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DIPLOMA IN CIVIL ENGINEERING



Pusat Pengajian Diploma Universiti Tun Hussein Onn Malaysia 86400, Parit Raja, Batu Pahat, Johor

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Foreword from the Vice Chancellor



Assalamualaikum Warahmatullahi Wabarakatuh and Greetings

Congratulations and welcome to all new students. We appreciate your trust in us and thank you for choosing to be with UTHM in continuing your endeavour for success in your future careers and prosperous lives.

In line with the message given by the YBhg. Minister Ministry of Education Malaysia that wish to transform the process of teaching and learning more flexible, organic, dynamic and effective, several initiatives and innovations in delivery methods have been and will be implemented at UTHM by combining conventional

methods with on-line / virtual meetings by introducing Full Online Classroom (FOC), Smart Class Room, Flip Learning, Massive Open Online Courses (MOOC) and more. In fact, the approach through Science, Technology, Engineering and Mathematics (STEM) will be enhanced to uphold the science and technology in line with the development of the Industrial Revolution 4.0. Additionally, elements such as fun, happiness, affection and courtesy will be applied in all curriculum at UTHM to ensure learning and teaching processes can achieve the University's aspirations in producing emotional, mental and physical equilibrium students based on the paradigm of tauhid.

For your knowledge, the top University's leadership continues to seek, design and adapt effective and efficient approaches that can have a big impact towards making UTHM a renowned Higher Education Institution. The achievement of four stars in the "QS STAR RATING 2017" and UTHM was recognized as Top 300 in QS World University Ranking by Subject 2017 in Mechanical, Aeronautical and Manufacturing Engineering and Electrical and Electronic Engineering categories, proving that UTHM continues to create excellence. These achievements convince us that they were the results of our effort in continuously strengthening and aligning the University mission and vision.

Lastly, I believe that you are the ones who will continue the University tradition of excellence. Also, when you graduate later you will be members of the community who are not only able to apply knowledge that has been acquired but also able to contribute efforts, deeds and expertise for the glory of Religion, Nation and Country.

"WITH WISDOM WE EXPLORE"

Your Sincrely,

PROFESSOR Ts. DR. WAHID BIN RAZZALY Vice-Chancellor Universiti Tun Hussein Onn Malaysia

Foreword from the Deputy of Vice Chancellor (Academic and International)



Assalammualaikum Warahmatullahi Wabarakatuh and Greetings

It gives me great pleasure to congratulate all the new students who have been successfully selected to continue their studies in Universiti Tun Hussein Onn Malaysia (UTHM) for this 2017/2018 session. Congratulations to the Centre for Academic Development and Training for publishing this proforma that will function as a guide for students to plan their studies from the first semester until the end.

For your information, higher education in Malaysia has evolved from teacher/lecturer-centred learning to student-centred learning. Several initiatives have been conducted by the Ministry and the University to develop holistic graduates who are balanced in their knowledge and morale. In order to achieve UTHM mission and vision, a number of initiatives have been implemented such as introducing the iCGPA system, which is an integrated mechanism that combines assessment, achievement report and student's development that takes into account improvements in manners, knowledge and performance. Additional measures have also been taken to upgrade the teaching and learning quality by incorporating elements of Industry 4.0 and 2U2i in the curriculum content. This is to ensure the academic programmes offered in UTHM remain relevant to the requirements of the industry and current job market. In addition, knowledge and experience sharing sessions by local and international industrial leaders with students and the local community are carried out through the CEO@Faculty programme.

Other than that, online learning known as Massive Open Online Course (MOOC) has been introduced. The Full Online Classroom (FOC), which is implemented every semester, serves as a new initiative to give students the opportunity to explore knowledge without having to come to lecture rooms. Students also have the opportunity to leave the University for a certain period of time to participate in the Gap Year programme, which gives them the opportunity for self-reflection and exploration through volunteerism, entrepreneurship and sports programmes.

I hope the variety of initiatives that have been and will be implemented by UTHM will provide you with valuable experiences in your endeavour for knowledge and develop you to be holistic and balanced students. To ensure UTHM aspirations are achieved, it is hoped that this proforma will help you plan your studies and achieve the best results and attain excellence. Lastly, I wish you all the best and pray for your success in your studies here, with the hope that you will be able to contribute to the development of Religion, Nation and Country.

