

ACADEMIC
PROFORMA
2022/2023



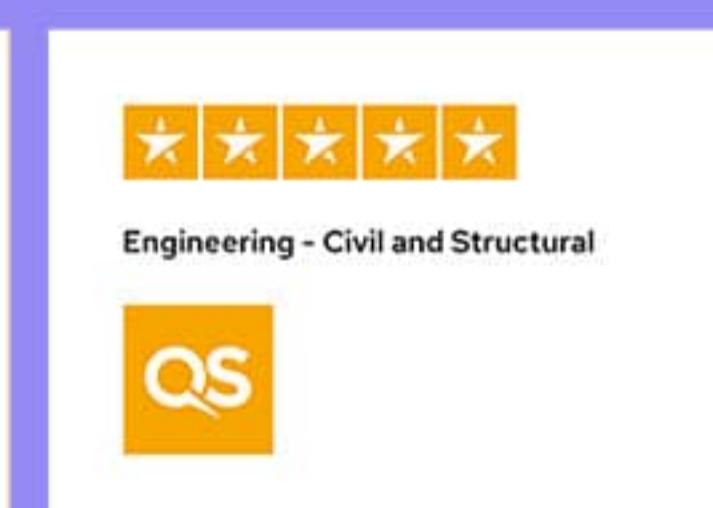
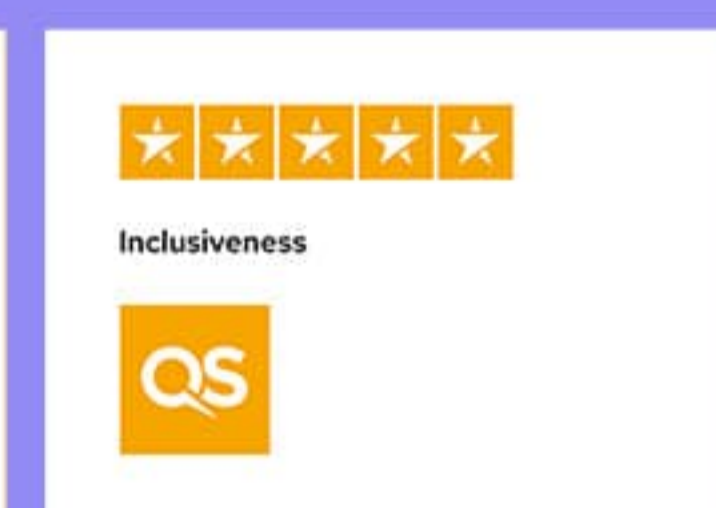
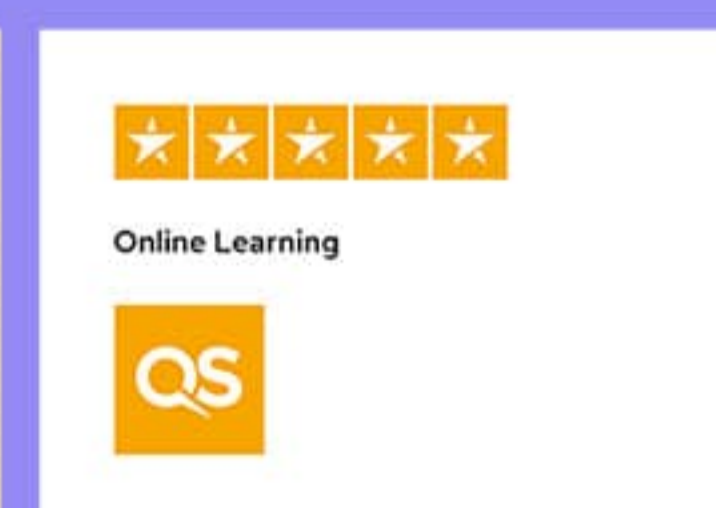
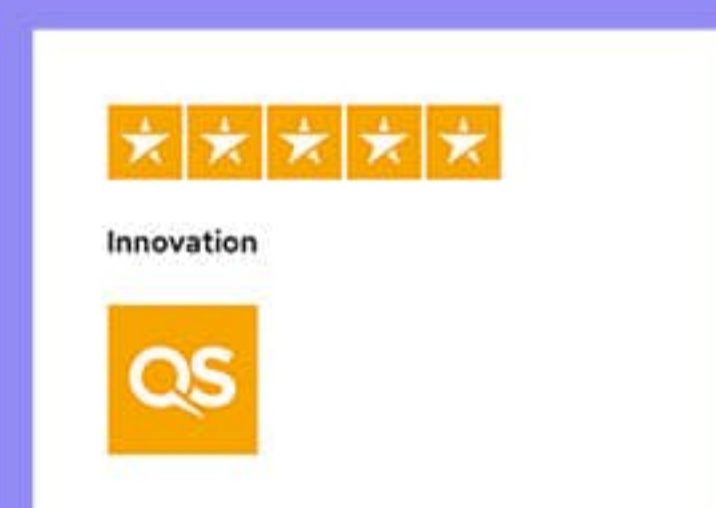
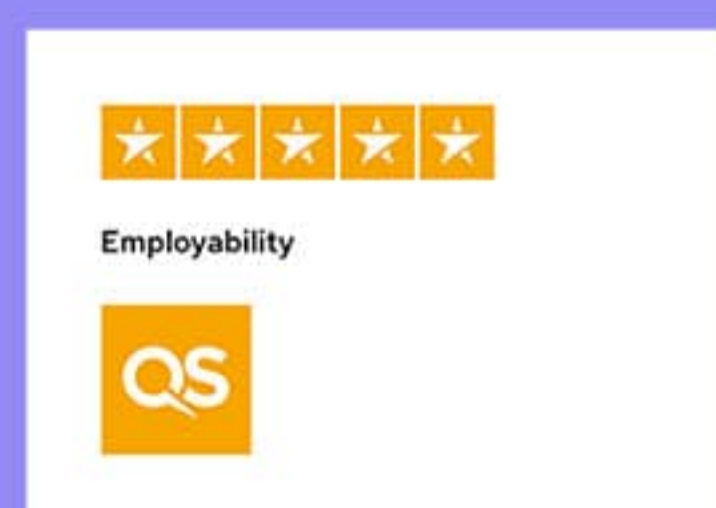
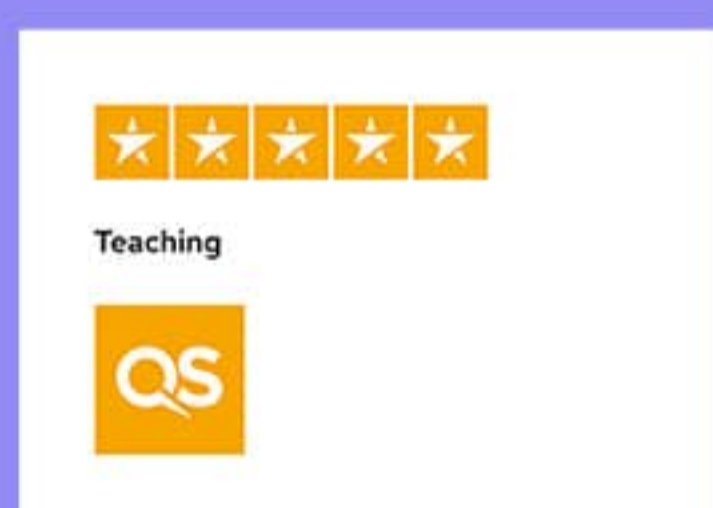
Global Technopreneur
University 2030



DIPLOMA IN
APPLIED SCIENCES



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



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



PUSAT PENGAJIAN DIPLOMA
UTHM KAMPUS PAGOH, HAB PENDIDIKAN TINGGI PAGOH
KM1, Jalan Panchar, 84600, Panchar, Johor.

