



## ACADEMIC PROFORMA 2025/2026

# DIPLOMA IN CIVIL 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 from 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(I<sup>2</sup>E)

**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

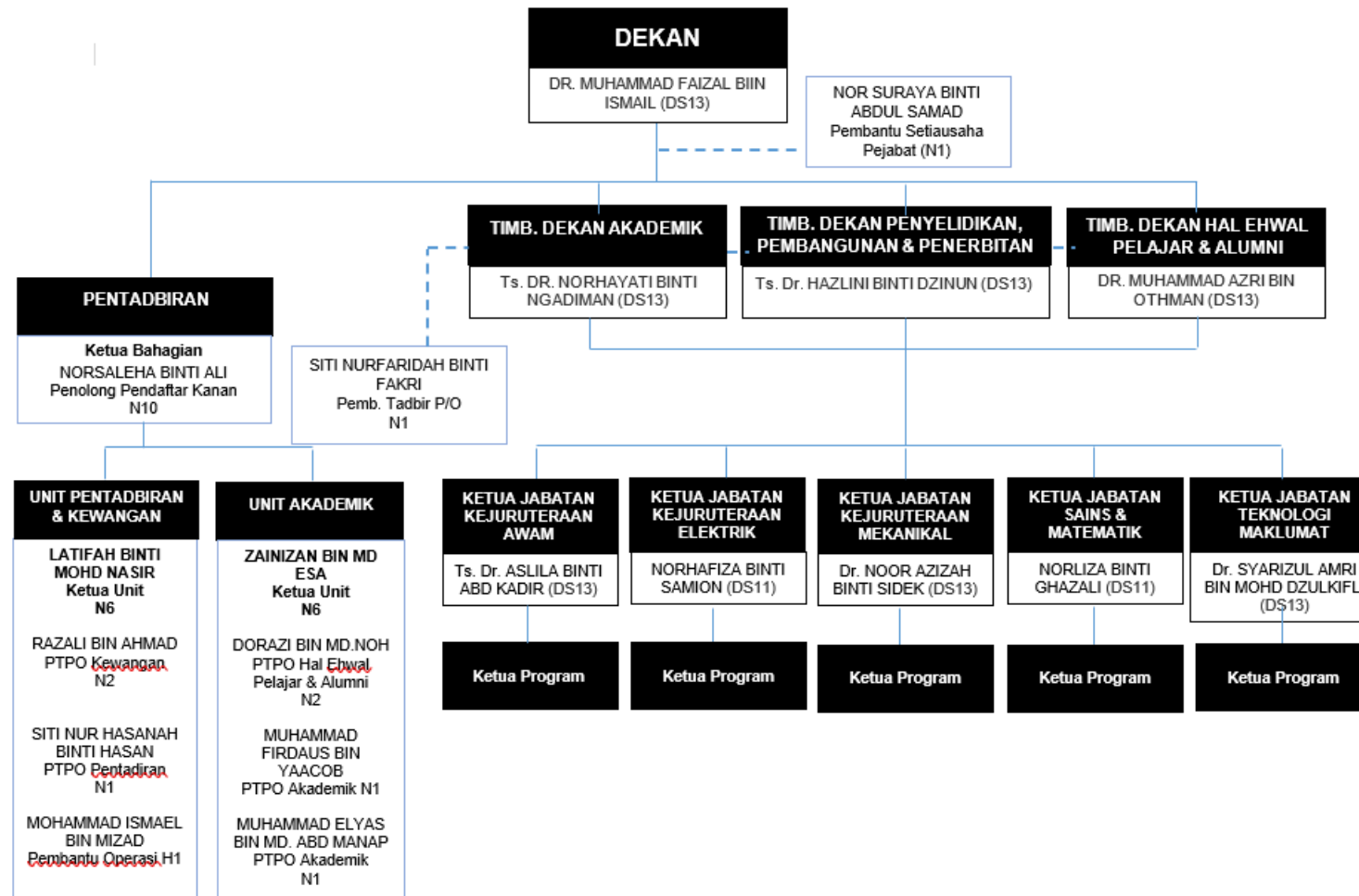
Diploma programmes had been offered in UTHM since the establishment of Pusat Latihan Staf Politeknik (PLSP) in 1994. It started with only three programmes which are managed by the respective departments. All were transferred to the corresponding faculties when Kolej Universiti Teknologi Tun Hussein Onn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

The establishment of the Centre for Diploma Studies was announced by the Vice Chancellor on the 1<sup>st</sup> 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:

# CARTA ORGANISASI PUSAT PENGAJIAN DIPLOMA



## **Centre External Examiner and Industrial Advisor**

### **Department of Civil Engineering**

#### **External Examiner**

---

**Prof. Madya Ir. Dr. Norazura binti Muhamad Bunnori**

PhD (Civil Engineering) (Cardiff University), MSc. (Structural Engineering) (USM), BSc. (Civil Engineering) (UKM)

#### **Industrial Advisor**

---

**Ir. Dr. Mohd Nor Rashidi binti Ab Jalil**

PhD (Environment and Development) (Lestari UKM), MSc. (Environment) (UPM), BSc. (Civil Engineering) (UM)

**Dr. Mohamad Niizar Bin Abdurahman**

PhD. (Civil Engineering) (Geotechnic) (UTHM), MEng. (Civil) (UTHM), BEng. (Civil)(UTHM)

## 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 Civil Engineering**

---

### **Academic Staff**

**Head of Department**  
**Ts. Dr. Aslila binti Abd Kadir**

PhD. (Civil Engineering) (UTHM), MSc. (Construction Management) (UTM), BSc. (Hons) (Housing, Building and Planning) (USM), Cert.(Quantity Survey) (POLIMAS)

**Head of Programme**  
**Ts. Dr. Khairi bin Supar**

PhD. (Civil Engineering) (UTHM), BEng. (Civil Engineering) (UTHM), Dip. (Civil Engineering) (Politeknik Port Dickson)

**Professor Madya Ts. Hj. Masiri bin Kaamin**

MSc. (Land Survey-GIS) (UTM), BSc.(Land Survey) (UTM)

**Ts. Mohd Erwan bin Sanik**

MSc. (Civil Engineering) (USM), BEng. (Civil Engineering) (USM)

**Ts. Dr. Norhayati binti Ngadiman**

PhD. (Environment and Development) (UKM), M Ed. (Technic and Vocational Ed.) (UTHM), BSc. (Mineral Resources) (USM)

**Ir. Ts. Hj. Salman bin Salim**

MEng. (Civil Engineering) (UTHM), BEng. (Civil Engineering) (UTM), Dip. (Civil Engineering) (UTM), Cert. (Civil Engineering)(Politeknik Ungku Omar)

**Ts. Ahmad Hakimi bin Mat Nor**

MEng. (Civil Engineering) (UTHM), BEng. (Civil Engineering) (UTHM), Dip. (Civil Engineering) (UTHM)

**Ts. Dr. Izat bin Yahya**

PhD. (Civil Engineering) (UTHM), MEng. (Civil Engineering) (UTHM), BEng. (Civil Engineering) (UTM), Dip. (Civil Engineering) (UiTM)

**Br. Dr. Hairuddin bin Mohammad**

PhD (Built Environment) (UiTM), MSc. (Construction Management) (UTM), BEng. (Civil)(UTM), Dip. (Civil) (Politeknik Kota Bharu)

**Dr. Noorul Hudai binti Abdullah**

PhD. (Civil Engineering) (UTM), BEng. (Civil Engineering) (UTHM), Dip. (Civil Engineering) (UTHM)

**Ts. Dr. Mohamad Azim bin Mohammad Azmi**

PhD. (Civil Engineering) (UTHM), MEng. (Civil) (UTHM), BEng. (Civil Engineering) (UTHM)