"WITH WISDOM WE EXPLORE"

Your Sincrely,

PROFESSOR DR. ISMAIL BIN ABDUL RAHMAN Deputy of Vice Chancellor (Academic and International) Universiti Tun Hussein Onn Malaysia

Foreword from the Dean of Centre for Diploma Studies



Assalamualaikum Warahmatullahi Wabarakatuh and Warm Greetings

Congratulations and welcome to all of you that have made the right choice of taking the first step in joining UTHM. 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 science and technology.

As a centre, we're responsible for running and operating the diploma programmes for UTHM and our centre has a

clear vision and mission in developing and strengthening all the diploma programmes offered. Currently, we have nine (9) diploma programmes being offered and the number of programmes will be increasing in the near future in phase to the increase needs of the nation manpower. I believe you have chosen a suitable programme that suits your qualifications and dreams. Furthermore, with the study duration of 2 years and 9 months the student will be successfully completed their studies in a shorter time and can be offered a direct entry to the bachelor's degree programmes in UTHM with respective to the terms and condition imposed.

In terms of infrastructure, the teaching and learning facilities provided for UTHM have been recognised to fulfil the standard required by the accreditation bodies. In addition, the rapid development of the campus UTHM now will ensure comfort to students with various facilities including a library, residential colleges, cafeterias, sports activities, networking, wireless internet and other amenities.

I hope that as a candidate of the diploma programme in UTHM, you will use this proforma as a guide to select a suitable course which is in line with your future needs. For the new student who will be pursuing the diploma programme in UTHM, I strongly advised to using this document to plan and thus completing your diploma studies with excellence.

Wishing You Success.

Your Sincrely,

ASSOCIATE PROFESSOR DR. MOHAMAD ZAKY BIN NOH Dean Centre for Diploma Studies Universiti Tun Hussein Onn Malaysia



Vision

Towards a world class university in engineering, science and technology for sustainable development

Mission

UTHM is committed to generate and disseminate knowledge, to meet the needs of industry and community and nurturing creative and innovative human capital, based on tauhidic paradigm

University Education Philosophy

The education and training in this university is a continuous effort to lead in the market oriented academic programmes. These programmes are student-focused and are conducted through experiential learning to produce well trained human resource and professionals who are catalysts for a sustainable development

University Logo

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

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

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

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

Symbolism:

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

Chancellor

Duli Yang Maha Mulia Sultan Ibrahim Ibni Almarhum Sultan Iskandar Sultan of Johor D.K., D.K. (Pahang), SPMJ, SSIJ, S.M.N., S.P.M.T., S.M.P.K., P.I.S.

Pro Chancellor I

Duli Yang Amat Mulia Tunku Ismail Ibni Sultan Ibrahim Tunku Mahkota of Johor (TMJ) D.K., SPMJ, P.I.S

Pro Chancellor II

YBhg. Tan Sri Dr. Ali Hamsa Chief Secretary to the Government of Malaysia

University Board of Directors

Chairman

Members

YBhg. Professor Ts. Dr. Wahid bin Razzaly

Vice-Chancellor Universiti Tun Hussein Onn Malaysia

YB Dato' Haji Nooh bin Gadot

Advisor, Majlis Agama Islam Johor

YBhg. Datuk Dr. Pang Chau Leong Alumni Representative, Universiti Tun Hussein Onn Malaysia

YBhg. Dato' Zainal Abidin bin Mat Nor Deputy Secretary of Public Asset Management Division, Ministry of Finance

YBhg. Datuk Mat Noor bin Nawi

Chairman, Exim Bank Berhad

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

Akademi Profesional Koperasi Serbaguna Anak-anak Selangor Berhad (KOSAS)

YBhg. Professor Dr. Mustafa bin Mat Deris

Professor Faculty of Computer Science and Information Technology Universiti Tun Hussein Onn Malaysia

YBhg. Professor Dr. Arham bin Abdullah

Director, Industrial Relation Division, Department of Higher Education Ministry of Higher Education Malaysia

Alternative Member

Mdm. Mazula binti Sabudin

Director of Student Enrollment Management Division Department of Higher Education Ministry of Higher Education Malaysia

