration of study. Therefore, as an institution under MoHE, please anticipate our efforts toward these beneficial programs. Furthermore, we remain agile and committed to promoting Technical and Vocational Education and Training (TVET)-based academics as part of our vision to transform into a Global Technopreneur University (GTU) by 2030.

From our specific perspective, it is crucial to enhance, strengthen, and uphold our own programs and human capital. All our programs, totaling 110, are accredited by the Malaysian Qualification Agency (MQA) and their respective professional bodies. This accreditation is maintained through our qualified staff, both academic and non-academic, who undergo continuous upskilling and reskilling initiatives.

In conclusion, I sincerely hope that the initiatives implemented by UTHM will offer you invaluable experiences in exploring and acquiring competencies. With the introduction of this proforma, I envision outstanding academic accomplishments and success for each of you. This stage signifies a pivotal opportunity for you to positively impact both our nation and the global community.

Best wishes,

PROFESSOR DR. SHAHRUDDIN BIN MAHZAN @ MOHD ZIN
Deputy Vice Chancellor (Academic and International)
Universiti Tun Hussein Onn Malaysia

Foreword by the Dean



Assalamualaikum Warahmatullahi Wabarakatuh and Warm Greetings

Congratulations and a warm welcome to Universiti Tun Hussein Onn Malaysia (UTHM), a distinguished leader in TVET higher education. We are honored to have you join the Centre for Diploma Studies (CeDS), where we are committed to nurturing you into skilled semi-professionals in the fields of engineering, science, and technology.

At CeDS, our core mission is to manage and operate high-quality diploma programs that align with the dynamic needs of today's industries. Our vision is to produce graduates who will actively contribute to Malaysia's national development, equipped with a broad, well-rounded academic foundation. We offer seven diverse programs in

civil engineering, mechanical engineering, electrical engineering, chemical engineering, applied science, information technology, and animation technology, each designed to meet the latest industry trends.

In response to the growing demands of the digital economy, Industry 4.0 (IR 4.0), and the adoption of Artificial Intelligence (AI) technologies, we have continuously aligned our programs to ensure that they provide a comprehensive education that bridges the skills gap in the workforce. As Malaysia advances in its digital transformation agenda outlined in the 12th and 13th Malaysia Plans (RMK12 & RMK13), we strive to ensure that our graduates are equipped with the technical know-how and problem-solving capabilities needed to succeed in a technology-driven future.

All of our diploma programs are accredited by the Malaysia Qualifications Agency (MQA), ensuring the highest standards of education. Moreover, four of our engineering programs have received the prestigious accreditation from the Board of Engineers Malaysia (BEM), further reinforcing the quality and relevance of the education we offer.

UTHM is renowned not only for its world-class teaching facilities but also for its commitment to creating a conducive learning environment. Our campus infrastructure, which is continuously upgraded, includes state-of-the-art libraries, residential colleges, cafeterias, sports facilities, wireless internet, and more. These facilities are designed to support your academic journey and personal growth.

As you embark on your educational journey at UTHM, we encourage you to utilize this proforma as a guide to help you plan your studies and make the most of the opportunities available to you. Together, let us prepare for the future and contribute to shaping Malaysia's digital landscape.

Wishing you success in your studies and beyond.

"WITH WISDOM WE EXPLORE"

DR. MUHAMMAD FAIZAL BIN ISMAIL

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



HIS ROYAL HIGHNESS
TUNKU ISMAIL IBNI SULTAN IBRAHIM
Tunku Mahkota Johor

Pro-Chancellor



Yang Amat Mulia Tunku Idris Iskandar Al-Haj Ibni Sultan Ibrahim
Tunku Temenggong Johor



Yang Berhormat Tan Sri Dato' Dr. Haji Azmi Bin Rohani
Setiausaha Kerajaan Johor

Board of Directors of University

Chairman

YBhg. Dato' Sri Ibrahim bin Ahmad

Members

YBhg. Prof. Dr. Mas Fawzi bin Mohd Ali

Vice-Chancellor, Universiti Tun Hussein Onn Malaysia

Mrs. Mahfuzah binti Baharin

Deputy Under-Secretary,
(Sector of Tax Incentive & Sectoral) TSBC (GCS) Tax Division
Ministry of Finance Malaysia

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

Advisor, Johor Islamic Religious Council

YBhg. Datuk Md Jais bin Haji Sarday

Board Member, Universiti Tun Hussein Onn Malaysia

YBrs. Mr. Shahril Anwar bin Mohd Yunos

Managing Partner, Virtus Capital Partners Sdn Bhd

YBhg. Datuk Haji Mohd Lassim bin Burhan

Board Member, Universiti Tun Hussein Onn Malaysia

YBrs. Ir. Ts. Abdul Rahman bin Bahasa

Chief Executive Officer, Recove Group

YBrs. Encik Hasry bin Harun

Chief Executive Officer, Malaysia Rail Development Corporation

YBrs. Prof. Ir. Dr. Mohd. Amri bin Lajis

Professor, Universiti Tun Hussein Onn Malaysia

YBrs. Mohamad Irza bin Dahari @ Zahari

Administration and Diplomatic Officer, Department Of Higher Education

Secretary

YBrs. Mr. Naim bin Maslan

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

Members of Senate

Chairman

Prof. Dr. Mas Fawzi bin Mohd Ali

Vice Chancellor

Members

Prof. Dr. Shahrudin bin Mahzan @ Mohd Zin

Deputy Vice Chancellor (Academic and International)

Prof. Ts. Dr. Rabiah Binti Ahmad

Deputy Vice Chancellor (Research and Innovation)

Prof. Ts. Dr. Abdul Rasid bin Abdul Razzaq

Deputy Vice Chancellor (Student Affairs and Alumni)

Prof. Dr. Afandi bin Ahmad

Provost UTHM, Pagoh Branch Campus

Prof. Ir. Dr. Md Saidin Bin Wahab

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

Prof. Dr. Mohamad Zaky bin Noh

Dean, Centre for Graduate Studies

Prof. Ir. Ts. Dr. Mohd Haziman bin Wan Ibrahim

Dean, Faculty of Civil Engineering and Built Environment

Prof. Ts. Dr. Asmarashid Bin Ponniran

Dean, Faculty of Electrical and Electronic Engineering

Prof. Ts. Dr. Amir Bin Khalid

Dean, Faculty of Mechanical and Manufacturing Engineering

Assoc. Prof. Dr. Shafie Bin Mohamed Zabri

Dean, Faculty of Technology Management and Business

Ts. Dr. Mohd Hasril bin Amiruddin

Dean, Faculty of Technical and Vocational Education

Prof. Ts. Dr. Mohd Farhan bin Md. Fudzee

Dean, Faculty of Computer Science and Information Technology

Assoc. Prof. Ts. ChM. Dr. Hatijah binti Basri

Dean, Faculty of Applied Science and Technology

Assoc. Prof. Ts. Dr. Jumadi bin Abdul Sukor

Dean, Faculty of Engineering Technology

Dr. Muhammad Faizal bin Ismail

Dean, Centre for Diploma Studies

Dr. Lutfan bin Jaes

Dean, Centre for General Studies and Co-curricular

Assoc. Prof. Dr. Hj. Azmi Bin Abdul Latiff

Dean, Centre for Language Studies

Prof. Dr. Abd Rahman bin Ahmad

Dean, Johor Business School

Assoc. Prof. Dr. Rosli Bin Omar

Director, Centre for Academic Development and TVET

Assoc. Prof. Dr. Badaruddin bin Ibrahim

Director, Malaysia Research Institute for Vocational Education and Training

Dr. Zahrul Akmal bin Damin

Institute for Social Transformation and Regional Development (TRANSFORM)

Prof. Ts. Dr. Mohd Khairul bin Ahmad

Institute for Integrated Engineering(I²E)