**Ts. Dr. Nur'ain binti Idris**

PhD. (Civil & Structure Engineering) (Kyushu University), MEng. (Civil) (UTM), BEng. (Civil)(UTM)

**Dr. Muhammad Azraie Bin Abdul Kadir**

PhD. (Civil Engineering) (USM), MEng. (Civil) (UiTM), BEng. (Hons) (Civil) (UiTM), Dip. (Civil) (UiTM)

**Dr. Nor Farah Atiqah binti Ahmad**

PhD. (Civil Engineering) (UTM), MEng. (Civil – Hydraulic and Hydrology) (UTM), BEng. (Civil Engineering) (UTM)

**Pn. Nor Baizura binti Hamid**

MSc. (Railway) (UTHM), BSc. (Hons) (Civil Engineering), (UTHM)

**Ts. Dr. Mardiha binti Mokhtar**

PhD. (Civil Engineering) (UTHM), MSc. (Civil Engineering) (UTHM), BSc. (Hons)(Civil Engineering) (UTHM), Dip. (Civil Engineering Technology) (UTHM)

**Pn. Suhaila binti Sahat**

MEng. (Hydrology and Water Resources) (UTM), BEng. (Civil Engineering) (UTM), Dip. (Civil Engineering) (UTM)

**Pn. Siti Nooraiin bin Mohd Razali**

MEng. (Civil Engineering) (UTHM), BEng. (Civil Engineering) (UTHM)

**Pn. Hazirah Binti Bujang**

MEng. (Civil Engineering) (UTHM), BEng. (Civil Engineering) (UTHM)

**Sr. Nornajihah Binti Mohammad Yazid**

MEng. (Geomatic Engineering) (UTM), BEng. (Geomatic Engineering) (UTM)

## **Programme Name**

Diploma in Civil Engineering (DAA)

## **Programme Aims**

To produce graduates who are more mature and competent to fulfill the nation needs of skill and expert workers in the field of Civil 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)**

Program Educational Objectives are to produce a Civil Assistant Engineer that are able to:

- PEO 1 Technically competent in solving civil engineering problems and produce work of quality accepted locally and globally.
- PEO 2 Demonstrate professionalism ethics and sustainable values in civil engineering practice.
- PEO 3 Communicate effectively and demonstrate good leadership at workplace and community.
- PEO 4 Practice entrepreneurship skills and integrating lifelong learning in career development.

## **Programme Learning Outcomes (PLO)**

Upon graduation, a graduate should acquire the followings:

- PLO 1 Apply knowledge of applied mathematics, applied science, computing, engineering fundamentals, and civil engineering specialisation (DK1 to DK4) to wide practical procedures and practices in the field of Civil Engineering.
- PLO 2 Identify and analyse well-defined civil engineering problems, reaching substantiated conclusions using codified methods of analysis specific to civil engineering activities (DK1 to DK4).
- PLO 3 Design solutions for well-defined technical problems and assist in the design of civil engineering systems, components, or processes to meet specified needs, with appropriate consideration for public health and safety, as well as cultural, societal, and environmental concerns (DK5).
- PLO 4 Conduct investigations on well-defined civil engineering problems, locate and search relevant codes and catalogues, and perform standard tests and measurements (DK8).

- PLO 5 Apply appropriate techniques, resources, and modern engineering computing and IT tools to well-defined civil engineering problems, with an awareness of their limitations (DK2 and DK6).
- PLO 6 Consider sustainable development impacts on society, the economy, sustainability, health and safety, legal frameworks, and the environment in solving well-defined civil engineering problems (DK1, DK5, and DK7).
- PLO 7 Understand and commit to professional ethics, responsibilities, and norms of practice as a civil engineering technician, including compliance with national and international regulations, and demonstrate an understanding of the need for diversity and inclusion (DK9).
- PLO 8 Function effectively as an individual, and as a member in diverse and inclusive teams in multi-disciplinary, face-to-face, remote, and distributed settings within the field of civil engineering (DK9).
- PLO 9 Communicate effectively and inclusively on well-defined civil engineering activities with the engineering community and society at large, by comprehending the work of others, documenting their own work, and giving and receiving clear instructions.
- PLO10 Demonstrate awareness of civil engineering management principles as a member or leader in a technical team and manage projects and entrepreneurial activities in multi-disciplinary environments related to civil engineering.
- PLO11 Recognise the need for, and demonstrate the ability for, independent and lifelong learning for self-improvement and critical thinking in the face of evolving specialised technical knowledge in civil engineering (DK8).

## Curriculum

Table 1: Summary of curriculum for Diploma in Civil Engineering

| Year                | Semester | Course Code                                                                                          | Courses                                                                                                                                                                                                               | Credit                               | Total     |
|---------------------|----------|------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|-----------|
|                     | Special  | UQU 11402<br>UQI 10402/<br>UQI 11502<br>DAC 22202                                                    | Integrity and Anticorruption<br>Islamic Studies/<br>Moral Studies<br>Occupational Safety and Health                                                                                                                   | 2<br>2<br>2                          | 6         |
| 1                   | I        | UHB 13002<br>UQ* 1***1<br>DAC 11203<br>DAC 11402<br>DAC 11603<br>DAC 11703<br>DAC 11803<br>DAC 21502 | Introduction to English Communication<br>Co-Curriculum I<br>Engineering Mathematics I<br>Algebra<br>Civil Engineering Materials<br>Engineering Drawing<br>Statics and Dynamics<br>Hydrology                           | 2<br>1<br>3<br>2<br>3<br>3<br>3<br>2 | 19        |
|                     | II       | UQI 11402<br>UQ* 1***1<br>DAC 12102<br>DAC 12203<br>DAC 12302<br>DAC 12403<br>DAC 12503<br>DAC 22303 | Philosophy and Current Issues<br>Co-Curriculum II<br>Physics for Civil Engineering<br>Environmental Engineering<br>Construction Engineering<br>Engineering Mathematics II<br>Mechanics of Material<br>Fluid Mechanics | 2<br>1<br>2<br>3<br>2<br>3<br>3<br>3 | 19        |
| 2                   | I        | UHB 10*02<br>DAC 22203<br>DAC 21403<br>DAC 21703<br>DAC 21803<br>DAC 22103<br>DAC 21801              | Foreign Language<br>Technopreneurship<br>Geomatic Engineering<br>Structural Analysis<br>Contract and Estimation<br>Geotechnical Engineering<br>Diploma in Civil Engineering Project I                                 | 2<br>3<br>3<br>3<br>3<br>3<br>1      | 18        |
|                     | II       | UHB 23002<br>DAC 21302<br>DAC 21903<br>DAC 22402<br>DAC 22503<br>DAC 22603<br>DA* ***03              | English for Career Development<br>Statistics<br>Highway and Traffic Engineering<br>Project Management<br>Structural Design<br>Diploma in Civil Engineering Project II<br>Elective                                     | 2<br>2<br>3<br>2<br>3<br>3<br>3      | 18        |
| 3                   | I        | DAC 31010                                                                                            | Industrial Training                                                                                                                                                                                                   | 11                                   | 10        |
| <b>Total Credit</b> |          |                                                                                                      |                                                                                                                                                                                                                       |                                      | <b>90</b> |