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

All rights reserved. No part of this proforma may be reproduced in any form or by any means, electronic, photocopying, recording, visual, or otherwise, without prior written permission of the Vice Chancellor of Universiti Tun Hussein Onn Malaysia.

©Centre for Academic Development and Excellence
Universiti Tun Hussein Onn Malaysia
July 2022

Contents

| | |
|---|----|
| Foreword from Vice Chancellor | 3 |
| Foreword from Deputy Vice Chancellor (Academic and International) | 4 |
| Foreword from Dean, Centre for Diploma Studies | 5 |
| Vision of University | 6 |
| Mission of University | 6 |
| Education Philosophy of University | 6 |
| Logo of University | 6 |
| Board of Directors of University | 8 |
| Members of Senate | 9 |
| Centre for Diploma Studies | 12 |
| Vision of Center | 12 |
| Mission of Center | 12 |
| External Examiner at Center | 14 |
| Industrial Advisor at Center | 14 |
| Center Staff Directory | 15 |
| Aims of Programme | 18 |
| Programme Educational Objectives (PEO) | 18 |
| Programme Learning Outcomes (PLO) | 19 |
| Curriculum Structure | 20 |
| Synopsis of University Courses | 21 |
| Synopsis of Center Core Course | 22 |
| Career and Further Education Prospect | 39 |
| Further Education Pathway | 40 |

Foreword by the Vice Chancellor



Assalamualaikum Warahmatullahi Wabarakatuh and greetings.

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

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

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

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

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

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

Best wishes.

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

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

Foreword by the Deputy Vice Chancellor (Academic and International)



Assalamualaikum Warahmatullahi Wabarakatuh and greetings.

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

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

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

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

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

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

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

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

Foreword from Dean



Assalamualaikum Warahmatullahi Wabarakatuh and Warm Greetings

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

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

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

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

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

Wishing You Success.

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

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



Vision

To be a global technical university in sustainable technology and transportation

Mission

Provide technical solution for industry and community based on tauhidic paradigm

Education Philosophy of University

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

Logo of University

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

Symbolism:

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

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

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

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

Chancellor



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

Board of Directors of University

Chairman

YBhg. Dato' Sri Ibrahim bin Ahmad

Members

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

Vice Chancellor, Universiti Tun Hussein Onn Malaysia

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

Advisor, Majlis Agama Islam Johor

YBhg. Dato' Dr. Mohd. Padzil bin Hashim

Putra Business School, Universiti Putra Malaysia

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

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

YBrs. Dr. Sharifah Adlina binti Syed Abdullah

Ministry of Finance Malaysia

YBrs. Mr. Shahril Anwar Mohd Yunos

Managing Partner, Virtus Capital Partners Sdn. Bhd.

YBrs. Mdm. Elain Lockman

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

YBrs. Ts. Zainab binti Ahmad

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

YBrs. Prof. Dr. Yusri bin Yusof

Professor, Universiti Tun Hussein Onn Malaysia

Alternate Member

YBrs. Ts. Haji Mohamad Amin bin Hamat

Deputy Chief Director, Ministry of Higher Education

Secretary

YBrs. Mr. Abdul Halim bin Abdul Rahman

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

Members of Senate

Chairman

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

Vice Chancellor

Members

Prof. Ts. Dr. Azme bin Khamis

Deputy Vice Chancellor (Academic and International)

Prof. Dr. Mohd Shahir Shamsir Bin Omar

Deputy Vice Chancellor (Research and Innovation)

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

Deputy Vice Chancellor (Student Affairs and Alumni)

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

Provost UTHM Pagoh Campus

Prof. Ir. Dr. Md Saidin Bin Wahab

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

Assoc. Prof. Dr. Mas Fawzi bin Mohd Ali

Assistant Vice Chancellor (Strategic Planning and Quality)

Prof. Dr. Shahrudin bin Mahzan @ Mohd Zin

Dean, Centre for Graduate Studies

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

Dean, Faculty of Civil Engineering and Built Environment

Assoc. Prof. Dr. Rosli bin Omar

Dean, Faculty of Electrical and Electronic Engineering

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

Dean, Faculty of Mechanical and Manufacturing Engineering

Prof. Dr. Wan Fauzi@Fauziah binti Wan Yusoff

Dean, Faculty of Technology Management and Business

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

Dean, Faculty of Technical and Vocational Education

Ts. Dr. Azizul Azhar bin Ramli

Dean, Faculty of Computer Science and Information Technology

Assoc. Prof. Dr. Mohamad Zaky Bin Noh

Dean, Faculty of Applied Science and Technology

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Mdm. Zaharah Binti Abd Samad
Chief Librarian

Mdm. Norliah Binti Yaakub
Legal Advisor

Centre for Diploma Studies

Centre Vision

Excellent in providing multidisciplinary education in science and technology

Centre Mission

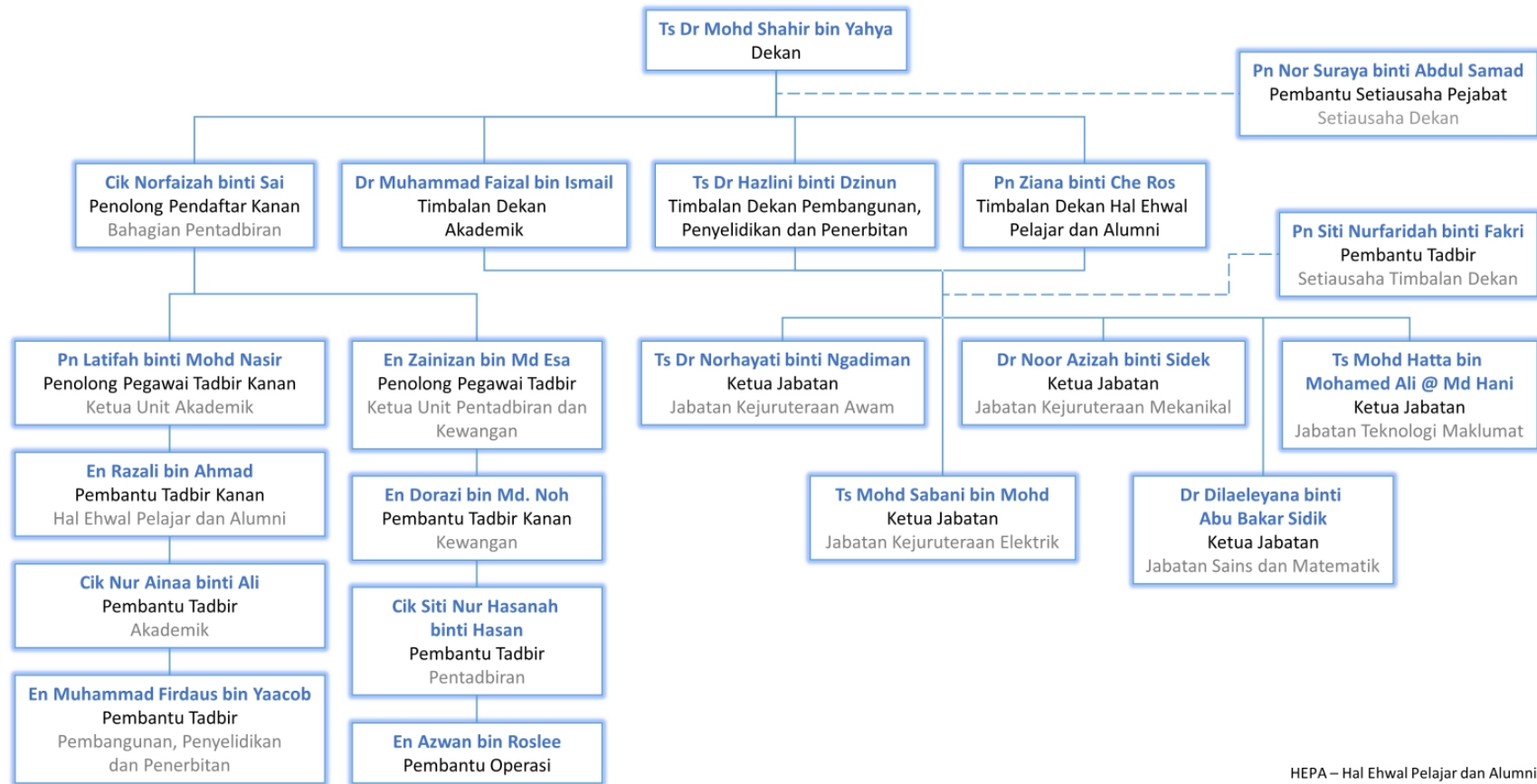
Producing graduates who contribute to national development through a holistic academic program