Prof. Ts. Dr. Aeslina Binti Abdul Kadir

Faculty of Civil Engineering and Built Environment

Prof. Ts. Dr. Norzila binti Othman

Faculty of Civil Engineering and Built Environment

Prof. Ir. Dr. Erwan bin Sulaiman

Faculty of Electrical and Electronic Engineering

Prof. Dr. Nafarizal bin Nayan

Faculty of Electrical and Electronic Engineering

Prof. Dr. Hasan Zuhudi bin Abdullah

Faculty of Mechanical and Manufacturing Engineering

Prof. Dr. Ahmad Jais bin Alimin

Faculty of Mechanical and Manufacturing Engineering

Prof. Sr. Dr. Wan Zahari Wan Yusof

Faculty of Technology Management and Business

Prof. Ts. Dr. Alina binti Shamsuddin

Faculty of Technology Management and Business

Prof. Ts. Dr. Soew Ta Wee

Faculty of Technology Management and Business

Prof. Ts. Dr. Rosziati binti Ibrahim

Faculty of Computer Science and Information Technology

Prof. Dr. Rozaida binti Ghazali

Faculty of Computer Science and Information Technology

Prof. Ts. Dr. Zaidi bin Embong

Faculty of Applied Sciences and Technology

Prof. Ir. Dr. Mohd Amri bin Lajis

Faculty of Engineering Technology

Prof. Ir. Dr. Chan Chee Ming

Faculty of Engineering Technology

Ts. Dr. Khalid bin Isa

Director, Student Development Centre

Prof. Dr. Nazri bin Mohd Nawi

Director Centre Information Technology

Prof. Eur Ing. Ir. Ts. Dr. Shahiron bin Sahidan

Faculty of Civil Engineering and Built Environment

Mr. Naim bin Maslan

Registrar / Chief Operating Officer (COO) / Secretary of Senate

Mr. Ismail bin Harun

Bursar / Chief Financial Officer (CFO)

Mdm. Zaharah binti Abd Samad

Chief Librarian

Mdm. Norliah Binti Yaakub

Legal Advisor

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

Pengerusi Majlis Profesor Universiti

Centre for Diploma Studies

Centre Vision

Excellent in providing multidisciplinary education in science and technology

Centre Mission

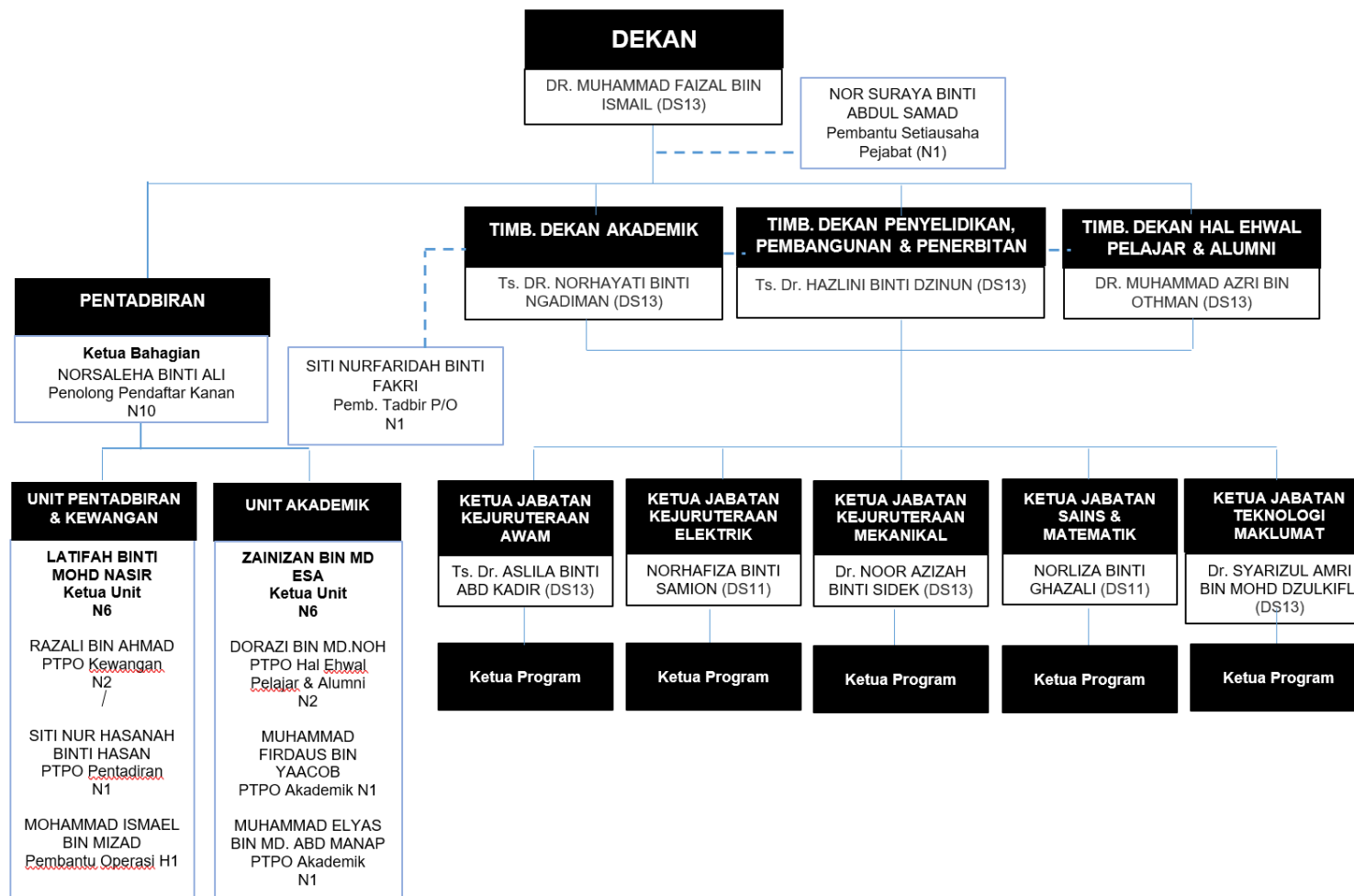
Producing graduates who contribute to national development through a holistic academic program

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 widest opportunity to further their studies at Bachelor Degree level at various faculties in UTHM.

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



CeDS Organization Chart

Centre External Examiner and Industrial Advisor

Department of Mechanical Engineering

External Examiner

Assoc. Prof. Ir. Ts. Dr. Mohd Hadzley Bin Abu Bakar

Head of Department

Faculty of Mechanical and Manufacturing Engineering Technology

Universiti Teknikal Malaysia Melaka (UTeM)

Industrial Advisor

Ir. Dr. Norshah Hafeez Shuaib

Executive Director

MTC Group of Companies

Staff Directory

Administration

Dean

Dr. Muhammad Faizal bin Ismail

PhD. (Electrical Engineering) (UTM),

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

B. Eng. (Hons) (Electrical Engineering-Telecommunication) (UTM)

Deputy Dean (Academic)

Ts. Dr. Norhayati Binti Ngadiman

PhD. (Environment) (UKM),

Master of Technical and Vocational Education (UTHM),

B. Eng. (Mineral Resources) (USM)

Deputy Dean (Student Affairs and Alumni)

Dr. Muhammad Azri Bin Othman

PhD. (Manufacturing Engineering) (UTeM),

M.Eng (Manufacturing System) (UPM),

B. Eng. Manufacturing (Robotic & Automation) (UTeM)

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. Computational Mathematics(UiTM),

Diploma in Computer Science (UiTM)

Administrative Assistant (Deputy Dean Secretary)

Siti Nurfaridah binti Fakri

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

Senior Assistant Registrar

Puan Norsaleha Binti Ali

M. Business Administration (UiTM), Bach. (Hons). Business Management (Finance),

Diploma in Banking (UiTM)

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

Dorazi bin Md Noh

Malaysian Certificate of Education SMK Dato' Sulaiman,

Administrative Assistant (Clerical & Operation) Administrative and Finance

Razali bin Ahmad

Malaysian Certificate of Education Sek Tinggi Batu Pahat

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

Diploma in Science UiTM

**Administrative Assistant (Clerical & Operation) Academic
Muhammad Elyas Bin Md. Abd Manap**

Malaysian Certificate of Education (SMK Taman Indah, Tampin)

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

Malaysian Certificate of Education (SMK KhirJohari)

General Office Assistant**Mohammad Ismael Bin Mizad**

Lower Secondary Assesment, Sek Men. Kebangsaan Dato' Bentara Luar

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)

Ts. Inv. Dr. Mohd Shahir bin Yahya

PhD. (Mechanical Eng.) (UTHM),
M.Eng.(Mechanical & Manufacturing Systems) (UPM),
B.Eng.(Hons)(Mechanical)(UTM)

Ts. Inv. Mahmod Abd Hakim bin Mohamad

M. Sc. (Aerospace) (UPM),
B.Eng. (Hons) (Mechanical) (KUiTTTHO),
Dip. Eng. (Mechanical) (PPD),
Cert. Eng.(Mechanical) (PUO)

Dr. Khairulnizam bin Othman

PhD. (Electrical Eng.) (UTHM),
MSc. (Mechatronic) (UniMAP),
B.Eng.(Hons.) (Mechatronic) (UniMAP)

Dr Muhammad Azri bin Othman

PhD (Manufacturing Engineering)(UTeM)
M.Eng (Manufacturing System Engineering) (UPM)
B. Eng. (Hons)(Manufacturing-Automation & Robotic) (UTeM),