Secretary

Mr. Abdul Halim bin Abdul Rahman Registrar

Universiti Tun Hussein Onn Malaysia

Senate Members

Chairman

Professor Ts. Dr. Wahid bin Razzaly Vice Chancellor

Members

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

Professor Ts. Dr. Ruzairi bin Abdul Rahim Deputy Vice Chancellor (Research and Innovation)

Associate Professor Dr. Asri bin Selamat Deputy Vice Chancellor (Student Affairs and Alumni)

Professor Dato' Dr. Abdul Razak Hj. Omar Provost of UTHM Pagoh Branch Campus

Associate Professor Dr. Wan Fauziah binti Wan Yusoff Assistant Vice-Chancellor (Financial Sustainability)

Associate Professor Dr. Afandi bin Ahmad Assistant Vice-Chancellor (Strategic Planning and Corporate Relations)

Professor Dr. Ahmad Tarmizi bin Abd Karim Dean Centre for Graduate Studies

Associate Professor Dr. Abd Halid bin Abdullah Dean Faculty of Civil and Environmental Engineering

Dr. Rosli bin Omar

Dean Faculty of Electrical and Electronic Engineering

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

Associate Professor Dr. Mohd Lizam Bin Mohd Diah Dean Faculty of Technology Management and Business

Professor Ts. Dr. W Mohd Rashid Bin W Ahmad Dean Faculty of Technical and Vocational Education

Associate Professor Dr. Nazri bin Mohd Nawi Dean Faculty of Computer Science and Information Technology

Associate Professor Dr. Mohd Kamarulzaki bin Mustafa Dean Faculty of Applied Science and Technology

Associate Professor Dr. Ishak bin Baba

Dean Faculty of Engineering Technology

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

Professor Dr. Azme bin Khamis Director Centre for Academic Development and Training

Professor Dr. Rosman bin Md. Yusoff Dean Centre for liberal and co-currricular studies

Professor Dr. Noraini Binti Kaprawi Director International Office

Ir. Shamrul-Mar bin Shamsuddin Director Development and Mainteance Office

Professor Ir. Dr. Amir Hashim bin Mohd Kassim Faculty of Civil and Environmental Engineering

Professor Dr. Sulaiman bin Hj Hassan Faculty of Mechanical and Manufacturing Engineering

Professor Dr. Maizam binti Alias Faculty of Technical and Vocational Education

Professor Dr. Jailani bin Md Yunos Faculty of Technical and Vocational Education

Professor Dr. Hj. Mustafa bin Mat Deris Faculty of Computer Science and Information Technology

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

Professor Datin Dr. Maryati binti Mohamed Faculty of Applied Science and Technology

Professor Dr. Rosman bin Md Yusoff Faculty of Applied Science and Technology

Mr. Abdul Halim bin Abdul Rahman Registrar/Secretary

Mdm. Azizah binti Nasri Bursary

Mr. Hj. Bharun Narosid bin Mat Zin Chief Librarian

Centre for Diploma Studies

Centre Vision

Excellent in providing multidisciplinary education in science and technology

Centre Mission

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

The diploma programmes had been offered in UTHM since the establishment of Pusat Latihan Staf Politeknik (PLSP) in 1994. At that time only three programmes were offered and were being managed by a few departments of concerned. All the programmes were than assigned under the management of the respective faculties when Kolej Universiti Teknologi Tun Hussein Onn (KUITTHO) was established in the year 2001.

The establishment of the Centre for Diploma Studies was announced by the Vice Chancellor on the 1st August 2009. With the establishment of the Centre for Diploma Studies all of the diploma programme were able to be managed centrally thus increasing the competativeness of all diploma programmes being offered by other higher education institutions in this country.

It is the aim of the Centre for Diploma Studies to boost the diploma programmes in UTHM to a level such that it becomes the main choice of applicants. With that all potential applicants are most welcome to join the diploma programme in UTHM. All of the diploma programmes in UTHM is being conducted according to the Outcome Based Education method since the July 2010 session. The diploma programmes offer the opportunities for graduates to further their studies in UTHM. The establishment of the Centre for Diploma Studies is intended to achieve equilibrium in the academic excellence, co-curricullum and the individual development of its graduate such that to achieved the quality needed to fulfill the global occupational market. Until now the Centre for Diploma Studies, have offered nine (9) programmes which are being managed by the various departments.