## Synopsis of University Courses

| Year | Sem     | Course Code             | Courses                               | Credit | Total     |
|------|---------|-------------------------|---------------------------------------|--------|-----------|
|      | Special | UQU 11402               | Integrity and Anticorruption          | 2      | 4         |
|      |         | UQI 10402/<br>UQI 11502 | Islamic Studies/ Moral Studies        | 2      |           |
| 1    | I       | UHB 13002               | Introduction to English Communication | 2      | 3         |
|      |         | UQ* 1***1               | Co-Curriculum I                       | 1      |           |
|      | II      | UQI 11402               | Philosophy and Current Issues         | 2      | 3         |
|      |         | UQ* 1***1               | Co-Curriculum II                      | 1      |           |
| 2    | I       | UHB 10*02               | Foreign Language                      | 2      | 4         |
|      | II      | UHB 23002               | English for Career Development        | 2      |           |
| 3    | -       | -                       | -                                     | -      | -         |
|      |         |                         |                                       |        | <b>14</b> |



## Synopsis of Courses

### **UQU 11402 Integrity and Anticorruption**

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#### **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**

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#### **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 & 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. Ramli Awang (2013). Akidah Penghayatan Tauhid al-Quran, Johor: Penerbit UTM Press. BP165.5 .R35 2013
5. T. Nama (2013). Pengurusan, Etika Kerja dan Personaliti: Perspektif Islam, Perlis: UMP. BP190.5.M28 .P46 2013
6. Mohd Fauzi Mohd Amin (2011). Pemerkasaan Fardhu Kifayah berteraskan al-Quran dan al-Sunnah, Negeri Sembilan: USIM. BP130.8 .P45 2011
7. Azzam, Abdul Aziz Muhammad (2010). Fiqh Muamalat: Sistem Transaksi dalam Fiqh Islam, Jakarta: Amzah. BP158.C59 .A99 2010

8. Harun Din (Dr.) (2015). Manusia Dan Islam, cetakan pertama, Kuala Lumpur: Dewan Bahasa dan Pustaka. BP174 .M36 2015
9. Muhammad Ahmad Abdul Jawwad (2004). Pengurusan Yang Profesional Dalam Islam, Kuala Lumpur: Penerbit Berlian. BP173.77. J39 2004
10. Mustafa Abdul Rahman (1998). Hadith 40, Kuala Lumpur: Dewan Pustaka Fajar. BP135. A2 .M87 1998
11. Ismail Haji Ali, (1995). Pengertian dan Pegangan Iktikad yang benar: Ahli Sunnah Wal Jamaah: Kuala Lumpur: Penerbitan al-Hidayah. BP166.78. P46 1995
12. Abdur Rahman I.Doi (1995). Undang-undang Syariah, terjemahan Rohani Abdul Rahim, Kuala Lumpur: Dewan Bahasa dan Pustaka. BP173.6 .A72 1995
13. Paizah Haji Ismail (1991). Undang-undang Jenayah Islam, Kuala Lumpur: Dewan Pustaka Islam, Angkatan Belia Islam Malaysia. BP144 .P35 1991
14. Mohammad Muslehudin (1989). Insuran dan Hukum Islam, Kuala Lumpur: Dewan Bahasa dan Pustaka. BP190.5. I67 M65 1989
15. Muhammad Sulaiman Haji Yasin (1988). Pengantar Aqidah, Kuala Lumpur: Dewan Bahasa dan Pustaka. BP166. M67 1984

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### **UQI 11502 Moral Studies**

#### **Synopsis**

This course explains on concepts of morality, aspects of moral and its importance in daily lives. Western moral theories and moral values of great religions of the world. Morality values in various fields of employment, ethics in science and technology and current moral issues.

#### **References**

1. Abd Shakor dan Lain-lain (2021). Modul Pembelajaran Pengajian Moral (UQI10202). Cetakan pertama 2021, Batu Pahat: Penerbit UTHM.
2. Noryati Mohd Jomoin (2021). Etika dan Moral Profesional Dalam Kalangan Pelajar Sarjana, Master Thesis, UTHM.
3. Abdul Rahman (2019). Pembentukan Nilai Moral Sejagat dan Hubungannya dengan Konsep Rahmatan Lil'alam, Kuala Lumpur: MAIWP & KIRKHS, IIUM.
4. Abdullah Zhidi Bin Omar (2018). Pengantar Pendidikan Moral: IPTYA, IPTS, IPG & Kolej, Kuala Lumpur: Sasbadi.
5. Mark Alfano (2016). Moral Psychology: an Introduction, Cambridge: Polity Press.
6. Deirdre Shaw, Andreas Chatzidakis & Micah Carrington (2016). Ethics and Moraliti In Consumption, London: Routledge Taylor and Francis Group. (HB835.E73 2016).
7. Friedrich Nietzsche (2015) Beyond Good and Evil, London: Penguins Books, LTD.
8. Abdullah Zhidi Omar; Mahdi Shuid. (2013). Pengantar Pendidikan Moral. Kuala Lumpur: Sasbadi.
9. Shuhaimin Abdullah. (2017). Prinsip Nilai Murni dari perspektif Islam. Kangerit: Penerbit UniMap.
10. Moral Perception <https://web-esbcohost-com.ezproxy.uthm.edu.my/ehost/detail/detail?vid=0&sid=584710bb-88b6-481b768-5ecc1d085175%40redis&bdata=JnNpdGU9ZWWhvc3QtbGl2ZSZZY29wZT1zaXRl#AN=509748&db=nlebk>
11. Moral, Ethical, and Social Dilemmas in the Age of Technology: Theories and Practice, <https://www.igi-global-com.ezproxy.uthm.edu.my/gateway/book/70670?ct=8585361439808991077>.

## **DAC 22202 Occupational Safety and Health**

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### **Synopsis**

This course introduces occupational safety and health (OSH) management, focusing on legislation, risk assessment, hazard control, and accident investigation. Students will learn to evaluate workplace safety, conduct risk analyses, and comply with Malaysian OSH standards. The course incorporates lectures, projects, and assessments such as quizzes and presentations. By the end of the course, students will be equipped with the knowledge and skills to implement safety measures and conduct workplace safety assessments effectively.

### **References**

1. Akta Keselamatan Dan Kesihatan Pekerjaan 1994 (Akta 514), Peraturan-Peraturan & Perintah-Perintah: (Hingga 15hb Julai 2019). Compiled by: Board of Legal Research, Petaling Jaya, Selangor: International Law Book Services, 2019. Call No.: KPG1390.A311994 A4 (Shared Facility Library, Pagoh Higher Education Hub).
2. Guidelines for Hazard Identification, Risk Assessment and Risk Control (HIRARC), Department of Occupational Safety and Health Malaysia, 2008, Kuala Lumpur [Online] Available at: <https://www.dosh.gov.my/index.php/legislation/guidelines/hirarc-2>.
3. David L. Goetsch (2019). Occupational Safety and Health for Technologists, Engineers, and Managers. Pearson Education. ISBN-13:978-0-13-469581-5 Call No.: T55.G586 2019 (Shared Facility Library, Pagoh Higher Education Hub).
4. Dr Tony Boyle (2019). Health and Safety: Risk Management. Fifth Edition. Routledge Taylor & Francis Group. London and New York. ISBN 978-1-138-34928-5 Call No.: T55.B695 2018 (Shared Facility Library, Pagoh Higher Education Hub).
5. Garry Hunt (2018). Health and Safety Pocket Book. Second Edition. Routledge, [www.routledge.com/9781138091467](http://www.routledge.com/9781138091467). ISBN 978-1-138-09145-0 Call No.: T55.H56 2018 (Shared Facility Library, Pagoh Higher Education Hub).

## **UHB 13002 Introduction to English Communication**

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### **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.

6. Ed Swick. (2009). Writing Better English for ESL Learners, Second Edition. McGraw Hill.
7. Mark Lester. (2009). English Grammar Drills. McGraw Hill.

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#### **UQ\* 1\*\*\*1 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.