Dr. Haslina binti Abdullah

PhD. (Mechanical Eng.) (UKM),
M.Eng. (Mechanical) (UTM),
B. 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)

Pn. Siti Mariam binti Basharie

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

Ts. Hj. Suhairi bin Ismail

B.Eng. (Mechanical) (UTM),
Dip. Eng.(Mechanical) (UTM)

En. Khairulnizam bin Ngadimon

M.Eng. (Mechanical) (UTM),
B. Eng. (Hons) (Mechanical) (UiTM)

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. Muhammad Hanafi bin Asril Rajo Mantari

Master in Engineering (Mechanical) (UTM),
Bachelor in mechanical engineering (Aeronautics) (UTM),
Dip. Eng. (Mechanical) (UTM)

En. Ahmad Faiz bin Mat Zian @ Mat Zin

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

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. Muhammad Qusyairi bin Abdul Rahman

B. Eng. (Hons.)(Manufacturing) (UTeM)

En. Mohd Hadri bin Mohamed Nor

B.Eng. (Hons.) (Mechanical) (UiTM),
Dip. Tech. (Mechatronics) (JMTi),

En. Ghazali bin Kadis

Dip. Eng Mechanical (Manufacturing) (PPD),
Cert.Eng. Mechanical (Manufacturing) (PUO)

Pn. 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 – Competent Technical Talent**
PEO 1 Graduates who are technically competent, and contributing effectively to sustainable technology or transportation industries, both locally and internationally.
- PEO 2 – Resilient Graduates with Technopreneurial Mindset**
PEO 2 Graduates who demonstrate resilience and technopreneurial mindset in supporting innovation and community based technical solutions.
- PEO 3 – Trustworthy Leaders and Lifelong Learners**
PEO 3 Graduates who uphold trustworthiness, and ethical values in leadership roles while continuously engaging in lifelong learning.

Programme Learning Outcomes (PLO)

These are the PLOs for Diploma in Mechanical Engineering:

PLO 1	Knowledge: Apply knowledge of applied mathematics, applied science, computing and engineering fundamentals and an engineering specialisation as specified in DK1 to DK4 respectively to wide practical procedures and practices.
PLO 2	Problem analysis: Identify and analyse well-defined engineering problems reaching substantiated conclusions using codified methods of analysis specific to their field of activity (DK1 to DK4).
PLO 3	Design/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, as well as cultural, societal, and environmental considerations as required (DK5).
PLO 4	Investigation: Conduct investigations of well-defined problems; locate and search relevant codes and catalogues, conduct standard tests and measurements (DK8).
PLO 5	Tool Usage: Apply appropriate techniques, resources, and modern engineering computing and IT tools to well-defined engineering problems, with an awareness of the limitations (DK2 and DK6).
PLO 6	The Engineering Technician and the World: Consider sustainable development impacts* to: society, the economy, sustainability, health and safety, legal frameworks, and the environment, in solving well defined engineering problems (DK1, DK5, and DK7).
PLO 7	Ethics: Understand and commit to professional ethics and responsibilities and norms of technician practice and including compliance with national and international laws. Demonstrate an understanding of the need for diversity and inclusion; (DK9)
PLO 8	Individual and Collaborative Team Work: Function effectively as an individual, and as a member in diverse and inclusive teams in multi disciplinary, face-to-face, remote and distributed settings; (DK9)
PLO 9	Communications: Communicate effectively and inclusively 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 10	Project Management and Finance: Demonstrate awareness of engineering management principles as a

	member or leader in a technical team and to manage projects and entrepreneurial activities in multidisciplinary environments.
PLO 11	Lifelong Learning : Recognize the need for, and have the ability for i) independent and life-long learning for self-improvement and ii) critical thinking in the face of specialised technical knowledge (DK8).

Curriculum Structure

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

Year	Semester	Course Code	Courses	Credit	Total
1	Special	UQU11402	Integrity and Anti-Corruption	2	6
		UQI 10402 / UQI 11502	Introduction to Islamic Studies / Introduction to Moral Studies	2	
		DAM 11602	Occupational Safety and Health	2	
	I	UHB 13002	Introduction of English Communication	2	18
		UHB 11*02	Foreign Language	2	
		UQ* 1**01	Co-Curriculum I	1	
		DAM 12203	Algebra for Mechanical Engineering	3	
		DAM 12403	Statics	3	
		DAM 12503	Material Sciences	3	
		DAM 12603	Metrology and Measurement	3	
		DAM 12101	Mechanical Engineering Workshop	1	
	II	UHB 23002	English for Career Development	2	20
		UQI 11402	Philosophy and Current Issues	2	
		UQ* 1xx01	Co-Curriculum II	1	
		DAM 12303	Mathematics for Mechanical Engineering	3	
		DAM 12703	Dynamics	3	
		DAM 12803	Basic Electrical and Electronic	3	
		DAM 12903	Technical Drawing & CAD	3	
		DAM 18903	Pneumatic and Hydraulic	3	
2	I	DAM 22703	Solid Mechanics	3	19
		DAM 22803	Thermodynamics	3	
		DAM 22903	Design Process and Modelling	3	
		DAM 22503	Computer Programming	3	
		DAM 27103	Manufacturing Process	3	
		DAM 24003	Technopreneurship	3	
		DAM 24101	Engineering Project I	1	
	II	DAM 25103	Mechanics of Machine	3	17
		DAM 26103	Fluid Mechanics	3	
		DA* XXX03	Elective*	3	
		DAM 24802	Renewable Energy	2	
		DAM 28103	Industrial Engineering	3	
		DAM 24103	Engineering Project II	3	
3	I	DAM 33010	Industrial Training (20 weeks)	10	10
					90

List of Elective Courses

Year	Semester	Course Code	Courses	Credit
2	II	DAM 25003	Additive Manufacturing	3
		DAM 26003	Design For Manufacturing and Assembly	
		DAM 27003	Modern Manufacturing Technology	
		DAE 33103	Internet of Thing	
		DAC 22703	Introduction to Site Supervisory	

List of University Courses

Year	Semester	Course Code	Courses	Credit	Total
1	Special	UQU 11402	Integrity and Anti-Corruption	2	4
		UQI 10402/ UQI 11502	Islamic Studies/Moral Studies	2	
	I	UHB 13002	Introduction of English Communication	2	5
		UHB 11*02	Foreign Language	2	
		UQ* 1**01	Co-Curriculum I	1	
	II	UHB 23002	English for Career Development	2	5
		UQI 11402	Philosophy and Current Issues	2	
		UQ* 1xx01	Co-Curriculum II	1	
					14

Synopsis of Courses

UQU 11402 Integrity and Anticorruption

Synopsis

This course covers the basic concepts of corruption, including the values of integrity, anti-corruption, forms of corrupt behavior, abuse of power in daily activities and organizations, and methods of preventing corruption. Corruption-related cases are also discussed. The teaching and learning methods are implemented in the form of 'experiential learning' through individual and group activities. By the end of this course, students will be able to understand the practices of integrity, concepts of corruption, anti-corruption, and abuse of power, as well as the prevention of corruption in society and organizations.

References

1. Mohamad Tarmize Abdul Manaf (2020). Nota Pencegahan rasuah. Bahagian Pendidikan Masyarakat, Suruhanjaya Pencegahan Rasuah Malaysia. Putrajaya.
2. Mohamad Tarmize Abdul Manaf et al. (2020). Kursus Integriti dan Rasuah IPT. Bahagian Pendidikan Masyarakat, Suruhanjaya Pencegahan Rasuah Malaysia. Putrajaya.
3. Mohd Firdaus Ramlan (2021). Tumbuk Rusuk: Pengkisahan Dari Tirai Besi. Akademi Kajian Rantau Nusantara Akar. Batu Caves, Selangor.
4. Pusat Governans, Integriti dan Antirasuah Nasional (2019). Pelan Antirasuah Nasional 2019-2023. Jabatan Perdana Menteri, Putrajaya.
5. Syed Hussein Alatas (1999). Corruption and the Destiny of Asia. Simon and Schuster Asia.
6. Syed Hussein Alatas. (2009). Rasuah: Sifat, Sebab dan Fungsi. Kuala Lumpur: Dewan Bahasa dan Pustaka.
7. Zulkanain Abdul Rahman, Ahmad Kamal Ariffin Mohd Rus & Noor Ain Mat Noor (2017). Sejarah Perjuangan SPRM: Satu Perjalanan. Universiti Malaya, Kuala Lumpur.