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

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

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

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



HEPA – Hal Ehwal Pelajar dan Alumni

CeDS Organization Chart

Centre External Examiner and Industrial Advisor

Department of Science and Mathematics

External Examiner

Prof. Dr. Sulaiman Wadi Harun

Ph.D (Teknologi Fotonik), Universiti Malaya (UM), MSc (Teknologi Fotonik) Universiti Malaya (UM), B. Eng. (Electrical and Electronic Engineering), The Technological University of Nagaoka, (Japan).

Industrial Advisor

Encik Mohd Rezuwan Shah Bin Zakaria

R&D (Biotechnology) Manager
Nutrition Technologies Sdn. Bhd
Singapore.

M.Eng.(Science - Chemistry), Universiti Putra Malaysia (UPM), B. Eng. (Science - Chemistry),
Universiti Putra Malaysia (UPM).

Mrs. Husafira@Suraity Bin Hassan

Operation Excellence Senior Engineer
PureCircle Sdn.Bhd
PT 23419 Lengku Teknologi,
Techpark @ ENSTEK,
71760 Bandar ENSTEK, Negeri Sembilan.
B.Engineering (Chemical), Universiti Teknologi Mara (UiTM)

Staff Directory

Administration

Dean

Ts. Dr Mohd Shahir bin Yahya

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

Deputy Dean (Academic)

Dr. Muhammad Faizal bin Ismail

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

Deputy Dean (Student Affairs and Alumni)

Hjh. Ziana bt Che Ros

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

Deputy Dean (Development , Research and Publication)

Ts. Dr. Hazlini binti Dzinun

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

Office Secretary

Nor Suraya binti Abdul Samad

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

Administrative Assistant (Deputy Dean Secretary)

Siti Nurfaridah binti Fakri

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

Senior Assistant Registrar

Cik Norfaizah binti Sai

BSc. Human Resources (UPM)

Assistant Administrative Officer (Academic)

Latifah binti Mohd Nasir

Dip.(International Business) (Politeknik Shah Alam)

Assistant Administrative Officer (Administrative and Finance)

Zainizan bin Md Esa

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

Administrative Assistant (Clerical & Operation) Student Affairs and Alumni

Razali bin Ahmad

Administrative Assistant (Clerical & Operation) Administrative and Finance

Dorazi bin Md Noh

Administrative Assistant (Clerical & Operation) Administrative

Siti Nur Hasanah binti Hasan

Administrative Assistant (Clerical & Operation) Academic

Nur Ainaa binti Ali

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

General Office Assistant
Azwan bin Roslee

Department of Science and Mathematics

Academic Staff

Head of Department

Dr. Dilaeleyana binti Abu Bakar Sidik

PhD Eng (Tech)(UTHM)MEng (Chemical)(UTM), BEng (Chemical)(UMP)

Dr. Norhazimah binti Abdul Halim

PhD (Bioprocess Engineering) (UMP), MEng (Bioprocess) (UMP), BEng (Chemical)(Biotechnology)(UMP)

Assoc. Prof. Dr Hjh. Nafisah @Kamariah binti Hj Md Kamaruddin

MSc. (Algebra & Statistics) (Ohio University, USA), BSc. (Mathematics) (University of Brigeport, USA)

Ts. Aida binti Muhamad

MEng (Civil Engineering) (UTHM), BSc.(Hons). (Chemistry) (UKM)

Pn. Siti Fatimah binti Mohd Noor

MSc. (Molecular Biology) (UKM), BSc.(Hons). (Genetics) (RIHS)

Pn. Rozainita binti Rosley

MSc. (Chemical Synthesis) (UPM), BSc, (Hons) (Petroleum Chemistry) (UPM)

Pn. Norliza binti Ghazali

MBA. (Strategic Management) (UTM), BSc. (Economy) (USM)

Dr. Norbaizura binti Nordin

PhD (Physics)(UKM), MSc. (Physic Instrumentation) (UPM), BSc, (Hons) (Physic) (UPM)

En. Misbahul Muneer bin Abd Rahman

BEng. (Chemical) (UiTM)

Pn. Nurhana binti Mohamad

MSc. (Mathematics) (UTM), BSc. (Industrial Mathematics) (UTM)

Pn. Jamilah binti Mohd Ghazali

MSc (Applied Mathematics)(UiTM), BSc(Mathematics Management)(UiTM)

Pn. Raudah binti Mohd Adnan

MBA (Marketing) (UPM), BBA (Marketing) (UiTM), Dip of Ed (Arts) (UPSI), Dip. Bus. Studies (UiTM)

Dr. Siti Noraiza binti Ab Razak

PhD (Physics)(UTM), MSc (Physics)(UTM), BSc (Health Physics)(UTM)

Pn. Norazreen binti Sharip
MSc (Physics)(UTM), BSc (Health Physics)(UTM)

Pn. Norain binti Ahmad Nordin
MSc. (Mathematics) (UTM), BSc. (Industrial Mathematics) (UTM)

Pn. Shazana bte Hashim
MSc. (Applied Statistic) (UPM), BSc. (Statistics) (UiTM)

Pn. Nuramirah binti Juma'at.
MSc. (Mathematics Engineering) (UTM), BSc. (Mathematics) (UTM)

Dr Norhaliza binti Abu Bakar
PhD (Applied Maths), MSc. (App. Mathematics) (UPM), BSc. with Education (Honours) Mathematics (UPM)

Dr. Muhammad Sufi bin Roslan
PhD (Physics) (UTM), MSc (Physics) (UTM), BSc (Physics)(UTM)

Cik Nur Shahirah binti Mohd Aripin
MEng (Chemical) (UKM), BEng (Chemical)(UiTM)

Cik Nurul Izzati binti Mohd Ismail
MEng (Bioprocess) (UTM), BEngTech (Biosystem)(UniKL).