The Centre for Diploma Studies consists of five (5) departments and is led by a Dean and is being assisted by three (3) Deputy Deans. The organizational chart of the Centre for Diploma Studies is as shown:



Organisational chart of the Centre for Diploma Studies

Centre External Examiner and Industrial Advisor

Department of Civil Engineering

External Examiner

Professor Dr. Badorul Hisham Bin Abu Bakar

PhD (Leeds University, UK), MSc. (Concrete Design and Const.) (Leeds University, UK), BEng (Hons) (Civil Engineering) (UTM), Dip. (Civil Engineering) (UTM), Cert.(Civil Construction) (PUO).

Industrial Advisor

Ir. Mohd Izzat Salo Bin Abdullah Degree in Civil Engineering (Hons) (UTM)

Faculty Staff Directory

Administration

Dean

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

Deputy Dean (Academic and Research)

Hj. Amir Khan bin Suwandi

MSc. (Civil Engineering) (UTM), BSc. (Hons) (Civil Engineering) (Portland State Univ. USA), Dip. Ed.(Civil Engineering Studies) (UTM)

Deputy Dean (Student Affairs and Development) Mdm. Mariam binti Abdul Hamid Master of Information Technology Management (UTM), Bachelor Degree of Information Technology (UTM), Diploma in Electronic (UTM)

Deputy Dean (Development, Research and Publication) Hj. Jahaya bin Kesot MSc. (Civil Engineering) (UTHM), BSc. (Civil Engineering) (Univ. of Miami, USA)

Office Secretary Rusnani binti Saji Dip. (Secretarial Science) (Politeknik Sultan Ahmad Shah, Kuantan)

Senior Assistant Registrar Norfaizah binti Sai

Bachelor in Human Resources (UPM)

Assistant Administrative Officer (Academic and Research) Latifah binti Mohd Nasir

Dip.(International Business) (Politeknik Shah Alam)

Assistant Administrative Officer (Administrative and Finance) Nur Izzati Hazwani binti Muhammad Ridwan BSc. (Administration)(UiTM), Dip. (Tech. Management) (UTM)

Administrative Assistant (Clerical & Operation) Student Affairs and Development Jaiganesh a/I Jaganathan BSc (Management) (OUM), SPM (SMK Dato Bentara Luar)

Administrative Assistant (Clerical & Operation) Administrative and Finance Ismade bin Niam STPM (SM Tun Sardon Rengit)

Administrative Assistant (Clerical & Operation) Services Unit Dorazi bin Md Noh SC/MCE/SPM/SPVM (SEK. MEN. Dato Sulaiman)

Administrative Assistant (Clerical & Operation) Academic and Research Abu Bakar Siddeq bin Abd Jabar SC/MCE/SPM/SPVM (SMK Tinggi Batu Pahat)

Administrative Assistant (Clerical & Operation) Academic and Research Razali bin Ahmad SC/MCE/SPM/SPVM, SMK Tinggi Batu Pahat

General Office Assistant Dayang Fatimah binti Pohhaini STPM (SM Munsyi Sulaiman), SPM (SMK Datin Onn Jaffar)

Department of Civil Engineering

Academic Staff

Head of Department Hj. Masiri bin Kaamin

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

Head of Programme Mr Mohd Erwan bin Sanik

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

Hj. Roslan bin Kolop

MSc. (Civil Engineering) (UTM), BSc (Hons) (Civil Engineering) (Leeds Univ. UK), Dip.Ed.(UKM)

Hj. Amir Khan bin Suwandi

MSc. (Civil Engineering) (UTM), BSc. (Hons) (Civil Engineering) (Portland State Univ. USA), Dip. Ed.(Civil Engineering Studies) (UTM)

Hj. Jahaya bin Kesot

MSc. (Civil Engineering) (UTHM), BSc. (Civil Engineering) (Univ. of Miami, USA)

Mdm Aslila binti Abd Kadir

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

Mdm Nor Baizura binti Hamid

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

Mdm Mardiha binti Mokhtar

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

Hj. Salman bin Salim

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

Mr Khairul Zaman bin Abdul Malek

BEng. (Hons) (Civil Engineering), (UM)

Mr Izat bin Yahya

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

Mr Ahmad Hakimi bin Mat Nor

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

Dr. Norhayati binti Ngadiman

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

Mdm Suhaila binti Sahat

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

Ms Siti Nooraiin binti Mohd Razali

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

Ms Nor Farah Atiqah binti Ahmad MEng. (Civil – Hydraulic and Hydrology)(UTM), BEng. (Civil Engineering)(UTM)

Programme Name

Diploma in Civil Engineering (DAA)

Programme Aims

To produce graduates who are more mature and competent to fulfill nation needs of skill and experts in the field of Civil Engineering whether in the public, private or self employed sector. The program also prepares students to further their studies to degree level at any university within or outside the country.