##### **References**

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#### **DAC 11402 Algebra**

##### **Synopsis**

This course covers fundamental algebraic concepts, including number systems, quadratic equations, sequences, trigonometry and vectors. Students will solve mathematical problems using appropriate methods as tools, presenting their findings effectively. Teaching involves lectures and tutorials, assessed through quizzes, assignments, test, and final exams. By the end of the course, students will apply algebraic principles in problem-solving and demonstrate communication skills in mathematical contexts.

##### **References**

1. Moyer, Robert E., and Murray R. Spiegel. 2019. Schaum's Outline of College Algebra. 5th ed. New York: McGraw-Hill Education. <https://www-accessengineeringlibrarycom.ezproxy.uthm.edu.my/content/book/9781260120769>
2. Safier, Fred. 2020. Schaum's Outline of Precalculus. 4th ed. New York: McGraw-Hill Education. <https://www-accessengineeringlibrarycom.ezproxy.uthm.edu.my/content/book/9781260454208>
3. Amato, G., Calosci, M., Maggesi, M., & Brogi, C. P. (2020). Universal algebra in UniMath. Mathematical Structures in Computer Science, 1-23.
4. Saeid, A. B., Daneshpayeh, R., Jahanpanah, S., & Xin, X. L. (2024). On L-sub Q-algebras. Soft Computing, 1-14.
5. Bell, J., & Buzaglo, L. (2024). Enveloping Algebras of Derivations of Commutative and Noncommutative Algebra.
6. Raji et al. (2002). Matematik asas. Skudai, Johor, Malaysia : Penerbit Universiti Teknologi Malaysia. ISBN: 98302567

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#### **DAC 11203 Engineering Mathematics I**

##### **Synopsis**

This course focuses on calculus, including functions, limits, differentiation, and integration. Applications such as rate of change, optimization, and area calculations are also emphasized. Students will solve problems using techniques like substitution, partial fractions, and numerical methods. Teaching combines lectures and tutorials, with assessments including quizzes, projects, and final exams. By the end of the course, students will develop problem-solving skills and apply calculus concepts effectively.

## References

1. Kapur, J. N.. Mathematical Modeling, Mercury Learning & Information, 2023. ProQuest Ebook Central, <https://ebookcentral.proquest.com/lib/uthm-ebooks/detail.action?docID=30405189>.
2. Bronson, Richard, and Gabriel B. Costa. 2022. A in Schaum's Outline of Differential Equations. 5th ed. New York: McGraw Hill. <https://www-accessengineeringlibrarycom.ezproxy.uthm.edu.my/content/book/9781264258826/front-matter/preface1>.
3. Khan, R. N. (2023). Is Mathematics a Barrier for Engineering?. International Journal of Mathematical Education In Science & Technology, 54(9), 1853-1873.
4. Rzyankina, E., George, F., & Simpson, Z. (2024). Enhancing Conceptual Understanding in Engineering Mathematics Through E-Textbooks. IEEE Transactions on Education, 1- 8.
5. Vrabie, Ioan I. (2011). Differential equations: an introduction basic concepts, results, and applications. World Scientific, N Jersey. [QA371 .Y72 2011].

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## DAC 11603 Civil Engineering Materials

### Synopsis

This course introduces various construction materials, including cement, aggregates, concrete, bricks, wood, steel, and sustainable building materials. Laboratory sessions provide hands-on experience in testing material properties. Students will explore the latest technologies and sustainable practices in civil engineering materials. Assessments include quizzes, tests, and a final project. By the end of the course, students will be able to select and recommend appropriate materials for engineering applications while considering sustainability.

### References

1. Noorul Hudai Abdullah, Norhayati Ngadiman, Mohd Erwan Sanik, Hazri Mokhtar. (2022). Civil Engineering Materials (Laboratory) Version 2022, UTHM. ISBN: 978-967-2817-51-2
2. Noorul Hudai Binti Abdullah, Norhayati Binti Ngadiman, Mohd Erwan Bin Sanik, dan Hazri Bin Mokhtar. (2022). DAC 11603 Civil Engineering Materials (Lecture Note) Version 2022.
3. Robert Flatt (2022) Cement and Concrete Research. Elsevier. ISSN: 0008-8846. (<https://www.sciencedirect-com.ezproxy.uthm.edu.my/journal/cement-and-concrete-research>)
4. Ravindra K. Dhir, Jorge de Brito, Rui V. Silva, and Chao Qun Lye (2019) Sustainable Construction Materials. Elsevier. ISBN: 978-0-08-100985-7 (<https://doi.org/10.1016/C2015-0-00466-X>)
5. Claisse, P. A. (2015). Civil engineering materials. Butterworth-Heinemann. ISBN 978-0-08-100275-9. (<https://www.sciencedirect-com.ezproxy.uthm.edu.my/book/9780081002759/civilengineering-materials>)

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## DAC 11703 Engineering Drawing

### Synopsis

The Engineering Drawing course provides students with a comprehensive understanding of engineering drafting concepts using computer-aided design (CAD) techniques. Students will explore topics such as orthographic and pictorial projections, geometrical constructions, and the application of AutoCAD in civil engineering contexts. The teaching approach emphasizes both cognitive and psychomotor skills through lectures, laboratory sessions, and hands-on projects. Assessments include tests, practical drawing exercises, and group projects to evaluate students' competencies. This course aims to equip students with the

theoretical knowledge and practical skills required to produce engineering drawings for construction and infrastructure projects.

### **References**

1. Hamad, M. (2023). AutoCAD 2024 Beginning and Intermediate
2. Shih, R., & Jumper, L. (2023). AutoCAD 2024 Tutorial First Level 2D Fundamentals. SDC publications.
3. Nyemba, W. R. (2022). Computer Aided Design: Engineering Design and Modeling Using AutoCAD. CRC Press.
4. Shih, R. (2020). Tools for Design Using AutoCAD 2021 and Autodesk Inventor 2021. SDC Publications.
5. Benton, B. C., & Omura, G. (2020). Mastering AutoCAD 2021 and AutoCAD LT 2021. John Wiley & Sons.

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## **DAC 11803 Statics and Dynamics**

### **Synopsis**

This course introduces students to the principles of statics and dynamics, focusing on force systems, equilibrium, moments, centroid, and moment of inertia. Through cognitive, psychomotor, and interpersonal approaches, the course includes lectures, tutorials, quizzes, and tests to reinforce learning. Assessments such as final exams and projects aim to evaluate problem-solving skills and ethical decision-making. By the end of the course, students will have a strong foundation in static principles for engineering applications.

### **References**

1. Hibbeler, R. C., & Lee, J. H. (2024). Statics and Mechanics of Materials. Pearson Education Limited.
2. Daniel W. Baker, William Haynes. (2024). Engineering Statics. In Nature. Colorado Department of Higher Education, the Colorado State University Digital Learning Initiative, and the Colorado State University Libraries.
3. Petrosian, L. G., & Ambartsumian, V. A. (2020). Static and dynamic analysis of engineering structures: Incorporating the Boundary Element Method. John Wiley & Sons.
4. Gross, D., Ehlers, W., Wriggers, P., Schröder, J., & Müller, R. (2016). Statics – Formulas and problems: Engineering Mechanics 1. Springer.
5. Hibbeler, RC & St, Cahyono. (2022). Statics Engineering Mechanics RC Hibbeler book 12th.

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## **DAC 21502 Hydrology**

### **Synopsis**

This course introduces the concepts of the hydrological cycle and its processes post-rainfall. Students will study surface runoff, rainfall return, and urban drainage design, especially for new developments. The teaching approach integrates cognitive and teamwork skills through lectures, tutorials, and assessments like quizzes and final exams. By the end of the course, students will relate hydrological principles to civil engineering applications, generate relevant graphs for hydrologic phenomena, and participate in group hydrology-related projects.