Cik Basirah binti Fauzi
MPhil (Chemical Engineering) (UTM), BEng (Chemical-Bioprocess)(UTM)

Ts. Dr. Hazlini binti Dzinun
PhD (Gas Engineering) (UTM), MEng (Civil-Environmental Planning) (UTM), BEng (Chemical)(UTM)

Dr. Adnin Afifi binti Nawi
PhD (Mathematics), BSc (Mathematics)

Dr. Mohd Zulariffin bin Maarof
PhD (Mathematics), Msc. (Mathematics), Bsc. (Mathematics)

En. Zul Afiq bin Sazeli
MSc. (Applied Mathematics), BSc. (Mathematics)

Dr. Siti Samahani binti Suradi
PhD (Polymer) (UTM), MEng (Chemical Engineering) (UMP), BEng (Chemical Engineering)(UTM)

Dr. Mohd Khairul Nizam bin Mohd Zuhani
PhD (Chemical Engineering) (USM), MEng (Chemical Engineering) (UMP), BEng (Chemical Engineering- Biotechnology)(UMP)

Programme Name

Diploma in Applied Sciences (DAU)

Programme Aims

Diploma in Applied Sciences is to produce semi – professional's human resource based on the following PEO

Programme Educational Objectives (PEO)

Program Educational Objectives are to produce an Electrical Assistant Engineer that are able to:

- PEO 1 Apply theoretical and practical knowledge in solving pure and applied science problems.
- PEO 2 Practise knowledge effectively, professionally and ethically in issues of pure and applied science
- PEO 3 Interact with professionals and the community effectively to carry out leadership responsibilities in an organization
- PEO 4 Develop career development and entrepreneurship in lifelong learning

Programme Learning Outcomes (PLO)

Upon graduation, a graduate should acquire the followings:

- PLO 1 Apply knowledge of applied sciences and mathematics in sciences and technology.
- PLO 2 Identify problem and generate alternative solutions to mathematical problems, pure science and applied science.
- PLO 3 Apply scientific knowledge, skills, essential tools and techniques, technology in the practice of applied science.
- PLO 4 Collaborate as a member in diverse learning and working communities in sciences and technology team.
- PLO 5 Interact with professionals and the community effectively both in written or oral forms.
- PLO 6 Use a broad range of information, media and technology applications.
- PLO 7 Demonstrate skill in numerical, graphical and visual data.
- PLO 8 Developing a potential of leadership skill and professionalism in group effectively.
- PLO 9 Recognize effectively in self-directed lifelong learning and professional pathways.
- PLO 10 Demonstrate entrepreneurial competency skills for career development.
- PLO 11 Practicing knowledge professionally, ethically and humane in the context of applied science and society.

Curriculum

Table 1: Summary of curriculum for Diploma in Applied Science

| Tahun | Semester | Kod Kursus | Kursus | Kredit | Jumlah |
|----------------------------------|----------|--------------------------|---|--------|-----------|
| | Khas | UQI 10402 / UQI 11502 | Pengantar Pengajian Islam / Pengantar Pengajian Moral | 2 | 7 |
| | | UQU 10403 | Pengantar Kenegaraan dan Pembangunan Malaysia | 3 | |
| | | UWB 1**02 | Bahasa Asing | 2 | |
| 1 | I | UHB 10302 | English for Academic Survival | 2 | 18 |
| | | UQ* 1***1 | Co-Curriculum I | 1 | |
| | | DAS 10103 | Algebra | 3 | |
| | | DAS 16403 | Cell Biology | 3 | |
| | | DAS 12303 | Physical chemistry | 3 | |
| | | DAU 10103 | Physics Mechanics | 3 | |
| | | DAS 20803 | Calculus | 3 | |
| | II | UHB 20302 | Academic Communication | 2 | 18 |
| | | UQ* 1***1 | Co-Curriculum I | 1 | |
| | | DAS 12503 | Organic Chemistry | 3 | |
| | | DAS 26503 | Microbiology | 3 | |
| | | DAU 10303 | Optic | 3 | |
| | | DAS 10503 | Statistics I | 3 | |
| | | DAU 10203 | Fundamentals of electric and electronic | 3 | |
| 2 | I | UHB 30502 | English for Workplace | 2 | 20 |
| | | DAS 22403 | Analytical Chemistry | 3 | |
| | | DAU 21303 | Fundamentals of Food Science and Technology | 3 | |
| | | DAU 16103 | Computer Technology and Multimedia | 3 | |
| | | DAS 20703 | Statistics II | 3 | |
| | | DAU 25102 | Final Year Project I | 2 | |
| | | DAU 24202 | Introduction to Modern Physics | 2 | |
| | | DAU 18102 | Occupational Safety and Health | 2 | |
| | II | UQI 11402 | Falsafah dan Isu Semasa | 2 | 18 |
| | | DAN 20103 | Perniagaan dan Keusahawanan | 3 | |
| | | DAU 22303 | Environmental Chemistry | 3 | |
| | | DAU 34403 | Ordinary Differential Equation | 3 | |
| | | DAU 23302 | Analytical Instrumentation | 2 | |
| | | DAU 22102 | Waste Management | 2 | |
| DAU 35203 | | Final Year Project II | 3 | | |
| 3 | I | DAU 25309 | Industrial training | 9 | 9 |
| Jumlah Kredit Keseluruhan | | | | | 90 |

Synopsis of University Courses

| Tahun | Semester | Kod Kursus | Kursus | Kredit | Jumlah |
|----------------------|----------|--------------------------|--|--------|-----------|
| | Khas | UQI 10402 / UQI 11502 | Pengantar Pengajian Islam / Pengantar Pengajian Moral | 2 | 7 |
| | | UQU 10403 | Pengantar Kenegaraan dan Pembangunan Malaysia | 3 | |
| | | UWB 1**02 | Bahasa Asing | 2 | |
| 1 | I | UHB 10302 | English for Academic Survival | 2 | 3 |
| | | UQ* 1***1 | Co-Curriculum I | 1 | |
| | II | UHB 20302 | Academic Communication | 2 | 3 |
| | | UQ* 1***1 | Co-Curriculum I | 1 | |
| 2 | I | UHB 30502 | English For Workplace | 2 | 2 |
| | II | DAN 20103 | Perniagaan dan Keusahawanan | 3 | 5 |
| | | UQI 11402 | Falsafah dan Isu Semasa | 2 | |
| 3 | I | - | - | - | - |
| Jumlah Kredit | | | | | 20 |

Synopsis of Courses

UQU 10403 Introduction to Nationhood and Development of Malaysia

Synopsis

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

References

1. Modul Pengantar Kenegaraan dan Pembangunan Malaysia, (2018). Parit Raja : Penerbit UTHM
2. Mardiana Nordin dan Hasnah Hussin. (2014). Pengajian Malaysia. Shah Alam :Oxford Fajar
3. Mohamed Suffian Hashim. (1994). Mengenal Perlembagaan Malaysia. Edisi Kedua. Kuala Lumpur: Dewan Bahasa dan Pustaka.
4. Nazaruddin Haji Mohd Jail, Ma'rof Redzuan, Asnarulkhadi Abu Samah dan Ismail Hj Mohd Rashid. (2004). Pengajian Malaysia: Kenegaraan dan Kewarganegaraan.
5. Nazri Muslim. (2015). Islam dan Melayu: Tiang Seri Hubungan Etnik di Malaysia. Bangi: Penerbit UKM.

UQI 10402 Islamic Studies

Synopsis

This course explains about Islamic concept as ad-deen. It discusses the study of alQuran 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 alQuran dan al-Sunnah, Negeri Sembilan: USIM. (BP130.8 .P45 2011)
5. Azzam, Abdul Aziz Muhammad (2010), Fiqh Muamalat: Sistem Transaksi dalam Fiqh Islam, Jakarta: Amzah. (BP158.C59 .A99 2010)

UQI 11502 Moral Studies

Synopsis

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

References

1. Eow Boon Hin. 2008. Moral Education. Longman. (LC268.E48 2008)
2. Ahmad Khamis. 1999. Etika Untuk Institusi Pengajian Tinggi. Kuala Lumpur. Kumpulan Budiman. (LC315.M3.A35 1999)
3. Mohd Nasir Omar. 1986. Falsafah Etika; Perbandingan Islam dan . Kuala Lumpur. JPM.

UQI 11402 Philosophy and Current Issues

Synopsis

This course covers the relationship of philosophy with the Philosophy of National Education and Rukunegara. The use of philosophy as a tool to purify the culture of thought in life through art and thinking methods as well as human concepts. The main topics in philosophy namely epistemology, metaphysics and ethics are discussed in the context of current issues. Emphasis is given to philosophy as the basis for inter-cultural dialogue and fostering common values. At the end of this course, students will be able to see the disciplines of knowledge as a comprehensive body of knowledge and related to each other.