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 13002 Introduction To English Communication

Synopsis

This course aims to enhance the students' level of proficiency in the four language skills (listening, speaking, reading & writing) and to equip them with adequate communicative abilities at the tertiary level. Through guided or independent learning, students will be able to identify relevant information in texts on topics of interest and to write on familiar topics.

References

1. Argentar, D. M., Gillies, K. A. N., Rubenstein, M. M., & Wise, B. R. (2020). Reading and writing strategies for the secondary English classroom in a PLC at work: A guide to closing literacy achievement gaps and improving student ELA standards skill development. Solution Tree.

2. Bottomley, J., Maude, K., Prymachuk, S., & Waugh, D. (2019). Communication skills for your education degree. Critical Publishing.
3. Brownlie, F. (2019). Grand conversations, thoughtful responses: A unique approach to literature circles. Portage & Main Press.
4. Raymond Murphy (2019). English Grammar in Use Books and Interactive eBooks 5th edition: A self- study Reference and Practice Book for Intermediate Learners of English (5th). Cambridge University Press Edisi : 5 / No. Semakan : 2
5. Vorholt, J. (2018). New ways in teaching speaking, second edition. TESOL Press.

UHB 23002 English for Career Development

Prerequisite: UHB 13003 Introduction To English Communication

Synopsis

This course employs a task-based learning approach and focuses on developing students' delivery of speech in oral interactions relevant to their career development. 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 skills necessary in preparing their professional advancement.

References

1. Greer, T. W., Mills, M. T., & Lapka, S. (2024). The influence of linguistic profiling on perceived employability: A new application of the systems theory framework of career development. *Career Development International*, 29(3), 352–366. <https://doi.org/10.1108/CDI-07-2023-0231>
2. Harrison, J. A., & Donald, W. E. (2024). Editorial: Introducing the new practitioner insights section at Career Development International. *Career Development International*, 29(4), 413–414. <https://doi.org/10.1108/CDI-08-2024-360>
3. Martins, T., & Faciola, A. (2025). Shaping future professionals: The role of mentoring in graduate education and career development. *Journal of Dairy Science*. <https://doi.org/10.3168/jds.2024-26178>
4. Yang, A. M. (2023). The 5-day job search: Proven strategies to answering tough interview questions & getting multiple job offers. Annie Yang Financial.
5. Bazine, N., Chénard-Poirier, L. A., Battistelli, A., & Lagabriele, M.-C. (2023). Who is successful in career development? A person-centered approach to the study of career orientation profiles. *Career Development International*, 28(6–7), 772–792. <https://doi.org/10.1108/CDI-11-2022-0301>
6. Cook, S. (2019). Making a success of managing and working remotely: 4.1 The right to flexible working (p. 36). IT Governance Publishing. <https://app.knovel.com/hotlink/pdf/id:kt012G0791/making-success-managing/right-flexible-workin>

UHB 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 24003 Technopreneurship

Synopsis

This course provides a comprehensive understanding of the fundamentals of technopreneurship for launching a starting up an entrepreneurial venture. Topics include assessing the process of identifying business opportunities, idea generation, exploring the economic environment for new business ventures, applying technology in entrepreneurship, social business models and developing sustainable business plans. By the end of the course, students will be exposed to various case studies of successful entrepreneurs and will be equipped with the tools and strategies to launch technology-driven ventures in a rapidly evolving global marketplace.

References

1. Kuratko, D. F. Entrepreneurship: Theory, process and practice. 11th Edition. Mason,OH: South- Western, Cengage Learning. 2020. ISBN-13: 9780357033890
2. Arshad, Azlin Shafinaz, Kamall Khan, Yasmin, Zainal Abidin, Zanariah, Mohammad Kamaruddin, Laila, Syed Marzuki, Sharifah Zannierah. (2022). UiTM Press, Shah Alam, Selangor. ISBN 9789673638376
3. Zulnaidi Yaacob. Keusahawanan: Ekosistem dan Prestasi. Penerbit USM. 2023. ISBN 9789674617578
4. Kyriaki Papageorgiou & Olga Kokshagina. Envisioning the Future of Learning for Creativity, Innovation and Entrepreneurship. De Gruyter. 2022. ISBN:9783110752205
5. Collavo, T. (2022). Foundations of Social Entrepreneurship: Theory, Practical Tools and Skills (1st ed.). Routledge. <https://doi.org/10.4324/97810031>

DAM 11602 Occupational Safety and Health

Synopsis

This course provides students with the essential knowledge and skills required to understand and apply the principles of maintaining a safe and healthy work environment. It explores key aspects of workplace safety, health hazards, accident prevention, and the legal regulations governing Occupational Safety and Health (OSH). Topics covered include Health, Safety & Environment Management, Risk Management and Assessment, Physical Injury & Controls, Health Hazards, Accident Investigation & Reporting, and Ethics in OSH. The course emphasizes the integration of theoretical concepts with practical application. Upon completion, students will be equipped to solve problems in line with relevant laws, such as the Safety and Health Act, the Factory and Machinery Act, and the Environmental Act. They will also be proficient in conducting Hazard Identification, Risk Assessment, and Risk Control (HIRARC), and will apply safety ethics while ensuring compliance with legal standards during HIRARC project execution.

References

1. Malaysia, Legal Research Board. (2019). Occupational Safety and Health Act 1994 (Act 514) and regulations and orders. International Law Book Services. Call number: KPG1390 .M34 2019 rw
2. Charles D. Reese. (2016). Occupational health and safety management : a practical approach. 3rd ed. CRC Press. Call number: RC967 .R44 2016
3. Mark A. Friend and James P. Kohn. (2018). Fundamentals of occupational safety and health. 7th ed. Lanham : Bernan Press. Call number: T55 .F74 2018.
4. David L. Goetsch. (2015). Occupational safety and health for technologists, engineers, and managers. 8th ed. Boston: Pearson. Call number: T55 .G63 2015.
5. Thomas D. Schneid. (2008). Corporate safety compliance : OSHA, ethics, and the law. Boca Raton : CRC Press. Call number: T55 .S33 2008

DAM 12203 Algebra for Mechanical Engineering

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. Fine, B. et al . (2017). Algebra and Number Theory: A Selection of Highlights. Germany: Walter de Gruyter GmbH. <https://ebookcentral.proquest.com/lib/uthm/ebooks/detail.action?docID=5049535>
3. Saeid, A. B., Daneshpayeh, R., Jahanpanah, S., & Xin, X. L. (2024). On L-sub Q-algebras. Soft Computing, 1-14.
4. Amato, G., Calosci, M., Maggesi, M., & Brogi, C. P. (2020). Universal algebra in UniMath. Mathematical Structures in Computer Science, 1-23.
5. Bell, J., & Buzaglo, L. (2024). Enveloping Algebras of Derivations of Commutative and Noncommutative Algebra.

DAM 12303 Mathematics for Mechanical Engineering

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. Mendelson, Elliott. 2022. Schaum's Outline of Calculus. 7th ed. New York: McGraw Hill. <https://www-accessengineeringlibrary-com.ezproxy.uthm.edu.my>
2. Abd. Wahid Md. Raji. (2018). Differential Equations for Engineering Students. Johor Bahru. UTM Publication. TA347.A32 2018.
3. Yang, Xin-She. Engineering Mathematics with Examples and Applications, Elsevier Science & Technology, 2017. ProQuest Ebook Central, <https://ebookcentral.proquest.com/lib/uthm-ebooks>
4. Khan, R. N. (2023). Is Mathematics a Barrier for Engineering?. International Journal of Mathematical Education In Science & Technology, 54(9), 1853-1873.
5. Rzyankina, E., George, F., & Simpson, Z. (2024). Enhancing Conceptual Understanding in Engineering Mathematics Through E-Textbooks. IEEE Transactions on Education, 1- 8.

DAM 12403 Statics

Synopsis

This course introduces the fundamental principles of statics, covering topics such as Introduction to Statics, Statics of Particles, Statics of Rigid Bodies, Analysis of Structures, Centroid and Centre of Gravity, and Friction. The course emphasizes the integration of theoretical knowledge, investigative methods, and practical skills. Upon completion, students will be able to apply statics concepts to solve engineering problems, perform accurate measurements and investigations, and effectively use laboratory tools to conduct static experiments.

References

1. Potter, Merle C., E. W. Nelson, Charles L. Best, and W. G. McLean. 2021. Schaum's Outline of Engineering Mechanics: Statics. 7th ed. New York: McGraw Hill. (<https://www-accessengineeringlibrary-com.ezproxy.uthm.edu.my>)
2. Sharma, Vikrant, et al. Engineering Mechanics: : Statics, Alpha Science International, 2018. (ProQuest Ebook Central, <https://ebookcentral.proquest.com/lib/uthm-ebooks>)
3. Rahman, M. M. (2020). Statics. La Vergne: New Central Book Agency.
4. Potter, M. C., Nelson, E. W., Best, C. L., & McLean, W. G. (2021). Statics. McGraw-Hill
5. Meriam, J. L., Kraige, L. G., & Bolton, J. N. (2020). Statics, John Wiley & Sons, Inc.