### **References**

1. Goyal, Manish Kumar (2016). Engineering Hydrology. TC147.G69 2016
2. Ainger, C.M (2016). Sustainable Water. TD345.S87 2016
3. Chahar, Bhagu R (2015). Groundwater Hydrology. GB1003.2 .C42 2015
4. Madan Mohan Das (2011). Hydrology. India: PHI Learning. GB 661 .D37 2009

5. K. Subramanya (1994). Engineering Hydrology. India: Tata McGraw-Hill. TC 147.S93 1994

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**UQI 11402 Philosophy and Current Issues**

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**Synopsis**

The 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 methods of thinking 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 as well as 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. Noor Hisham Md Nawi (2020). Modul Falsafah dan Isu Semasa, Kota Bharu: Penerbit Universiti Malaysia Kelantan.
2. Dzulkifli, A.R. & Rosnani, H. (2019). Pentafsiran Baharu Falsafah Pendidikan Kebangsaan dan Pelaksanaannya Pasca 2020. Kuala Lumpur: IIUM Press.
3. Osman Bakar (2019). Classification of Knowledge in Islam: A Study in Islamic School of Epistemology, Kuala Lumpur: IBT.
4. Shaharir Mohamad Zain (2018). Pengenalan Sejarah dan Falsafah Sains. Edisi Ketiga, Bangi: Penerbit UKM.
5. Rosnani Hashim. (2017). Revitalization of Philosophy and Philosophical Inquiry in Muslim Education. Kull of Education, IIUM.
6. Kementerian Pendidikan Malaysia (2017). Dasar Pendidikan Kebangsaan (Edisi Keempat), Putrajaya: KPM
7. Che Zarrina Sa'ari & Mohd Manawi Mohd Akib (2017). Beberapa Persoalan Berkaitan Konsep Insan Menurut Fakhr al-Din al-Razi, Jurnal Afkar, 19 (Special issue): 87-114.
8. Phillips, D.C. (Ed.) (2014). Encyclopaedia of Educational Theory and Philosophy, (1st Ed.). SAGE Publication.
9. Weiming, T. & Ikeda, D. (2011). New Horizons In Eastern Humanism: Buddhism, Confucianism and The Quest for Global Peace. London: I.B.Tauris.

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**UQ\* 1\*\*\*1 Co-Curriculum II**

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**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.

**References**

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**DAC 12102 Physics for Civil Engineering**

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**Synopsis**

This course provides an introduction to the principles of mechanics and physics, focusing on the properties of materials, fluids, sound, waves, thermal phenomena,

light, and optics. Students will explore concepts such as density, pressure, Archimedes' principle, Pascal's law, and fluid buoyancy. Topics also include the thermal properties of materials and wave applications like interference, diffraction, and polarization. Additionally, the course covers the fundamentals of light and geometrical optics, highlighting their practical applications.

### References

1. Han, Je-Chin, and Lesley Wright. Analytical Heat Transfer, Taylor & Francis Group, 2022. ProQuest Ebook Central, <https://ebookcentral.proquest.com/lib/uthmebooks/detail.action?docID=6976323>.
2. Mejía-Barbosa, Yobani. Fundamentals of Optics: an Introductory Course, SPIE, 2023. ProQuest Ebook Central, <https://ebookcentral.proquest.com/lib/uthmebooks/detail.action?docID=31727435>.
3. Kajita, Masatoshi. Fundamentals of Analysis in Physics, Bentham Science Publishers, 2022. ProQuest Ebook Central, <https://ebookcentral.proquest.com/lib/uthmebooks/detail.action?docID=6950962>.
4. Pain, H. John. Introduction to Vibrations and Waves, John Wiley & Sons, Incorporated, 2015. ProQuest Ebook Central, <https://ebookcentral.proquest.com/lib/uthmebooks/detail.action?docID=7103955>.

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## DAC 12302 Construction Engineering

### Synopsis

This course focuses on the construction process and its engineering perspectives, including site preparation, substructure, and superstructure works. Topics such as formwork, temporary works, and construction equipment are also covered. Teaching integrates problem-solving and teamwork through lectures, discussions, and assignments. Assessments include quizzes, projects, and final exams. By the end of the course, students will understand construction sequences, apply relevant tools and technologies, and demonstrate teamwork through group projects.

### References

1. Peurifoy, Robert L., Clifford J. Schexnayder, Robert L. Schmitt, and Aviad Shapira. 2018. Construction Planning, Equipment, and Methods. 9th ed. New York: McGraw-Hill Education. <https://www.accessengineeringlibrary> (TH213 .J33 2007)
2. Schmitt, Robert L., Clifford J. Schexnayder, Aaron B. Cohen, Herbert L. Nichols Jr., and David Day A. 2019. Moving the Earth: Excavation Equipment, Methods, Safety, and Cost. 7th ed. New York: McGraw-Hill Education. <https://www.accessengineeringlibrary>
3. Noor Khazanah A. Rahman. Teknologi Pembinaan Struktur Bangunan. Dewan Bahasa dan Pustaka, 2019, ISBN 978-983-49-1569-8
4. Robert T. Ratay, Ph.D., P.E. Temporary Structures in Construction, Third Edition (McGraw-Hill Education: New York, Chicago, San Francisco, Athens, London, Madrid, Mexico City, Milan, New Delhi, Singapore, Sydney, Toronto, 2012). <https://www.accessengineeringlibrary>
5. S.W. Nunnally, Construction Methods and Management, Pearson Education Limited, 2011. (TH145 .N86 2011)



## **DAC 12203 Environmental Engineering**

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### **Synopsis**

The Environmental Engineering course focuses on understanding and solving environmental challenges using engineering principles. Key topics include water quality analysis, natural purification processes, water and wastewater treatment, and solid waste management. The course employs cognitive, psychomotor, and affective teaching approaches. Assessments include quizzes, tests, laboratory reports, individual and group projects, and a final examination. Students will develop skills in problem-solving, conducting environmental analyses, and contributing to environmental sustainability through theoretical and practical applications.

### **References**

1. Module DAC 12203 Environmental Engineering, Lectures Notes Version 2022, Penerbit UTHM
2. Module DAC 12203 Environmental Engineering, Laboratory Version 2022, Penerbit UTHM
3. Mackenzie Leo Davis, David A. Cornwell (2013). Introduction to Environmental Engineering. USA: McGraw Hill. TD145 .D384 2013
4. Franzle, Stefan (2012). Introduction to Environmental Engineering. USA: John Wiley. TD145 .F72 2012
5. Mackenzie L. Davis, Susan J. Masten (2009). Principles of Environmental Engineering and Science. USA: McGraw Hill. TD145 .D38 2009
6. Eugene R. Weiner (2013). Applications of Environmental Aquatic Chemistry: A Practical Guide. USA: CRC Press. TD193 .W45 2013

## **DAC 12403 Engineering Mathematics II**

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### **Synopsis**

This course covers advanced mathematical topics such as differential equations, Laplace transforms, and their applications in engineering. Students will solve first- and second-order differential equations and analyze problems using Laplace transform techniques. The course includes lectures and group projects, with assessments such as quizzes, assignments, and a final exam. By the end of the course, students will have developed problem-solving and critical thinking skills necessary for engineering applications.

### **References**

1. Kapur, J. N.. Mathematical Modeling, Mercury Learning & Information, 2023. ProQuest Ebook Central, <https://ebookcentral.proquest.com/lib/uthm-ebooks/detail.action?docID=30405189>.
2. Bronson, Richard, and Gabriel B. Costa. 2022. A in Schaum's Outline of Differential Equations. 5th ed. New York: McGraw Hill. <https://www-accessengineeringlibrarycom.ezproxy.uthm.edu.my/content/book/9781264258826/front-matter/preface1>.
3. Khan, R. N. (2023). Is Mathematics a Barrier for Engineering?. International Journal of Mathematical Education In Science & Technology, 54(9), 1853-1873.
4. Rzyankina, E., George, F., & Simpson, Z. (2024). Enhancing Conceptual Understanding in Engineering Mathematics Through E-Textbooks. IEEE Transactions on Education, 1- 8.
5. Vrabie, Ioan I. (2011). Differential equations: an introduction basic concepts, results, and applications. World Scientific, N Jersey.