References

1. Al-Attas, S.M. Naquib. (1991). The Concept of Education in Islam. Kuala Lumpur: ISTAC.
2. Al-Farugi, I.R. (1994). Al-Tawhid: Its Implications for Thought and Life, (2nd Ed.). Herndon: IIIT.
3. Phillips, D.C. (Ed.) (2014). Encyclopaedia of Educational Theory and Philosophy, (1st Ed.). SAGE Publication.
4. Dzulkifli, A.R. & Rosnani, H. (2019) Pentafsiran Baharu Falsafah Pendidikan Kebangsaan dan Pelaksanaannya Pasca 2020. Kuala Lumpur: IIUM Press.
5. Hospers, J. (1997). An Introduction to Philosophical Analysis, (4th Ed.). London: Routledge.

UHB 10302 English for Academic Survival

Synopsis

This course focuses on developing students' acquisition of English language skills required for higher education. This course assists students to read, write, listen and speak effectively and to become informed, literate and lifelong learners. By the end of the course, students should be able to use English for a wide range of personal and academic activities in the context of tertiary education.

References

1. Clark, R. C. (2004). *Graphics learning: Proven guidelines for planning and evaluating visuals in training materials*. San Fransisco, CA: Pfeiffer. LB1043.5 .C52 2004
2. Dunne, E. (1994). *Talking and learning in groups*. London: Routledge. LC6519 .D86 1990 N1
3. Galanes, G. J. (2013). *Effective group discussion: Theory and practice (14th ed.)*. New York: McGraw-Hill. HM736 .G34 2013
4. Greasley, P. (2011). *Doing essays and assignments: Essential tips for students*. Thousand Oaks, CA: Sage Publication. LB1047.3 .G73 2011
5. Lim, P. L. (2014). *Listening & notetaking skills 2 (4th ed.)*. Boston: National Geographic Learning. PE1128 .L55 2014

UHB 20302 Academic Communication

Prerequisite Course: UHB 10302 English for Academic Survival

Synopsis

This course introduces students to critical reading and writing skills. Students are expected to read and respond critically to academic materials. This course will also provide opportunities for students to develop their academic writing skills in producing technical papers.

References

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

UHB 30502 English for Workplace

Prerequisite: UHB 20302 Academic Communication

Synopsis

This course employs a task-based learning approach and focuses on developing students' delivery of speech in oral interactions and job interviews. Particular emphasis will be given to promote the mastery of self-directed learning, team-work, research, reasoning and creativity. This course also enables students to acquire the knowledge skills necessary for conducting and participating in meetings, which include writing of meeting documents and event proposals based on specific themes. Students will also be exposed to interview techniques.

References

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

UWB 1**02 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* 1**01 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* 1**01 Co-Curriculum II

Synopsis

The course offer various form of activities for student of Bachelor Degree and Diploma. Eight fields of activities offer are Public Speaking, Entrepreneurship, Sports, Community Services, Volunteership, Leadership, Culture and Innovation. **DAN 20103 Business and Entrepreneurship**

Synopsis

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

References

1. Norliza Ghazali & Raudah Mohd Adnan: *Perniagaan dan Keusahawanan*, Penerbit UTHM, 2016
2. UiTM Entrepreneurship Study Group (2011). *Engineering Entrepreneurship*. Prentice Hall. (HB615.F86 2004)
3. Ariffin, S, Hamidon, S (2017). *Introduction to Entrepreneurship*. Oxford Fajar, Kuala Lumpur
4. Bessant J. Tidd, Joseph. (2011). *Innovation and Entrepreneurship*. 2nd ed. West Sussex: Wiley. (HD53.B48 2011)
5. Oxford Fajar (2013). *Third Edition. Entrepreneurship*. Sarimah Hanim Aman Shah & Cecilia Soon Teik Lan

DAS 10103 Algebra

Synopsis

This course covers topics that use properties in mathematics that are in real numbers such as exponents, logarithms and radicals. Students also solve polynomial problems such as quadratic equations, inequalities and absolute values. Partial fractions will also be introduced as well as numerical methods such as the method of division of equations and Sekan for nonlinear equations. Next, the course also describes the sequence and series of arithmetic and geometric series. The algebraic method used is binomial expansion. Next students will study the topic of trigonometry for the ratio of any angle and equation of trigonometry. In the topic of matrices, students use arithmetic operations and starting line operations. To solve the system of linear equations students use inverse matrices, Gauss-Jordan elimination, numerical method solutions and Gauss-Seidel methods. At the end of this course, students learn the lines and plane equations in vector topics as well as various methods in solving complex numbers such as arithmetic operations, polar shapes, Euler formulas and De Moivre theorems.

References

1. Nafisah@Kamariah Md. Kamaruddin et al. (2015). DAS 10103 Algebra. Centre for Science Studies, UTHM Publisher.
2. Abd. Wahid Md Raji et al. (2000). Matematik Asas, Jilid I&II. Jabatan Matematik, Fakulti Sains, UTM.
3. James, S. (2001). Intermediate Algebra. Boston: McGraw Hill. QA39.3 .S73 2002
4. Howard Anton. (1994) Elementary Linear Algebra. New York. Wiley. QA184 .A57 1994
5. Glyn James. (2001). Modern Engineering Mathematics. England. Prentice Hall.TA330 .J352 2001

DAS16403 Cell Biology

Synopsis

The Cell Biology course will cover structure and function of the cell. We will study on chemistry of living things that involve in cell biology. We will discuss the chemistry behind living things, macromolecules of cells and type of cells. Topics such as cell organelle, membrane structure, composition and transport of membrane; cell energy and metabolisms; cell communication and cell continuity will be covered. Experiments will be carried out in this course that will give a better understanding about the biology of cells.

References

1. Marielle Hoefnagels, (2009). Biology: Concepts and Investigations, 2nd ed. New York. Mc Graw Hill. [QH 307.2. H63. 2012
2. Raven P. H., Johnson G. B., Mason K. A., Losos J. B., Singer S. R. (2011). Biology, 9th ed. New York. Mc Graw Hill. [QH 308.2. B58.2011]
3. Alberts, Bruce, (2014). Essential of Cell Biology 4th edition. New York, NY : Garland Science. [QH581.2 .E87 2013].
4. Ross, F.C, Bailey, D and Enger, E.D (2009). Concepts in Biology. 13th. Ed. Berkshire, McGraw-Hill.
5. Becker, Ralph, (2015). Cell Biology. New York, NY : Callisto Reference. [UTHM Parit Raja: QH581.2.C44 2015].[Pagoh Edu Hub: QH581.2.C44 2015.
6. Alberts, Bruce, (2014). Essential cell biology, 4th ed. New York, NY : Garland Science. [QH581.2 .E87 2013].

DAS 12303 Physical Chemistry

Synopsis

Physical chemistry covers the mechanisms and processes of natural phenomena of physical reaction to environment or daily activities. This course is an overview of the fundamental of states of matter, atomic mass and structures, the gas properties, thermodynamics, Hess's Law, Henry's Law and Raoult's Law, the chemical equilibrium, Le Chatelier Principle, electrochemistry, the Arrhenius and Bronsted definition of acids and bases, chemical kinetics, and chemical bonding and intermolecular forces in compounds.. Finally, there is discussion of natural processes for light phenomena concept, measurement, and designing instrument.