Programme Educational Objectives (PEO)

These are the PEOs for graduates of Diploma in Civil Engineering:

- PEO 1 Technically competent in solving Civil Engineering problems and produce work of quality accepted locally and globally
- PEO 2 Able to demonstrate professionalism, ethics and sustainable values in Civil Engineering practice
- PEO 3 Effective communication and demonstrate good leadership quality in an organization and community
- PEO 4 Able to demonstrate entrepreneurship skills and recognize the need of lifelong learning for successful career advancement

Programme Learning Outcomes (PLO)

These are the PLOs (upon graduation) for Diploma in Civil Engineering:

- PLO 1 Apply knowledge of applied mathematics, applied science, engineering fundamentals and specialization to wide practical procedures and practices in the field of Civil Engineering. (Knowledge)
- PLO 2 Apply appropriate techniques, resources, and modern engineering and IT tools to well-defined Civil Engineering problems, with an awareness of the limitations. (Modern Tools Usage)
- PLO 3 Communicate effectively on well-defined Civil Engineering activities with the learned community and with society at large, by being able to comprehend the work of others, document their own work, and give and receive clear instructions. (Communication Skill)
- PLO 4 Conduct investigations of well-defined Civil Engineering problems with ability to locate and search relevant codes and catalogues, conduct standard tests and measurements. (Critical Thinking, Problem Solving (Investigation))
- PLO 5 Function effectively as a leader, and as a member in diverse technical teams. (Teamwork Skill)
- PLO 6 Recognise the need for, and have the ability to engage in independent updating in the context of specialised technical knowledge. (Lifelong Learning & Information Management Skills)
- PLO 7 Develop the potential of self-entrepreneurial skills for career development. (Entrepreneurship Skill)
- PLO 8 Understand and commit to professional ethics and responsibilities and norms of technician practice. (Ethics & Professional Values)
- PLO 9 Demonstrate knowledge and understanding of Civil Engineering management principles and apply these to one's own work in a technical team and to manage projects in multidisciplinary environments. (Leadership Skill, Project Management & Skill)
- PLO 10 Design solutions for well-defined technical problems and assist with the design of systems, components or processes to meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations. (Design & Development Solutions)
- PLO 11 Identify and analyse well-defined Civil Engineering problems reaching substantiated conclusions using codified methods of analysis specific to

civil engineering activities. (Problem Analysis)

- PLO 12 Understand and evaluate the sustainability and impact of engineering technician work in the solution of well-defined Civil Engineering problems in societal and environmental contexts. (Environment & Sustainability)
- PLO 13 Demonstrate knowledge of the societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to engineering technician practice and solutions to well-defined Civil Engineering problems. (Engineering & Society)

Curriculum Structure

Year	Semester	Course Code	Courses	Credit	Total
	Special	UHB 10302 UQU 10403 UQI 10402/202	English for Academic Survival Introduction to Nationhood and Malaysia Development Introduction to Islamic Studies/ Moral Studies		7
	I	UWB 10*02 UQ* 1***1 DAC 10103 DAC 10203 DAC 10303 DAC 10403 DAC 10503	International Language Co-Curriculum I Algebra Engineering Mathematics I Civil Engineering Materials Engineering Drawing Statics and Dynamics	2 1 3 3 3 3 3 3	18
1	II	UHB 20302 UQI 10502 UQ* 1***1 DAC 10603 DAC 10702 DAC 10802 DAC 10903 DAC 11003	Academic Communication Theology and Science Co-Curriculum II Physics for Civil Engineering Statistics Construction Engineering Environmental Engineering Mechanics of Material	2 2 1 3 2 2 3 3	18
	Ш	DAN 20103 DAC 11102 DAC 11202	Business and Entrepreneurship Computer Programming Occupational Safety and Health	3 2 2	7
	I	UHB 30502 DAC 20103 DAC 20202 DAC 20302 DAC 20403 DAC 20502 DAC 20603 DAC 20701	English for Workplace Engineering Mathematics II Contract and Estimation Engineering Software Application Geomatic Engineering Hydrology Structural Analysis Diploma in Civil Engineering Project I	2 3 2 3 2 3 2 3 1	18
2	II	DAC 20803 DAC 20903 DAC 21003 DAC 21102 DAC 21203 DAC 21303	Geotechnical Engineering Highway and Traffic Engineering Hydraulic Project Management Structural Design Diploma in Civil Engineering Project II	3 3 2 3 3 3	17
	111	-	-	-	-
3	I	DAC 30109	Industrial Training	9	9
			Τα	otal Credit	94