DAM 12503 Material Sciences

Synopsis

This course delves into the fundamental aspects of materials, including their structure, characteristics, and environmental impact. Students will explore topics such as solidification, crystal defects, diffusion in solids, phase diagrams, and kinetic heat treatment. Emphasizing design, practical skills, and lifelong learning, the course empowers students to proficiently analyze material science problems, conduct accurate experiments, and skillfully apply technical processes. Through a comprehensive understanding of ferrous, non-ferrous metals, and other materials, learners gain valuable insights into the material world.

References

1. William D. Callister JR. and David G. Rethwisch, 2020, "Materials Science and Engineering: An Introduction", 10th edition, Hoboken, NJ: John Wiley & Sons. (TA403 | .C34 2020)
2. Atwater, Mark A., 2019, "Materials and Manufacturing: An Introduction to How They Work and Why It Matters", 1st edition, New York: McGraw-Hill Education. <https://www-accessengineeringlibrary-com.ezproxy.uthm.edu.my>
3. Roberge, Pierre R., 2019, "Handbook of Corrosion Engineering", 3rd edition, New York: McGraw-Hill Education. <https://www-accessengineeringlibrary-com.ezproxy.uthm.edu.my>
4. Mark A. Atwater, 2019, "Materials and Manufacturing: An Introduction to How they Work and Why it Matters". <https://www-accessengineeringlibrary-com.ezproxy.uthm.edu.my/content/book/9781260122312>
5. William D. Callister and David G. Rethwisch, 2013, "Fundamentals of Materials Science and Engineering", 4th edition, Singapore : John Wiley and Son. (TA403 | .C34 2013)

DAM 12601 Metrology and Measurement

Synopsis

This course introduces the fundamental concepts of metrology and measurement techniques, focusing on their application in engineering and manufacturing processes. Students will explore limits and fits, geometric dimensioning and tolerancing (GD&T), gauge repeatability and reproducibility, measuring instruments, comparators, gauges, and surface finish measurement. Practical sessions emphasize using industry-standard tools and methodologies for precise and reliable measurements. The course also fosters teamwork and communication skills through collaborative problem-solving and reporting of measurement outcomes.

References

1. Oberg Erik, Jones Franklin D., Horton Holbrook L., Ryffel Henry H., & McCauley Christopher J. (2024). 4.1.1.4 Geometric Dimensioning and Tolerancing (GD&T). In Machinery's Handbook (32nd Edition). Industrial Press.
2. Yadav, Sanjay, Shanay Rab, S. K. Jaiswal, Ashok Kumar, and Dinesh K. Aswal. 2023. Industrial Metrology : Introduction. Singapore: Springer Nature Singapore. doi:10.1007/978-981-99-2074-7_34.
3. Seifi Mohsen, Bourell David L., Frazier William, & Kuhn Howard. (2023). 28.2.4 Geometric Dimensioning and Tolerancing for Complex Geometries. In ASM Handbook®, Volume 24A - Additive Manufacturing Design and Applications. ASM International.
4. Catoen Bruce, & Rees Herbert. (2021). 17.3 Geometric Dimensioning and Tolerancing. In Injection Mold Design Handbook. Hanser Publishers
5. Henzold Georg. (2021). Geometrical Dimensioning and Tolerancing for Design, Manufacturing and Inspection - A Handbook for Geometrical Product Specification

DAM 12703 Dynamics

Synopsis

This course provides an in-depth exploration of the fundamental principles of dynamics, a core area of engineering. It emphasizes a balance between theoretical concepts and practical applications, equipping students with the tools needed to solve complex, real-world engineering challenges. Through a combination of rigorous analysis and problem-solving strategies, the course bridges foundational knowledge and its use in dynamic engineering.

References

1. Merle C. Potter, E. W. Nelson, Charles L. Best, W. G. McLean, 2021. "Schaum's Outline of Engineering Mechanics: Dynamics", 7th Edition, McGraw Hill. eBook.
2. Ping Yi, Jun Liu, Feng Jiang, 2022 "Engineering Mechanics,", EDP Sciences & Science Press. eBook
3. Michael Plesha, Gary Gray; Francesco Costanz, "ISE EBook Online Access for Engineering Mechanics: Statics and Dynamics", 2022, McGraw Hill. 2022. eBook.
4. Andrew Pytel, Jaan Kiusalaas and Raj Chhabra, 2017, "Engineering Mechanics : Dynamics: 4th ed", Australia : Cengage Learning. (TA352.P973 2017 (1))
5. Russell C. Hibbeler, 2016, "Engineering Mechanics: Dynamics:14th ed.", Hoboken, NJ ; Singapore : Pearson. (TA352 .R87 2016)

DAM 12803 Basic Electrical and Electronics

Synopsis

This course introduces the fundamental principles of basics of electrical and electronic concepts, including atomic structure, resistance, conductance, color codes, Ohm's law, power and energy, series circuits, parallel circuits, series-parallel resistive circuits, Kirchhoff's laws, the magnetic field, magnetic force, intensity, permeability, magnetic circuits, hysteresis, the laws of Faraday, Fleming, and Lenz, self and mutual inductance, charge, electric flux, capacitance, voltage, alternating current, phase diagram, resonant circuits, single-phase transformers, ideal arrangements, efficiency, and semiconductor devices. Additionally, students will solve problems accurately according to the knowledge of engineering statics concepts, theories, and formulas. They will conduct investigations and measurements in electric and electronic circuits to ensure accurate, reliable, and valid experimental data. Proficiency in electronic circuit measurement and analysis will be demonstrated by effectively using tools, software, and laboratory equipment, while proposing continuous improvements in circuit analysis by integrating findings into real-world applications and solutions.

References

1. Olivier, J. C.. Electrical Circuits: a Primer, Artech House, 2018. (ProQuest Ebook Central, <https://ebookcentral.proquest.com/lib/uthm-ebooks>)
2. Chiras, Dan. Solar Electricity Basics - Revised and Updated 2nd Edition : Powering Your Home or Office with Solar Energy, New Society Publishers, 2019. (ProQuest Ebook Central, <https://ebookcentral.proquest.com/lib/uthm-ebooks>)
3. Wang, Meizhong. (2019). Understandable Electric Circuits - Key Concepts (2nd Edition). Institution of Engineering and Technology (The IET). (Retrieved from <https://app.knovel.com>)

4. Hughes, Austin Drury, Bill. (2019). Electric Motors and Drives - Fundamentals, Types and Applications (5th Edition). Elsevier. Retrieved from <https://app.knovel.com>)
5. Vadari, Mani. (2020). Electric System Operations - Evolving to the Modern Grid (2nd Edition) - 3.1.1 Capacitors and Reactors. Artech House. (Retrieved from <https://app.knovel.com>)

DAM 12903 Technical Drawing & CAD

Synopsis

This course provides the student with the skill to produce technical drawings using the following drafting skills i.e. technical drafting, basic geometric construction, single and multi-view drawings, scale measurement and the reading of technical drawings through drawings and related assignments. Students will also practice building drawing projects to apply their skills using AutoCAD software.

References

1. Simonovski, Vladimir F. 2021. SketchUp for Civil Engineering and Heavy Construction: Modeling Workflow and Problem Solving for Design and Construction. 1st ed. New York: McGraw Hill.
2. Baumbach, Wally. Victoria, "Introduction to Drafting and AutoCAD 2D", BC Open Textbook Project, 2021
3. Cogorno, Gene R. 2020. Geometric Dimensioning and Tolerancing for Mechanical Design. 3rd ed. New York: McGraw-Hill Education.
4. Shoukry, Yasser Pandey, Jaiprakash. (2020). Practical Autodesk AutoCAD 2021 and AutoCAD LT 2021. Packt Publishing.
5. Hamad, Munir M.. (2020). AutoCAD® 2021 - Beginning and Intermediate. Mercury Learning and Information.
6. Shrock, Cheryl R. Heather, Steve. (2019). Beginning AutoCAD® 2020 - Exercise Workbook. Industrial Press.

DAM 12101 Mechanical Engineering Workshop

Synopsis

This course introduces students to the knowledge and practical in mechanical engineering workshop. It emphasizes on fitting, composite fabrication, welding, joining, metal fabrication, turning and milling machining processes. These practical skills will be applied to several related projects.