References

1. Tuteja, A. 2007. Fundamentals of Physical Chemistry. Discovery Publishing House, New Delhi. [QD453.2 .T87. 2007]
2. Levine, I.N. 2009. Physical Chemistry, 6th. Ed. McGraw Hill, Boston. [QD453.3.L48. 2009]
3. Norbani Abdullah, et al. 1998. Kimia Fizikal Asas Matrikulasi. Penerbit Fajar Bakti, Shah Alam, Malaysia. [QD453.2.N67. 1998]
4. Jones, A. 2005. Chemistry An Introduction for medical and Health Sciences. John Wiley & Sons Ltd: England. [QP514.2 .J66. 2005]
5. Kuhn, H. et al. 2009. Principles of Physical Chemistry, John Wiley; , Hoboken, NJ. [QD453.3 .K83. 2009]
6. Davis, W. M. 2012. Physical Chemistry : a modern introduction 2nd ed. CRC Press. [QD453.3 .D38. 2012]

DAU 10103 Physics Mechanic

Synopsis

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

References

1. "Halider, 2019, Core concepts in physics : classical mechanics, ISBN 9781984620279"
2. Young, Hugh D., author, 2016 Sears and Zemansky's university physics : with modern physics / Hugh D. Young, Roger A. Freedman. Fourteenth. Global edition. ISBN 9781292100319
3. Griffith, W. Thomas, 2019. T.he physics of everyday phenomena : a conceptual introduction to physics / W. Thomas Griffith (Pacific University), Juliet W. Brosing (Pacific University). Ninth edition. ISBN 9781260085211
4. Bauer, Wolfgang, 2014, University physics, New York, NY : McGraw-Hill ISBN 9780077409623

Synopsis

Limits: Relation and function, graph, algebra function, piecewise function, trigonometry, exponent, logarithm, hyperbolic and its inverse. Limit of functions. One-sided limits. Limits at infinity. Continuity. Differentiation: Techniques of differentiation: Sum and differences rule, product rule, quotient rule. Chain rule. Differentiation of exponent functions, logarithm functions, implicit functions, parametric equations, inverse trigonometric functions and higher derivatives. Application of differentiation: Rates of change. Maximum and minimum problem, graph sketching. L' Hôpital's Rule.

Integration: Integration as inverse of differentiation. Integration of standard functions. Definite integrals. Techniques of integration: by substitution, by parts, by partial fraction, by table method. Numerical methods: Simpson's rule and Trapezium rule. Improper integrals : Integrals at infinity. Application of integration: Area of a region. Volumes by cylindrical shells. Arc length and surface area.

References

1. Nafisah@Kamariah Md. Kamaruddin, Zulkarnain Md Amin, Norziha Che Him and Norzehan Mohd Shab. (2019). Calculus (DAS20803). Pusat Pengajian Diploma.
2. "Abd Wahid Md Raji, Hamisan Rahmat, Ismail Kamis, Mohd Nor Mohamad, Ong Chee Tiong, (2013). The First Course of Calculus for Science and Engineering Students. UTM Press. ISBN: 9789835208621.
3. Anton, Howard, Bivens, Irl and Davis, Stephen. (2012). Calculus, 10th Edition. Hoboken, NJ : John Wiley & Sons, ISBN: 978-0-470-64772.
4. Larson, Ron. (2011) Brief Calculus: An Applied Approach. Boston, MA, Cengage Learning. ISBN: 9781133109488. Call number: QA303.2 .L37 2011.
5. Anton, Howard, Bivens, Irl and Davis, Stephen. (2013). Calculus : early transcendentals. Hoboken, NJ : John Wiley & Sons. ISBN: 9781118092408. Call number: QA303.2 .A57 2013.
6. "Anton, Howard, Bivens, Irl and Davis, Stephen. (2012). Calculus, 10th Edition. Hoboken, NJ : John Wiley & Sons, ISBN: 978-0-470-64772.
7. "Anton, Howard, Bivens, Irl and Davis, Stephen. (2013). Calculus : early transcendentals. Hoboken, NJ : John Wiley & Sons. ISBN:9781118092408. Call number: QA303.2 .A57 2013.
8. "Larson, Ron. (2011) Brief Calculus: An Applied Approach. Boston, MA, Cengage Learning. ISBN: 9781133109488. Call number: QA303.2 .L37 2011.

DAS 12503 Organic Chemistry

Synopsis

This course deals primarily with the basic principles to understand the structure and reactivity of organic molecules. Emphasis is on substitution and elimination reactions and chemistry of the carbonyl group. The course covers the introduction to organic molecules, stereochemistry, organic reactions, alkanes, alkenes, alkynes and radical reactions.

References

1. Brown, W. H. and Poon, T. (2011). Introduction to Organic Chemistry 4th Ed. New York: John Wiley. QD253.2 .B76 2011
2. Carey, F. A. and Giuliano, R.M. 2017. Organic Chemistry 10th. Ed. McGraw Hill. QD251.3 .C37 2017
3. McMurray, John. (2015). Organic Chemistry: with biological applications. McGraw Hill. QD253.2 .S65 2008
4. Smith, J.G. 2015. Organic Chemistry 3rd. Ed. New York: McGraw Hill, QD31.3.M35 2015
5. Solomons, T. W. G. and Fryhle, C. B. (2016). Organic Chemistry 10th , Ed. Hoboken, NJ: John Wiley. QD251.S64 2016
6. Rice, Joseph E. Organic Chemistry concepts and application QD 415.R52. 2014.

DAS 26503 Microbiology

Synopsis

The Microbiology course covers the fundamental principles of microbiology. The structure, physiology and ecology of viruses, bacteria, fungi and protists will be discussed. Aspects of microbiology that are important in health, sanitation and food processing are also discussed. The basic microbiology laboratory skill will be applied via practical experiments in laboratory.

References

1. Harley, J.P. 2011. Laboratory Exercises in Microbiology. 8th Ed. McGrawHill/Higher Education, USA. [QR41.2 .H37 2011].
2. Willey J., Sherwood, L. and Woolverton, C. 2011. Prescott's Microbiology. 8th Ed. McGraw Hill, USA. [QR41.2 .W54 2011].
3. Tortora, G.J., Funke, B.R. and Case, C.L. 2010. Microbiology: An Introduction. 10th Edition. Benjamin-Cummings Publishing Company. USA. [QR41.2 .T67 2010]
4. Madigan, M.T., Martinko, J.M., Stahl, D.A. and Clark, D.P. 2009. Brock Biology of Microorganisms. 12th Edition. Pearson International, USA. [QR41.2 .B76 2009].
5. Black, J.G. 2008. Microbiology: Principles and Explorations. 7th Edition. John Wiley & Sons, USA. [QR41.2 .B52 2008].

DAU 10303 Optic

Synopsis

Optics covers the mechanisms and processes of light propagation and natural phenomena of light prior to environment or daily activities. This course is an overview of technology and engineering approaches to emphasis on fundamental principles of light ray. Theory and conceptual design of optical systems for in common practices are discussed, as well as ray theory, interference, and diffraction. The concept, quantity derivation, and calculation, are presented, including reflection, diffraction, superposition process of light. This course covers the technology related to industrial optical analysis and calculation. Finally, there is discussion of natural processes for light phenomena concept, measurement, and designing instrument.

References

1. Pedrotti, F.L., Pedrotti, L.M. and Pedrotti, L.S., 2017. Introduction to optics. Cambridge University Press.
2. Young, H.D., Freedman, R.A. and Ford, A.L., 2013. University Physics with Modern Physics Technology Update. Pearson Education.
3. Halliday, D., Resnick, R. and Walker, J., 2013. Fundamentals of physics. John Wiley & Sons.
4. Ling, S.J., Sanny, J., Moebs, W., Friedman, G., Druger, S.D., Kolakowska, A., Anderson, D., Bowman, D., Demaree, D., Ginsberg, E. and Gasparov, L., 2016. University Physics Volume 2.

DAS 10503 Statistic I

Sinopsis

This course cover topic introduction of statistics, which are students will know some basic terms in statistics and the role of statistics. Students also learn type of variable, sources of data and scale of measurement. It also introduces how to organizing and graphing data such as frequency table, pie chart, histogram and bar chart. Then, it emphasizes on descriptive statistics, which includes measures of central tendency, measures of variability and measures of position. Students will introduce with the research fundamental include research design, research question and how to sampling the data. After that, they will learn how to model the data and find the relationship between variables.