**DAC 12503 Mechanics of Material****Prerequisite: DAC 11803 Statics and Dynamics**

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**Synopsis**

This course explores the principles of stress, strain, bending, and shear in materials, focusing on structural analysis. Topics include deformation, torsion, and column stability. Students will conduct laboratory experiments, analyze results, and apply theories in real-world scenarios. Teaching integrates lectures and hands-on laboratory work, with assessments like quizzes, lab reports, and final exams. By the end of the course, students will master material mechanics and its applications in engineering.

**References**

1. Goswami, Indranil. 2024. Fundamentals of Engineering FE Civil All-in-One Exam Guide. 2nd ed. New York: McGraw-Hill Education. <https://www-accessengineeringlibrary-com.ezproxy.uthm.edu.my/content/book/9781266161117>
2. Budynas, Richard G., and Ali M. Sadegh. 2020. Roark's Formulas for Stress and Strain. 9th ed. New York: McGraw-Hill Education. <https://www-accessengineeringlibrary-com.ezproxy.uthm.edu.my/content/book/9781260453751/>
3. Potter, Merle C. 2020. Schaum's Outline of Strength of Materials. 7th ed. New York: McGraw-Hill Education. <https://www-accessengineeringlibrary-com.ezproxy.uthm.edu.my/content/book/9781260456547>
4. Marghitu, Dan B.. (2001). Mechanical Engineer's Handbook - 3.1.2 Stress Components.(pp.120). Elsevier. Retrieved from <br><https://app.knovel.com/hotlink/pdf/id:kt00C5H4EG/mechanical-engineers/stress-components>
5. James M. Gere, Barry J. Goodno, Mechanics of Materials, 9th Edition, Cengage Learning, New York: 2018
6. Hibbler, R.C., Mechanics of Materials, 10th Edition, Pearson: 2017

**DAC 22303 Fluid Mechanics**

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**Synopsis**

This course explores fluid mechanics concepts, including fluid properties, hydrostatics pressure, fluid dynamics, and flow in pipes. Students will learn to analyze forces in fluids, apply principles of momentum and energy, and perform dimensional analysis. The teaching combines lectures with laboratory sessions to build cognitive and psychomotor skills. By the end of the course, students will be able to analyze fluid mechanics problems, handle laboratory equipment, and apply their knowledge in solving real-world engineering challenges.

**References**

1. K. Subramanya (2015). Flow In Open Channels. India: Tata McGraw-Hill. TC 175 .S92 2015
2. Kundu, Pijush K. Cohen, Ira M. Dowling, David R. (2012). Fluid Mechanics; 5th Editions. QA901 .K86 2012.
3. White, Frank M. (2011). Fluid Mechanics, 7th Editions. TA357 .W44 2011
4. Cengel, Y.A. and Cimbala, J.M. (2006). Fluid Mechanics: Fundamentals and Applications. McGraw Hill. TA357 .C46 2006
5. Crowe, C.T. Elger, D.F. Roberson, John A. (2005). Engineering Fluid Mechanics; 8th Editions. TA357 .R63 2005

## **UHB 10\*02 Foreign Language**

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### **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 sentence 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. 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 a
3. Nurulisyazila Othaman, Abu Hanifa Abu Mukhtar, Nurul Sabrina Zan, Idayu Nurillyana Daud (2017). Bahasa Arab Tahap 1. Batu Pahat: Penerbit UTHM.
4. Surie, Network (2009). AE Minna no Nihongo 1-1 Elementary: Translation and Grammatical Notes, Tokyo: 3A Corporation. PL539.3 .M567 2009
5. Henry J. Amen IV, Kyubyong Park, (2010). Korean for Beginners: Mastering Conversational Korean. North Clarendon: Tuttle Publishing.
6. Luscher, R, & Stevens, J (2011). Deutsch ganz leicht A1:Selbslernenkurs Deutsch für Anfänger: Zweisprachiges Arbeitsbuch = A german self-study course for beginners: Bilingual workbook. Ismaning, Regensburg: Hueber Verlag.
7. Nurul Sabrina Zan. (2016). UWB11102 La lengua espanola –Nivel 1. 2nd Edition, Batu Pahat: Penerbit UTHM. 10-0150
8. Henry J. Amen IV, Kyubyong Park, (2010). Thai for Beginners: Mastering Conversational Thai. North Clarendon: Tuttle Publishing.
9. Majendra, Maheswara (2010). Kamus lengkap Indonesia-Jawa, Jawa-Indonesia / Majendra Maheswara. Pustaka Mahardika. XX(131732.1)

## **DAC 21803 Contract and Estimation**

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### **Synopsis**

This course introduces students into contract and cost estimation in construction projects. It covers contract principles, tendering processes, contract documents, and quantity measurement. Students will learn to analyze contract conditions and prepare detailed cost estimates. Teaching methods include lectures, tutorials, group discussions, and projects. Assessments involve assignments and presentations. By the end of the course, students will develop both theoretical knowledge and practical skills essential for managing contracts and estimation in civil engineering.

### **References**

1. Noor Khazanah A. Rahman, Aslila Abd Kadir, Zarizi Awang & Shamsulakmar Abdul Munir (2022). Kontrak Pembinaan dan Taksiran. Batu Pahat :Penerbit UTHM
2. Nor Ainah Abdullah (2022). Basics of Construction Contracts PAM, CIDB, PWD and FIDIC Standard Form: 2nd Ed, Shah Alam : UiTM Press. ISBN 978-967-363-800-0
3. Ahamad Abdullah & Abdul Hadi Ahamad (2021). Building Contract Administration Vol 1 & Vol 2, 3rd Ed. Malaysia. ISBN 978-967-25856-0-2
4. Ahamad Abdullah dan Khairuddin Abdul Rashid; Pengukuran Kuantiti Bangunan (Beserta Contoh Kerja Berdasarkan SMM2); Kuala Lumpur: Prentice Hall; 2003. (TH435 .A32 2003)
5. Construction Industry Payment and Adjudication Act 2012, ACT 746, Laws of Malaysia, Percetakan Nasional Malaysia Berhad, 2012.

6. The Institution of Surveyors, Malaysia. (2000). Malaysian Standard Method of Measurement of Building Works, Second Edition. Petaling Jaya, Selangor: The Institution of Surveyors, Malaysia.
7. PWD Form 203/203A (2010), Government of Malaysia.

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### **DAC 21403 Geomatic Engineering**

#### **Synopsis**

This course provides foundational knowledge in geomatic engineering, covering survey techniques such as distance and angle measurement, levelling, and tachometry. Students will engage in data analysis for area and volume calculations, gaining hands-on experience with field equipment. The teaching methods integrate lectures and fieldwork, fostering cognitive and psychomotor skills. Assessments include quizzes, tests, and field-based projects. By completing the course, students will acquire the technical knowledge and practical competencies necessary to address geomatic engineering challenges in civil engineering projects.