References

1. K.C. John (2010) Mechanical Workshop Practice, 2nd. Ed. New Delhi, PHI Learning Ptd. Ltd.
2. U.K Singh, Manish Dwivedi (2009). Manufacturing Process. 2nd Ed. India, New Age International
3. Noor Azrina Bt. Ahmad, Mohd. Firdaus B. Mohd. Noor, NurRaihana Bt. Sukri (2021), Workshop Technology Handtools , 1st Ed. Politeknik Banting.
4. Culey, Ron (2017) Fitting And Machining, Melbourne, RMIT Publishing.
5. David A Stephenson, John S. Agapiou (2016) Metal Cutting Theory And Practices, 3rd Ed. CRC Press.

DAM 18903 Pneumatic and Hydraulic

Synopsis

This course introduces students to the fundamental knowledge and principles of pneumatics, electro-pneumatics, hydraulics, electro-hydraulics and programmable logic controller (PLC) system. Student will learn how to design the pneumatic, hydraulic and programmable logic controller circuits according to standards, install the components, wiring and test the installed system. Besides the application of these systems to the practical applied problems, students will also expose and apply these principles to several related workshop practice.

References

1. Oberg, Erik Jones, Franklin D. Horton, Holbrook L. Ryffel, Henry H. McCauley, Christopher J., 2024 "Machinery's Handbook", 32nd Edition, Industrial Press. <https://app-knovel-com.ezproxy.uthm.edu.my/>
2. Bolton, W, 2015, "Programmable Logic Controllers", 6th ed., Elsevier. <https://app-knovel-com.ezproxy.uthm.edu.my/>
3. Parr, Andrew, 2011 "Hydraulics and pneumatics : a technician's and engineer's guide", 3rd ed., Elsevier. [TJ840 .P37 2011]
4. Groover, M. P. (2008). "Automation, Production System and Computer Integrated Manufacturing", 3rd ed., Prentice Hall. [TS183.G76.2008]
5. Mobley, R.K. 2000 "Fluid Power Dynamics" Elsevier. <https://app-knovel-com.ezproxy.uthm.edu.my/>

DAM 22703 Solid Mechanics

Synopsis

This course introduces students to stress and strain, shear force and bending moment, bending stress, torque, thin cylinder, complex stress and column. The course emphasizes the integration of theoretical knowledge, investigative methods, and practical skills. Upon completion, students will be able to apply solid mechanics concepts to solve engineering problems perform accurate measurements and investigations, and effectively use laboratory tools to conduct solid mechanics experiments.

References

1. Craig, R. R., & Taleff, E. M. (2021). 'Mechanics of materials', John Wiley & Sons.
2. Hibbeler R.C, 2022. 'Mechanics of Materials', 11th Edition, Pearson Prentice Hall.
3. Barry J. Goodno, James M. Gere · 2021", Mechanics of Materials, Stamford, CT : Cengage Learning.
4. Potter, Merle C. (2020). Schaum's Outline of Strength of Materials. 7th ed. New York: McGraw-Hill Education
5. Sadegh, Ali M., and William M. Worek, (2018). Marks' Standard Handbook for Mechanical Engineers. 12th ed. New York: McGraw-Hill Education.

DAM 22803 Thermodynamics

Synopsis

This course introduces the principles of thermodynamics, covering topics such as basic concepts, energy interactions, properties of pure substances, ideal gases, and the first and second laws of thermodynamics, including entropy. Students will develop problem-solving skills using thermodynamic theories and formulas, conduct accurate investigations to ensure reliable experimental data, and demonstrate proficiency with

laboratory tools and techniques. Emphasizing knowledge, investigation, and practical skills, this course equips students to analyze and solve engineering energy systems effectively.

References

1. Cengel, Y. A., & Boles, M. A. (2020), Thermodynamics: An engineering approach. Singapore: McGraw-Hill Education.
2. Yunus A. Cengel, Michael A. Boles & Kanoğlu M. (2019), "Thermodynamics: an engineering approach (Ninth Edition)", New York: McGraw-Hill Higher Education, 2019. (TJ265.C46 2019)
3. Potter, Merle C., and Craig W. Somerton. (2020), Schaum's Outline of Thermodynamics for Engineers. 4th ed. New York: McGraw-Hill Education. <https://www-accessengineeringlibrary-com.ezproxy.uthm.edu.my>
4. Tosun, Ismail. (2020), "Thermodynamics - Principles and Applications (Second Edition)". <https://doi.org/10.1142/11740>
5. Turns, S., & Pauley, L. (2020), "Thermodynamics: Concepts and Applications (2nd ed.)" Cambridge: Cambridge University Press. doi:10.1017/9781316840979

DAM 22903 Design Process and Modelling

Synopsis

This course offers a comprehensive understanding of the design process covering key areas such as design formulation, concept design, configuration design, parametric design, and detail design, as well as product design and development and mechanical components in product design. Additionally, the course provides extensive training in SolidWorks software, focusing on skills ranging from basic to advanced techniques in part modelling, part drawing, assembly modelling, assembly drawing, and simulation.

References

1. Rudolph J. Eggert, 2005, "Engineering Design", Upper Saddle River, New Jersey: Pearson Education (TA174 .E34 2005).
2. George E.Dieter, Linda C.Schmidt, 2013, " Engineering Design", 5th edition, New York : McGraw-Hill. (TA174 .D53 2013)
3. David G. Ullman, 2016, " The Mechanical Design Process", 5th edition, New York: McGraw-Hill Education. (TJ230 .U44 2016)
4. Matt Lombard, 2018, "Mastering SolidWorks", John Wiley & Sons, Incorporated. (<https://ebookcentral.proquest.com/lib/uthm-ebooks/detail.action?docID=5568847>)
5. Tayseer Almattar, 2019, "Learn SOLIDWORKS 2020", Packt Publishing. (<https://app.knovel.com/hotlink/toc/id:kpLSOLIDW1/learn-solidworks-2020/learn-solidworks-2020>)
6. Philip Kosky et al., 2021, "Exploring Engineering - An Introduction to Engineering and Design-5th Edition", Elsevier. (<https://app.knovel.com>)
7. Kenneth L. d'Entremont, 2021, "Engineering Ethics and Design for Product Safety. 1st ed.", New York: McGraw Hill. (<https://www-accessengineeringlibrary-com.ezproxy.uthm.edu.my>).

DAM 24802 Renewable Energy

Synopsis

This course provides an in-depth exploration of various types of renewable energy technologies and their applications. It focuses on the science, engineering principles, and economics of renewable energy sources such as solar, wind, biomass, biofuel,

hydropower and hydrogen. Students will analyze the role of renewable energy in addressing global energy challenges, sustainability, and climate change mitigation. The course combines theoretical knowledge with practical problem-solving skills to design and evaluate renewable energy systems..

References

1. Godfrey Boyle (2004) Renewable Energy: Power for a Sustainable Future, Oxford University Press Call number : TJ808 .R46 2004
2. Frank Kreith, Susan Krumdieck (2014) Principles of Sustainable Energy Systems, CRC Press, Call number: TJ808 .P74 2014
3. Renewable Energy Sources ;Book Chapter; Advanced Control of Grid-Integrated Renewable Energy Power Plants,Jun 24, 2024, IEEE Xplore Digital Library
4. Vaughn Nelson , Kenneth Starcher (2014) Wind energy : Renewable Energy and the Environment, CRC Press, Call number: TJ820 .N444 2014
5. William E. Glassley (2015) Geothermal Energy : Renewable Energy and the Environment, CRC Press, Call number: TJ280.7 .G42 2015

DAM 22503 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)
4. Wassberg, Joakim, 2020, Computer Programming for Absolute Beginners, Packt Publishing. Retrieved from <https://app.knovel.com/hotlink/toc/id:kpCPAB0001/computer-programming/computer-programming>
5. Gookin, Dan, and Sandra Geisler. Beginning Programming with C for Dummies, John Wiley & Sons, Incorporated, 2013. ProQuest Ebook Central, <https://ebookcentral.proquest.com/lib/uthm-ebooks/detail.action?docID=1443875>.

DAM 25103 Mechanics of Machine

Synopsis

This course provides an in-depth understanding of the fundamental principles of mechanical systems, focusing on gear systems, power transmission, friction, balancing, and vibration analysis. Students will apply theoretical concepts to solve engineering problems, including performing calculations related to mechanical system behavior. Practical experiments, such as gear efficiency, belt friction, centrifugal force analysis, and balancing, make up 60% of the course. By engaging in hands-on activities, students will develop technical skills and problem-solving abilities, enabling them to effectively analyze and optimize mechanical systems using engineering tools, bridging theory with real-world applications in machine mechanics.