References

1. Lau, Too Kya (2015). Statistics. Selangor : Herald Printer, 2015. HA29 .L28
2. Douglas C. Montgomery & George C. Runger (2002). Applied Statistics and Probability for Engineers. John Wiley.
3. Allan G.Bluman (2007) Elementary Statistics, A step by Step Approach. MacGraw Hill Int Edition Prentice Hall. TA330 .J352 2001

DAU 10203 Fundamentals of Electric and Electronic

Synopsis

This course introduces students to electric and magnetism knowledge needed related to electric on charge, field, potential, current and circuit. The application involves the vector resultant, velocity, drift velocity, current density, resistance, Ohm's Law, resistivity and conductivity, temperature dependence of resistance, capacitors, capacitance, electromotive force (emf), energy, electric power, internal resistance, serial and parallel resistance, terminal potential difference and Kirchhoff's Law. The course also discuss the magnetism in force of moving charge, Biot-Savart rule, magnetic force on current due to a straight wire, current loop, solenoids and electromagnetic induction involving Faraday's Law and Lenz's Law.

References

1. Godse, A.P. (2013). Basic Electronics. [TK7816 .G62 2013]
2. Kothari D. P. (2014). Basic electronics. [TK7816 .K67 2014]
3. Alpha Science International Ltd. (2015). Integrated electronics. [TK7819.I57 2015]
4. Ravish Aradhya H.V.(2013). Basic Electronics. [HF5415.1255 .R38 2013]

DAS 22403 Analytical Chemistry

Synopsis

The course discusses the fundamentals of analytical chemistry, basic chemical concept of quantities and concentrations, titrimetry method, basic spectrophotometry analyses of UV/Vis and FTIR and chromatographic separation methods and their applications of HPLC and GC.

References

1. Skoog, Douglas A (2014), Fundamentals of analytical chemistry, Belmont, CA : Cengage - Brooks/Cole , ISBN : 9780495558286, QD75.4.E4 .C76 2014
2. Crouch, Stanley R (2014), Applications of Microsoft Excel in Analytical Chemistry, Pacific Grove, Calif. : Brooks/Cole Cengage Learning, ISBN : 781285087955, QD75.22 .F86 2014
3. Lewis, Jaylen (2012), Electro - Analytical Chemistry, London : Auris Reference, QD115 .E434 2012
4. Barboz, Alistair (2012), Analytical chemistry, Nottingham : Auris Reference, ISBN : 9781781541425, QD75 .A52 2012
5. Khopkar, S.M. (2009). Basic Concept of Analytical Chemistry, 3rd Ed. London : New Age Science, QD75.2.K46 2009

DAU 21303 Fundamentals of Food Sciences and Technology

Synopsis

The course provide students the basic knowledge of food science and technology which is a part of applied science knowledge.

References

1. Murano, P.S. 2003. Understanding food science and technology. Belmont CA: Wadsworth. Thomson Learning. [TP370.M87 2003]
2. Parker, R. 2003. Introduction to food science. Albany NY: Delmar. [TP370.P37 2003]
3. Fellows, P.J. 2009. Food Processing Technology; Principles and Practice 2nd edition. CRC Press, Boca Raton. [TP370.F44 2000]
4. Brown, A. 2004. Understanding food: principles and preparation. 2nd. Ed. Belmont CA: Wadsworth, Thomson Learning [TX354.B76 2004]
5. Berk, Z. 2009. Food Process Engineering and Technology. Elsevier, Amsterdam. [TP370.B47 2009]

DAU 16103 Computer Technology and Multimedia

Synopsis

This subject will provide relevant information covering the history of computer technology, hardware, software and computer networks. In addition, students will also be exposed particularly to the development of information and multimedia technology project by designing a website with multimedia elements.

References

1. Stallings, William (2011), Data and computer communications, London : Pearson Education, TK5105 .S73 2011
2. Forouzan, Behrouz A.(2012), Data communications and networking ,New York, NY : McGraw-Hill, TK5105 .F67 2012
3. Banerji, Ashok (2010), Multimedia technologies, New Delhi : Tata McGraw Hill, QA76.575 .B36 2010
4. Vaughan, Tay (2011), Multimedia : making it work, New York, NY : McGraw Hill, QA76.575 .V38 2011
5. Bing, Benny (2013), Broadband wireless multimedia networks, Hoboken, New Jersey : Wiley, K5105.775 .B56 201

DAS 20703 Statistic II

Synopsis

This course covers topics in probability where students are introduced to the probability of an events, conditional and independent events. Students also solve random variable problem such as expected value, variance and standard deviation on discrete and continuous random variable. Then, students enhanced their prior knowledge of random variable to solve Binomial, Poisson and normal distribution. They then studied the central limit theorem and used them to find the normal approximation to Binomial and Poisson distribution. Next, this course also explain on the sampling distribution of single and two means. After that, students are exposed to the concept of estimation and confidence interval for single and difference of two means and also hypothesis testing.

References

1. Nafisah@Kamariah Md. Kamaruddin el. al. (2010). Statistics (DAS20202). Pusat Pengajian Diploma, UTHM Publisher.
2. Wadpole - Mayer. Probability and Statistics for Engineers and Scientists. Prentice Hall. 2007. TA340 .W35 2007.
3. Douglas C. Montgomery & George C. Runger (2011). Applied Statistics and Probability for Engineers. John Wiley. QA276.12 .M664 2011
4. Allan G.Bluman (2007) Elementary Statistics, A step by Step Approach. MacGraw Hill International Edition. QA276.12 .B58 2007.

DAU 24202 Introduction to Modern Physics

Synopsis

Modern Physics covers the quantum field in optics and mechanics . This course introduces students to basic modern physics knowledge that begins with brief historical background of modern physics, arises from failures of classical physics. Further, the concept of special relativity regarding the relationship between space and time is discussed. In addition, this course also discuss quantum theory, atomic structure, the particle matter of nature, and few experiments conducted to confirm atomic structure and the discovery of x-rays properties.

References

1. Husin Wagiran (2003). Fizik Moden. UTM Publisher.
2. Young, H.D., Freedman, R.A. and Ford, A.L., 2013. University Physics with Modern Physics Technology Update. Pearson Education.
3. Halliday, D., Resnick, R. and Walker, J., 2013. Fundamentals of physics. John Wiley & Sons.
4. Ling, S.J., Sanny, J., Moebs, W., Friedman, G., Druger, S.D., Kolakowska, A., Anderson, D., Bowman, D., Demaree, D., Ginsberg, E. and Gasparov, L., 2016. University Physics Volume 2.

DAU 18102 Occupational Safety and Health

Synopsis

This course introduces students to knowledge and skills in occupational safety and health in workplace. Scope of study includes Health, Safety and Environment Managements: introduction to OSH, OSHA 1994 (Act 514), FMA 1967, EQA 1974, occupational safety and health management system, safety, health and environment culture; Risk Management and Assessment: introduction to risk management, risk assessment techniques, HIRARC; Physical Injury & Controls: introduction to physical injury, construction work, electrical work, mechanical work, chemical work; Health Hazards: introduction to health hazards & hygiene, chemical hazards, physical hazards, biological hazards, hygiene; Accident Investigation & Reporting: introduction, accident investigation, investigations and causes of incident, incident analysis and data collection method.