#### **References**

1. Ghilani, Charles D. ; Elementary surveying : an introduction to geomatics; Prentice Hall; 2008., No. Panggilan: TA545 .G44 2008
2. Kavanagh, Barry F. ; Surveying : principles and applications, 8th Edition; Pearson/Prentice Hall; 2009., No. Panggilan: TA545 .K37 2009
3. Kavanagh, Barry F. ; Surveying with construction applications, 7th Edition; Prentice-Hall; 2010., No. Panggilan: TA625 .K38 2010
4. Abd. Shukor Sarif dan Masiri Kaamin; Modul Kejuruteraan Geomatikl & II, Penerbit UTHM; 2006., No. Panggilan: TA549 .M37 2006
5. Watson, Paul; Surveying and engineering : principles and practice ; Blackwell; 2008., No. Panggilan: TH438 .S97 2008.
6. Alfred Leick ; GPS satellite surveying; Openacccs; 2015., No. Panggilan: TA595.5.L44 2025

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### **DAC 21703 Structural Analysis**

**Prerequisite: DAC 12503 Mechanics of Material**

#### **Synopsis**

The Structural Analysis course introduces students to the principles of analyzing forces in determinate and indeterminate structures, including trusses and frames. Key topics cover the analysis of trusses (determinate and indeterminate trusses) and space frames. Teaching approaches include cognitive, psychomotor, and teamwork-oriented methods. Assessments involve quizzes, tests, laboratory reports, projects, presentations, and a final exam. Students will develop the ability to analyze internal and external forces, utilize structural analysis software, and design model bridges while enhancing problem-solving, technical, and communication skills essential for civil engineering practices.

#### **References**

1. Indranil Goswami, Fundamentals of Engineering FE Civil All-in-One Exam Guide, 2nd Edition, New York: McGraw-Hill Education, 2024
2. Indranil Goswami, Civil Engineering PE All-in-One Exam Guide: Breadth and Depth, 4th Edition, New York: McGraw-Hill Education, 2020
3. Mustafa Mahamid, The late Edwin H. Gaylord Jr., and The late Charles N. Gaylord, Structural Engineering Handbook, 5th Edition, New York: McGraw Hill, 2020

4. Dave K. Adams, Structural Engineering SE All-in-One Exam Guide: Breadth and Depth, 2nd Edition, McGraw Hill, 2022
5. R.C. Hibbeler, Structure Analysis, 10th Edition, Pearson Education Limited, 2019

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### **DAC 22103 Geotechnical Engineering**

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#### **Synopsis**

This course introduces soil properties, classification, and investigation, along with topics like stress distribution, permeability, consolidation and soil shear strength. Students will gain hands-on experience through laboratory sessions. Teaching combines lectures and practicals, assessed via lab tests, lab reports, project and final exams. By the end of the course, students will handle relevant equipment, analyze geotechnical data, and demonstrate teamwork in presenting findings.

#### **References**

1. Module DAC 21103 Geotechnical Engineering (Volume 1). 2015.
2. Braja M. Das (2014). Principles of Geotechnical Engineering. TA710 .D37 2014
3. Braja M. Das (2013). Fundamental of Geotechnical Engineering. TA775. D376
4. 2013
5. Silvia, Garcia (2016). Principle of Geotechnical Engineering. TA705 .P746 2016
6. Jing, Ma (2016). Geotechnical Engineering: Pile Design and Construction. TA780 .G46 2016

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### **DAC 22203 Technopreneurship**

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#### **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/10.4324/9781003121824>

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**DAC 21801 Diploma in Civil Engineering Project I**

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**Prerequisite: Student Has Taken 40% of the total number of credits to graduate**

**Synopsis**

This course develops project planning and implementation skills through drafting proposals and preparing implementation plans. Students explore problem-solving techniques for civil engineering projects and present their findings in group settings. Supervision and assessments include proposal presentations, logbook reviews, and preliminary reports. By the end of the course, students will effectively draft industry-relevant proposals, demonstrate leadership, and apply innovative features to their projects.

**References**

1. Office of Academic Management UTHM (2024). Undergraduate Final Year Project Report Writing Guide. 1st Edition.

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**UHB 23002 English for Career Development**

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**Prerequisite: A pass in Introduction to English Communication (UHB13003)**

**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. TCook, 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>

## **DAC 21903 Highway and Traffic Engineering**

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### **Synopsis**

This course introduces students to the principles of highway design, construction, maintenance, and traffic management. Key topics include traffic studies, highway materials, flexible pavement design, road geometry, intersection control, and traffic management plans. The teaching approach integrates lectures, laboratory testing, and software-based traffic analysis to develop cognitive, psychomotor, and affective skills. Assessment methods include quizzes, tests, assignments, laboratory reports, a project presentation, and a final examination. By the end of the course, students will be able to solve highway and traffic engineering problems, perform material testing and traffic analysis, and communicate effectively through reports and presentations.

### **References**

1. Jabatan Kerja Raya (2015), Arahan Teknik Jalan 8/86 (Pindaan 2015), A Guide on Geometric Design of Road.
2. Jabatan Kerja Raya (2013), Arahan Teknik Jalan 5/85 (Pindaan 2013), Manual for Structural Design of Flexible Pavement.
3. Beverly Thompson Kuhn (2019). Transportation Engineering: A Practical Approach to Highway Design, Traffic Analysis, and Systems Operations. McGraw-Hill Education. E-book URL: <https://www-accessengineeringlibrary-com.ezproxy.uthm.edu.my/content/book/9781260019575> (need to login for Off Campus Access)
4. Pande, Anurag (2016). Traffic Engineering Handbook, (7th Edition). New Jersey, John Wiley & Sons. (HE333.T68 2016).
5. Rogers, Martin (2016). Highway Engineering, (3rd Edition). West Sussex, Wiley Blackwell. (TE145.R63 2016)
6. O'Flaherty, Coleman A. (2016). Highways: the location, design, construction and maintenance of road pavement. (5th Edition). London, ICE Publishing. (TE278.H53 2016).

## **DAC 21302 Statistics**

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### **Synopsis**

This course provides a comprehensive exploration of statistical concepts and their applications in engineering contexts. It covers descriptive statistics, focusing on measures of central tendency and measures of dispersion. Next is probability topics include independent events, conditional probability, and Bayes' theorem. Students will examine random variables, distinguishing between discrete and continuous types. The course also delves into key probability distributions, including Binomial, Poisson, and Normal distributions. In the next topic, student will introduced to the sampling distributions for single mean and the difference of two means. In the domain of estimation, students will learn about point estimation and constructing confidence intervals for single means and the difference of two means. Next, hypothesis testing topics encompass Type I and Type II errors, as well as tests for single means and the difference of two means. Student will also learn simple linear regression which highlighting graphical methods, the coefficient of determination, and the least squares method for model fitting. Teaching methods combine lectures with practical assignments to enhance understanding. Assessments include quizzes, projects, and a final exam. By the end of the course, students will have the skills to analyze data, interpret statistical results, and communicate findings effectively within engineering and applied science contexts. for difference of two.

## References

1. Zhang W. and Qi Y. (2024). probDistriCal: The online calculator for probability distributions . Computational Ecology and Software, 2024, 15(2): 57-77
2. Fein, E. C., Gilmour, J., Machin, T., & Hendry, L. (2022). Statistics for Research Students. University of Southern Queensland. ISBN 978-0-6453261-0-9.
3. Hsu, Hwei P. 2020. Schaum's Outline of Probability, Random Variables, and Random Processes. 4th ed. New York: McGraw-Hill Education. <https://www-accessengineeringlibrarycom.ezproxy.uthm.edu.my/content/book/9781260453812>
4. Barbara Illowsky. (2020). Statistics. OpenStax. <https://openstax.org/books/statistics/pages/1-introduction>
5. Green, Don W., and Marylee Z. Southard, eds. 2019. Perry's Chemical Engineers' Handbook. 9th ed. New York: McGraw-Hill Education. <https://www-accessengineeringlibrarycom.ezproxy.uthm.edu.my/content/book/9780071834087>

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## DAC 22402 Project Management

### Synopsis

This course introduces students to the project management process and project participants in the civil engineering project. This includes the project organization and method of project delivery. Additionally, to achieve specific goals and meet specific success criteria at the specified time, the student will be exposed to project planning and scheduling techniques. Students also will be introduced to generic resource management, communication, and documentation in civil engineering projects.