References

1. DSamuel Doughty, 2019. "Mechanics of Machines". https://www.academia.edu/42271977/Mechanics_of_Machines_Ver_2_0
2. J. Uicker John, Gordon R. Pennock and Joseph E. Shigley, 2018 "Theory of machines and mechanisms", New York: Oxford University
3. Mahmoud A. Mostafa, 2013, "Mechanics of machinery", Boca Raton, FL : CRC Press. (TJ181 .M67 2013)
4. V. Ramamurti, 2005, "Mechanics of machines", Harrow: Alpha Science. (TJ158 .R35 2005)
5. W. L. Cleghorn, 2005, "Mechanics of machines", New York: Oxford University Press. (TJ170 .C53 2005)

DAM 26103 Fluid Mechanics

Synopsis

This course introduces students to the fundamental knowledge and principles of fluid mechanics. It emphasizes on fluid properties, fluid statics (introduction to pressure, pressure measurement, hydrostatic pressure, hydrostatic forces, and principle of buoyancy), conservation of mass and Bernoulli's equation, Momentum analysis, flow in pipes, and Dimensional Analysis and Similarity. Besides the application of these principles to the practical applied problems, students will also expose and apply these principles to several related lab experiments.

References

1. Yunus A. Cengel and John M. Cimbala, 2018, "Fluid Mechanics Fundamental and Application", McGraw Hill, 4th Edition. (https://archive.org/details/ed4_20201119/page/n3/mode/2up)
2. Bukhari Manshoor, 2019 "Mekanik bendalir asas untuk pelajar kejuruteraan", Batu Pahat Penerbit UTHM. (TA357 .B84 2019 a)
3. Nakayama, Yasuki., 2018 "Introduction to Fluid Mechanics", Elsevier, 2nd Edition. <https://app-knovel-com.ezproxy.uthm.edu.my/>
4. Merle C. Potter, David C. Wiggert, 2021, "Schaum's Outline of Fluid Mechanics, 2nd Edition", McGraw Hill, 2nd Edition. <https://www-accessengineeringlibrary-com.ezproxy.uthm.edu.my/>
5. Hamidah Zakaria, Mohd Yuzha Usoff, Rahayu Mohd Adnan, 2021 "Fluid Mechanics & Hydraulics", Politeknik Sultan Mizan Zainal Abidin, 4th Edition. (<https://anyflip.com/oxze/lpdm/basic>)

DAM 27103 Manufacturing Process

Synopsis

This course introduces the students into different topics related to Manufacturing Process Technology, which are; introduction to manufacturing, materials in manufacturing, material removal process (machining), metal casting, metal forming, shaping process for plastics, powder metallurgy and joining process. This course provides students with theoretical explanations and practical sessions to develop skills and knowledge required for the manufacturing industries.

References

1. E.S. Gevorkyan, M. Rucki, V.P. Nerubatskyi, et al., 2022, "Remanufacturing and Advanced Machining Processes for New Materials and Components". London: Taylor & Francis; (<https://search-ebSCOhost-com.ezproxy.uthm.edu.my/>)
2. Serope Kalpakjian, Steven R. Schmid, 2020, "Manufacturing Engineering and Technology", 8th ed, Singapore: Prentice Hall.
3. Mark A. Atwater 2019, " Materials and Manufacturing: An Introduction to How They Work and Why it Matters", 1st ed, New York: McGraw-Hill Education (<https://www-accessengineeringlibrary-com.ezproxy.uthm.edu.my>)
4. Yong Huang, Lihui Wang, Steven Y Liang, 2019, " Handbook of Manufacturing", Singapore: World Scientific (<https://www-worldscientific-com.ezproxy.uthm.edu.my>)
5. Sadegh, Ali M., and William M. Worek, 2018. "Marks' Standard Handbook for Mechanical Engineers". 12th ed. New York: McGraw-Hill Education. (<https://www-accessengineeringlibrary-com.ezproxy.uthm.edu.my>)

DAM28103 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. Irvani, Seyed M. R. (2021). Operations Engineering and Management: Concepts, Analytics, and Principles for Improvement. 1st ed. New York: McGraw Hill. <https://www-accessengineeringlibrary-com.ezproxy.uthm.edu.my>
2. Jacobs, Robert F., William L. Berry, Clay Whybark, and Thomas E. Vollmann. (2018). Manufacturing Planning and Control for Supply Chain Management: The CPIM Reference. 2nd ed. New York: McGraw-Hill Education. <https://www-accessengineeringlibrary-com.ezproxy.uthm.edu.my/content/book/9781260108385>
3. Heizer, J. Render, B. Munson, C.(2020) "Operations Management – Sustainability and Supply Chain Management", 13th Edition, Pearson Education Limited
4. Abdul Talib Bon, "Industrial Engineering", (2018), Batu Pahat; Penerbit UTHM. (T56.A822018 a)
5. Slack, N. Jones, B.A. Johnston, R.(2018) "Operations and Processs Management - Principles and Practice for Strategic Impact". 5th Edition, Pearson Education Limited.
6. Leland T. Blank, Anthony J. Tarquin. (2018). "Engineering economy", 8th Edition, Boston: McGraw-Hill.

DAM 25003 Additive Manufacturing

Synopsis

This course introduces students to the principles and applications of Additive Manufacturing (AM), a transformative technology in engineering that allows for the creation of complex designs and customized products. Key topics include the fundamentals of various 3D printing technologies like Fused Deposition Modeling (FDM) and Stereolithography (SLA), and the classification of AM processes such as Material Jetting and Powder Bed Fusion. Students will gain both theoretical knowledge and practical skills through laboratory sessions, where they will create 3D models, generate

STL files, and fabricate parts using AM machines. The course emphasizes sustainability, the integration of Industry 4.0 principles, and the evaluation of AM parts to ensure quality and suitability for applications. By the end of the course, students will be prepared to effectively apply additive manufacturing techniques to solve modern manufacturing challenges and implement solutions that meet industry and community needs while fostering innovation and considering ethical implications in their designs.

References

1. Venkata, R. M., Ravi K. B. V. R., Akhil, C., Vikramaditya, M., Shashank, V., (2024). Optimization of FDM Print Parameters for Tensile Strength, Surface Roughness, and Additive Manufacturing of Automobile Component, Volume 1, Recent Advances in Additive Manufacturing, Proceedings of ICAM 2024, Springer Nature eBooks
(<https://research.ebsco.com/c/ez2axm/search/details/zppyoxngv?limiters=None&q=Additive%20Manufacturing>)
2. Dewang, Y., Khan, A., Sharma, V., Mohan, S. R., (2024). Role of IOT in Additive Manufacturing, Volume 1, Recent Advances in Additive Manufacturing, Proceedings of ICAM 2024, Springer Nature eBooks
(<https://research.ebsco.com/c/ez2axm/search/details/impzw7rhbf?limiters=None&q=Additive%20Manufacturing>)
3. Damir G., Joamin Gonzalez-Gutierrez, Axel N., Eujin P., Julia Ureña Alcázar, (2022). A Guide to Additive Manufacturing, ISBN: 978-3-031-05863-9; 978-3-031-05862-2, Springer Nature Switzerland AG.
(<https://web.p.ebscohost.com/ehost/ebookviewer/ebook/bmxlYmtfXzM3MzUyNzVfX0FO0?sid=2cd852c9-7746-4635-9de9-66027e7c53e0@redis&vid=0&format=EB&rid=1>)
4. Chee Kai Chua, Murukeshan Vadkke Matham and Young-Jin Kim (2017). Lasers in 3D printing and manufacturing, Singapore : World Scientific [TS155.6 .C49 2017]
5. Chee Kai Chua, Kah Fai Leong (2015). 3D printing and additive manufacturing : principles and applications, 4th edition, New Jersey London Singapore Beijing World Scientific [TS155.6 .C48 2015]
6. Gibson, I. (2014). Additive Manufacturing Technologies, 2nd edition, Springer. [TS156.8 .G52 2015]

DAM 26003 Design for Manufacturing And Assembly

Synopsis

This course introduces students to the principles of Design for Manufacture and Assembly (DFMA), covering key topics such as product development, material and process selection, design for manual and automatic assembly, reliability, sustainability, and environmental impact. Through a combination of design theory, practical skills, and a lifelong learning approach, students will apply DFMA principles effectively to optimize product designs for cost, efficiency, and manufacturability. They will demonstrate proficiency with tools like SolidWorks and propose continuous improvements in real-world applications.