References

1. Occupational Safety and Health Act and Regulations. MDC Publishers Printer Sdn. Bhd. 2001. Call number: KPG1390.M34 2001 rw N2."
2. Occupational Safety and Health Act and Regulations.
3. MDC Publishers Printer Sdn. Bhd. 2001. Call number: KPG1390.M34 2001 rw N2."
4. Factories and Machinery Act & Regulations. MDC Publishers Printer
5. Sdn. Bhd. 2001. Call number: KPG1390.A31967 .A4 2001 rw N1." 6. Ismail Bahari (2006). Pengurusan Keselamatan dan Kesihatan Pekerjaan.
7. Edisi ke-2.. McGraw Hill Education (Malaysia). Call number: T55.I85 2006."
8. Davies, V. J. and Tomasin K. (2006). Construction Safety Handbook. 2nd ed. London: Thomas Telford. Call number: TH443.R43 2006.

DAU 22303 Environmental Chemistry

Synopsis

Environmental science is the foundation of the increased environmental understanding today and chemistry plays a major role in this. These substances may be natural or man-made, and there is increasing interest in the interface between man-made systems and the natural environment. The course discusses the chemical basis of environmental science via studies in the areas of water, earth and atmosphere.

References

1. Beard, J. M. (2013). Environmental Chemistry. 2nd. Ed. Boca Raton : Taylor & Francis. TD193.B42 2013
2. Kumar, Uday (2013). Concepts in Environmental Chemistry TD193.K82 2013
3. Harnung, S.E. (2012). Chemistry and the Environment TD193.H39 2012
4. Hanrahan, G (2012). Key Concepts in Environmental Chemistry TD193.H38 2012
5. X. Li (2011), Green Energy: basic concepts and fundamental. TJ808 .L59 2011
6. Smith K.A. & Mullins C.E. (2000), Soil and Environmental Analysis: Physic Method (2nd Ed), S592.3 .S64 2004 +O105:AK110"

DAU 34403 Ordinary Differential Equation

Synopsis

Ordinary differential equation is an introductory subject to differential equations. Topics include first and second order ordinary differential equations (ODEs), Laplace transform and its inverse. Students will learn how to classify and solve first order and second ODEs, use the techniques of Laplace transform to solve ODEs with specified initial and boundary conditions. Lastly students will learn on how to apply the knowledge in real life problem.

References

1. Abd Wahid Md. Raji. Differential equations for engineering students. Johor Bahru : Utm Pub., 2018. ISBN: 9789835215261.
2. Xie, Wei-Chau. Differential equations for engineers. New York : Cambridge University Press, 2010. ISBN: 9780521194242.
3. Abd. Wahid Md Raji. The first course of calculus for science and engineering students.UTM Skudai : Penerbit UTM, 2013. ISBN: 9789835208621.
4. Beerends, R. J. Fourier and Laplace transforms. Cambridge : Cambridge University, 2003. ISBN: 9780521534413.
5. Dyke, P. P. G. An introduction to Laplace transforms and Fourier series. Federation, Springer-Verlag, 2000. ISBN: 9781852330156

DAU 23302 Analytical Instrumentation

Synopsis

This course will emphasise on the various sample preparation techniques, the technique for producing the calibration curve and the proper technique for basic operation of selected instruments. The method for analysing the data as well as the preparing the analysis reports will be also covered. In this course, students will operate selected analytical instruments such as Ultra Violet-Visible (UV-VIS), Fourier Transform Infrared (FTIR), Gas Chromatography (GC), and High Performance Liquid Chromatography (HPLC).

References

1. Petrozzi, Sergio, Practical instrumental analysis methods, quality assurance and laboratory management, Weinheim : Wiley-VCH-Verl., 2013. QD79.I5 .P47 2013.
2. Cazes, Jack, Ewing's analytical instrumentation handbook, 3rd edition, Boca Raton, FL : CRC Press, 2005. QD79.I5 .E94 2005
3. McMahon, Gillian, Analytical instrumentation : a guide to laboratory, portable and miniaturized instruments, Chichester : John Wiley, 2007. QD79.15.M52 2007.
4. Khandpur, R. S., Handbook of analytical instruments, New Delhi : McGraw-Hill, 1989. Q185 .K48 1989
5. Settle, Frank A., Handbook of instrumental techniques for analytical chemistry, Upper Saddle River, NJ : Prentice-Hall PTR, 1997. QD79.I5 .H36 1997

DAU 22102 Pengurusan Sisa

Synopsis

Waste management provides students with a basic understanding of the management of the different types of waste concerning resource use and conservation when attempting to satisfy ecological restraints and economic demands. This course also provide various approaches and strategies to conservation of natural resources and efforts to design and implement sustainable use of these resources.

References

1. Davies, M.L et. al. Principles of Environmental Engineering and Science; McGraw Hill; 2004. Call No.: TD145 .D38 2004
2. Vesilind, P. Arne Heine, Lauren G. Morgan, Susan M. Introduction to environmental engineering .Call No.: TD145 .V47 2010
3. Tchobanoglous, G., F. L. Burton, and H. D. Stensel. Wastewater Engineering: Treatment and Reuse. 4th ed. Metcalf and Eddy Inc., New York, NY: McGraw-Hill, 2003. ISBN: 0070418780.
4. MWH Staff. Water Treatment: Principles and Design. 2nd ed. New York, NY: Wiley, 2005. ISBN: 0471110183.
5. Edward S. Rubin. Introduction to Engineering & the Environment. McGraw Hill; 2001. .Call No.: TA170 .R83 2001 N7
6. Bishop P.L. Pollution Prevention: Fundamentals and Practice; McGraw Hill; 2000. .Call No.: TD897 .B57 2000N81:AK87

DAU 25102 Final Year Project I

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

Synopsis

This course covers topics for writing proposal based on supervisor. In the proposal must include 5 chapter which are introduction, literature review, methodology, result and discussion, conclusion and recommendation. Besides that, student will undergo practical by doing in laboratory to get the result of the project. At the end of this course student will present the proposal and make some correction based on examiner recommendation.

References

1. Panduan Penulisan Tesis UTHM, (2012).
2. Panduan Pelaksanaan Projek Diloma Sains Gunaan, Pusat Pengajian Diploma, UTHM (2014).

DAU 35203 Final Year Project II

Prerequisite Course: DAU 25102 Final Year Project I

Synopsis

The aim of this course is to apply basic knowledge and increase the student skills in the process of mastery their knowledge, problem solving, project planning, innovative design, data analysis and testing. This project should be achieved in a group with systematic and professional report writing.

References

1. Panduan Penulisan Tesis UTHM, (2012).
2. Panduan Pelaksanaan Projek Diploma Sains Gunaan, Pusat Pengajian Diploma, UTHM (2014).

DAU 25309 Industrial Training

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

Synopsis

Students are required to undergo an industrial training in applied science field for 18 weeks. They will be trained by the agency/organization such as planning, management, design, field investigation, evaluation and assessment in related industries.

References

1. Pejabat Hubungan Universiti dan Industri, 2012. Panduan Latihan Industri (Program Sarjana Muda dan Diploma. UTHM.

Career and Further Education Prospect

Applied science covers a broad field which include food technology, industrial chemistry, biotechnology, forensic science and applied physics. Career prospects for graduates of Diploma in Applied Sciences such as Science Officer and Assistant Laboratory Assistant in the industrial sector or research centers.

Figures below show examples of jobs and career pathway in Centre of Diploma Studies UTHM and according to Malaysian Qualification Framework



**MALAYSIAN QUALIFICATIONS FRAMEWORK:
QUALIFICATIONS AND LEVELS**

| MQF Levels | Sectors | | | Lifelong Learning | |
|------------|--------------------------------|--------------------------------------|------------------|---|------------------------------------|
| | Skills | Vocational and Technical | Higher Education | | |
| 8 | | | | Accreditation of Prior Experiential Learning (APEL) | |
| 7 | | | | | Doctoral Degree |
| | | | | | Masters Degree |
| 6 | | | | | Postgraduate Certificate & Diploma |
| | | | | | 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



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