### 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

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## DAC 22503 Structural Design

### Synopsis

This course covers the design of structural elements using reinforced concrete and steel, focusing on beams, slabs, columns, trusses, and connections. Emphasis is placed on safe design practices and compliance with professional standards. Students will gain theoretical knowledge and practical skills, including the use of relevant software tools, to produce structural designs for engineering applications. Learning activities include lectures, assignments, and projects, with assessments conducted through tests, reports, and presentations. By the end of the course, students will be prepared to apply design principles effectively in real-world scenarios.



### References

1. Reinforced Concrete: Mechanics and Design" by James G. MacGregor and F. L. Rorrer, 7th edition, 2019.
2. Design of Reinforced Concrete" by Jack C. McCormac and Russell H. Brown, 10th edition, 2019.
3. Reinforced Concrete Design" by W.H. Mosley, J.H. Bungey, and R.H. West, 5th edition, 2020
4. Structural Steel Design" by Jack C. McCormac and Stephen F. Csernak, 6th edition, 2020.
5. Reinforced Concrete Structures: Analysis and Design" by David A. Fanella, 2nd edition, 2018  
[https://books.google.com.my/books/about/Reinforced\\_Concrete\\_Structures\\_Analysis](https://books.google.com.my/books/about/Reinforced_Concrete_Structures_Analysis)
6. Reinforced Concrete Design: To Eurocode 2  
<https://books.google.com.my/booksid=iT5GEAAAQBAJ&dq=Reinforced+Concrete+Design>

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### DAC 22603 Diploma in Civil Engineering Project II

**Prerequisite: DAC 21801 Diploma in Civil Engineering Project I**

#### Synopsis

This project-based course focuses on addressing industry-oriented challenges in civil engineering through planning, analysis, and innovative design approaches. Students will apply theoretical knowledge to real-world applications, honing their problem-solving, teamwork, and leadership skills. The course involves preparing project report, conducting analyses, and presenting final project reports. Assessments include supervisor and assessor evaluations, project reports, and presentations. By the end of the course, students will showcase their ability to devise practical solutions, communicate effectively, and implement innovative ideas in civil engineering projects.

#### References

1. Office of Academic Management UTHM (2024). Undergraduate Final Year Project Report Writing Guide. 1st Edition.

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### DAC 31010 Industrial Training

**Prerequisite: Student Has Taken 60% of the total number of credits to graduate**

#### Synopsis

This course requires students to undertake a 20-week industrial training in civil engineering, involving tasks such as planning, design, and project supervision. The program emphasizes professional skills, ethics, and social responsibility. Students will document their activities through logbooks, presentations, and reports. Assessments are based on evaluations by industrial and academic supervisors. By the end of the program, students will demonstrate the ability to apply engineering knowledge in a professional setting, adapt to industry demands, and uphold ethical practices in real-world projects.

#### References

1. Buku Panduan Latihan Industri UTHM, Penerbit UTHM, edisi 5 (2021).
2. Buku Panduan Latihan Industri Pelajar INBOUND di UTHM edisi 1(2021)
3. E-LI | Sistem Pengurusan Latihan Industri - UTHM (<https://eli.uthm.edu.my/>)

## Career and Further Education Prospect

Upon successful completion of the diploma course, the graduates have the opportunity either to further their study in the degree level program or apply for a job in the construction industry as a civil engineer assistant.

If they decided to further their study in UTHM, they can apply for a place in the Engineering Technology Faculty or Civil Engineering and Built Environment Faculty to obtain the respective degree in Civil Engineering Technology or Civil Engineering.

For those interested to work, the civil engineer assistant job is to provide technical support to civil engineers on construction projects in the following areas:

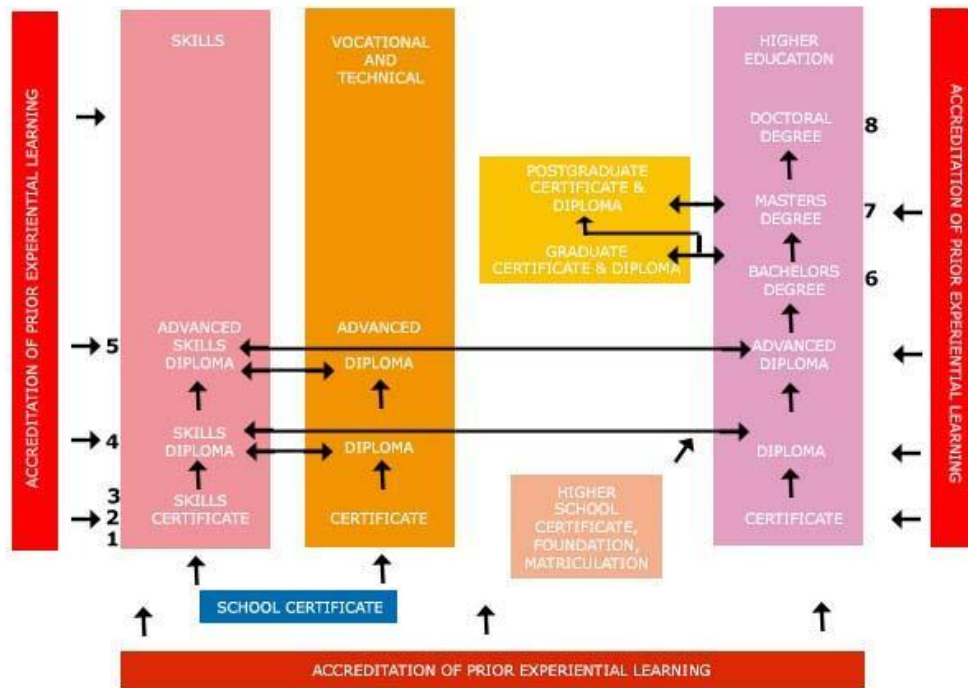
- Structural – bridges, dams, buildings, offshore platforms and pipelines
- Transportation – roads, railways, tunnels and airports
- Environmental – public water supply networks, irrigation, drainage, waste disposal and sewage treatment
- Maritime – ports, harbours and sea defences.

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

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



Educational Pathway according to Malaysian Qualification Framework

**MALAYSIAN QUALIFICATIONS FRAMEWORK:  
QUALIFICATIONS AND LEVELS**

| MQF Levels | Sectors              |                                      |                                    | Lifelong Learning                                   |
|------------|----------------------|--------------------------------------|------------------------------------|-----------------------------------------------------|
|            | Skills               | Vocational and Technical             | Higher Education                   |                                                     |
| 8          |                      |                                      | Doctoral Degree                    | Accreditation of Prior Experiential Learning (APEL) |
| 7          |                      |                                      | Masters Degree                     |                                                     |
|            |                      |                                      | Postgraduate Certificate & Diploma |                                                     |
| 6          |                      |                                      | Bachelors Degree                   |                                                     |
|            |                      |                                      | Graduate Certificate & Diploma     |                                                     |
| 5          | Advanced Diploma     | Advanced Diploma                     | Advanced Diploma                   |                                                     |
| 4          | Diploma              | Diploma                              | Diploma                            |                                                     |
| 3          | Skills Certificate 3 | Vocational and Technical Certificate | Certificate                        |                                                     |
| 2          | Skills Certificate 2 |                                      |                                    |                                                     |
| 1          | Skills Certificate 1 |                                      |                                    |                                                     |

Qualifications and Levels of Education according to Malaysian Qualification Framework



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