References

1. Brøndsted, P., Nijssen, R. P., & Goutianos, S. (Eds.). (2023). Advances in wind turbine blade design and materials. Woodhead Publishing.
2. Sapuan, S. M., & Mansor, M. R. (Eds.). (2021). Design for Sustainability: Green Materials and Processes. Elsevier.
3. Leary, M. (2019). Design for additive manufacturing. Elsevier.
4. Boothroyd, G., Dewhurst, P., Knight W. A. (2011), Product Design for Manufacture and Assembly, 3rd ed. CRC Press. Call number: TS171.4 .B67 2011

5. Johnson, A., & Gibson, A. (2014). Sustainability in engineering design. Academic Press.
6. Chang, K. H. (2014). Product design modeling using CAD/CAE: the computer aided engineering design series. Academic Press.

DAM 27003 Modern Machining Technology

Synopsis

This course introduces advanced material removal methods in manufacturing. Topics include High-Speed Machining for efficient CNC process, Chemical Machining for chemical-based material removal, and Electrochemical Machining for specialized applications. The course also covers Electro Discharge Machining, including Die Sinker and Wire Cut techniques, Laser Beam Machining, Electron Beam Machining, and Plasma Arc Cutting. Additional methods include Ultrasonic Machining and abrasive processes like Water Jet Machining, Abrasive Jet Machining and Abrasive Water Jet Machining. Students will gain theoretical and practical skills to select and apply modern machining techniques while addressing sustainability and leveraging IoT to solve diverse manufacturing challenges.

References

1. Modern Manufacturing Processes, edited by Muammer Koç, and Tugrul Özel, John Wiley & Sons, Incorporated, 2019. ProQuest Ebook Central, <https://ebookcentral.proquest.com/lib/uthm-ebooks/detail.action?docID=5852006>.
2. Advances in Nonconventional Machining Processes, edited by Suneev Anil Bansal, Bentham Science Publishers, 2020. ProQuest Ebook Central, <https://ebookcentral.proquest.com/lib/uthm-ebooks/detail.action?docID=6388622>.
3. Gevorkyan, E. S., et al. Remanufacturing and Advanced Machining Processes for New Materials and Components, CRC Press LLC, 2022. ProQuest Ebook Central, <https://ebookcentral.proquest.com/lib/uthm-ebooks/detail.action?docID=7244647>.
4. Modern Machining Technology, Richard Baril, Delmar Pub., 1987, TJ1160 .B37 1987
5. Modern Machining Technology - Advanced, Hybrid, Micro Machining and Super Finishing Technology, Bhattacharyya Bijoy, Doloi Biswanath, Elsevier, 2020, Knovel edsknv.kt0122JED2
6. Huda, Zainul. Machining Processes and Machines : Fundamentals, Analysis, and Calculations, Taylor & Francis Group, 2020. ProQuest Ebook Central, <https://ebookcentral.proquest.com/lib/uthm-ebooks/detail.action?docID=6384431>.

DAE 33103 Internet of Things

Synopsis

This course introduces the fundamental concepts and applications of the Internet of Things (IoT). It covers the essential building blocks of IoT systems, including sensors, actuators, connectivity protocols, and data processing techniques. Topics covered include various IoT architectures, network technologies, and the role of cloud computing in IoT. The course includes a hands-on workshop with activities like programming ESP32, using Node-RED, and connecting IoT devices to platforms like ThingSpeak and Blynk. Topics include Industry 4.0, interfacing ESP32 with sensors, MQTT protocol, creating dashboards, and sending data to cloud platforms.

References

1. Langbridge, James A.(2015). Arduino sketches : tools and techniques for programming wizardry. Indianapolis, IN : John Wiley and Sons. Shelf No: TJ223.P76 .L36 2015
2. Rafiquzzaman, M.(2011). Microcontroller Theory and applications With The PIC18F. Hoboken, N.J.: John Wiley & Sons Inc. Shelf No: TK7895.E42 .R33 2011.
3. Lucio, D. J. (2012). Programming 16-Bit Microcontroller in C, 2nd ed. United States of America: Newnes. Shelf No: TJ223 .P76 .D54 2012
4. Martin, B (2011). PIC Microcontrollers An Introduction to Microelectronics, 3rd ed. United States of America: Newnes. Shelf No: TJ223 .P76 .B374 2011
5. Simon Monk (2014). Programming Arduino Next Steps: Going Further with Sketches, Mc Graw Hill Education.

DAC 22703 Introduction to Site Supervisory

Synopsis

This course introduces students to the subset of project management, which is site supervisory (SS). Here, students will be exposed to the linkages between the project life cycle (PLC) and the SS, who is the site supervisor, and their roles, tasks, and responsibilities.

References

1. Hairuddin Mohammad, Padzil Fadzil Hassan and Siti Khalijah Yaman(2018) Construction Handbook Series (Project Management, Construction Management And Site Management), UTHM , 1, ISBN:9789672183082
2. Noor Khazanah A Rahman, Hasniza Abu Bakar, Siti Khalijah Yaman, Mohamad Luthfi Ahmad Jeni, Hannifah Tami & Rahmat Muslim(2021) Bnc 31303 Pengurusan Projek, UTHM , 1
3. Siti Khalijah Yaman(2022) Bfc43201 Microsoft Project 01/07, UTHM
4. Peter Fewings (2012). Construction Project Management: An Integrated Approach, 2nd Edition. UK: Spon Press. (TH438 .F48 2012)
5. Robert K. Wysocki (2012). Effective Project Management: Traditional, Agile, Extreme, 6th Edition. USA: Wiley Publishing. (HD69.P75 .W98 2012)
6. Omar Osman (2010). Pengurusan Projek dan Kelestarian Titik Pertemuan. Pulau Pinang, Malaysia: Penerbit USM. (HD69.P75 .O52 2010)
7. Clarke, R. H. (1988). Site Supervision. London : Thomas Telford (TH438 .C53 1988)

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
2. Panduan Penulisan Tesis, UTHM.
3. Panduan Pelaksanaan Projek Sarjana Muda, 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 community or industrial-based in the field of mechanical and manufacturing engineering which include the aspects of product/project development, fabrication/design 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 final report and their project in seminars held at the end of the semester.

References

1. Guideline for Implementation of Diploma Engineering Project, UTHM
2. Panduan Penulisan Tesis, UTHM.
3. Panduan Pelaksanaan Projek Sarjana Muda, UTHM

DAM 33010 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 20 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, Penerbit UTHM, Edisi Kelima, 2021.

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.

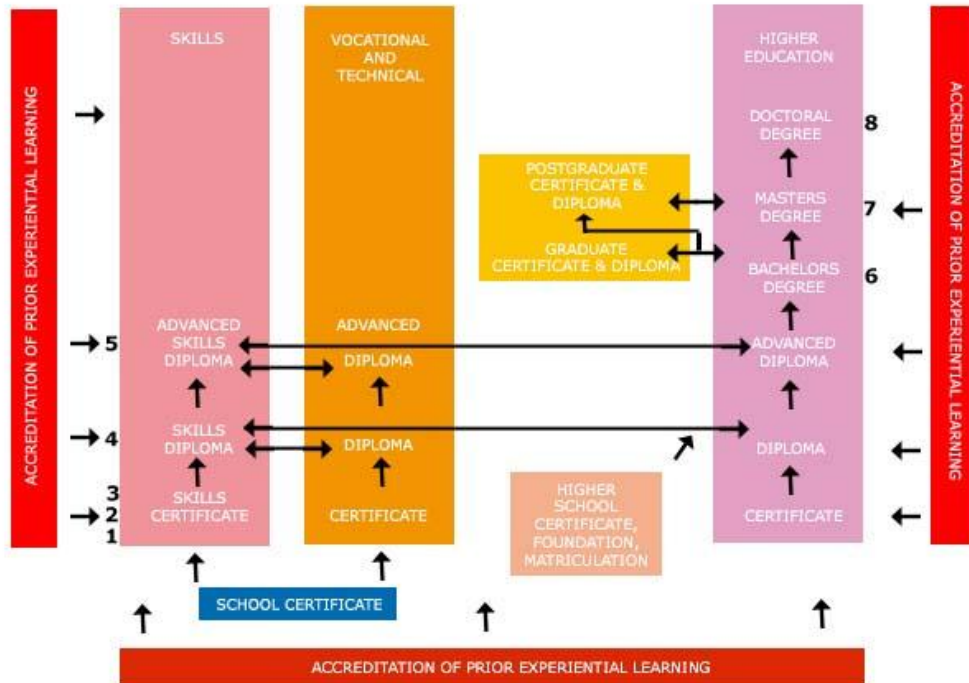
Mechanical engineering offers many opportunities as well as the satisfaction of helping to improve and enhance public quality of life in many settings.

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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