List of University Courses

Year	Sem	Course Code	Courses	Credit	Total
		UHB 10302	English for Academic Survival	2	
	Special	UQU 10403	Introduction to Nationhood and Malaysia Development	3	7
		UQI 10402/ UQI 10202	Islamic Studies/Moral Studies	2	
		UWB 10*02	International Language	2	- 3
	1	UQ* 1***1	Co-Curriculum I	1	
1		UHB 20302	Academic Communication	2	5
	П	UQI 10502	Theology and Science	2	
		UQ* 1***1	Co-Curriculum II	1	
	111	DAN 20103	Business and Entrepreneurship	3	3
2	I	UHB 30502	English for Workplace	2	2
			Total Overall Credit		20

Synopsis of Courses

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 persor-ral and academic activities in the context of tertiary education.

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UQU 10403 Introduction to Nationhood and Malaysia Development

Synopsis

This course discusses the basic concepts, the process of formation and development of the country. The topics that will be discussed are the struggle against colonialism, independence and the establishment of the Federation of Malaysia. In addition, the elements of Rukun Negara and the policies of development related to economy, politics and social, such as Vision 2020 and the statesmen's contributions in strengthening the continuity of Malaysia's success will also be discussed.

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UQI 10402 Islamic Studies

Synopsis

This course explains about Islamic concept as ad-deen. It discusses the study of al-Quran and al-Hadith, Sunnism, schools of Islamic theology, development of schools of Fiqh, principles of muamalat, Islamic Criminal Law, Islamic work ethics, issues in Islamic family law and current issues.

References

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UQI 10202 Moral Studies

Synopsis

This course explains on concepts of moral, aspects of moral and its importance in daily lives, Western moral theories and moral values of great religions of the world, moral values in work and current moral issues.

References

- 1. Ahmad Khamis. (1999). Etika Untuk Institusi Pengajian Tinggi. Kuala Lumpur: Kumpulan Budiman. [LC315.M3 .A35 1999].
- 2. Eow Boon Hin. (2002). Moral Education. Longman. [LC268 .E48 2008].
- Hussain Othman, S.M. Dawilah Al-Edrus, Berhannudin M. Salleh & Abdullah Sulaiman. (2009). PBL Untuk Pembangunan Komuniti Lestari.Batu Pahat: Penerbit UTHM. [LB 1027.42 P76 2009a].
- 4. Hussain Othman. (2009). Wacana Asasi Agama dan Sains. Batu Pahat: Penerbit UTHM. [BL 240.3 H87 2009^a].
- 5. Mohd Nasir Omar. (2010). Falsafah Akhlak, Penerbit Universiti Kebangsaan Malaysia, Bangi. [BJ1291 .M524 2010].

UWB 1**02 International 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. (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
- 6. Nurul Sabrina Zan, (2010). Hola! Hablo españolFirst Edition Batu Pahat: Penerbit UTHM. PC4445 .N72 2010
- 7. Yrama, Widya (2008). Cara belajar membaca dan menulis huruf jawa, jilid 1. Yrama Widya. Publication info: 2008 131738.1

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 10103 Algebra

Synopsis

Algebra is the most basic of the higher mathematics disciplines. Without the fundamentals taught in algebra, it is virtually impossible to deal with geometry, trigonometry or statistics.

References

- 1. Nafisah@Kamariah Md. Kamaruddin el. al. (2010). Algebra (DAS10103). 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. (2002). Precalculus mathematics for calculus. Belmont, CA : Brooks/Cole. 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

DAC 10203 Engineering Mathematics I

Synopsis

Relation and function, graph, algebra function, piecewise function, trigonometry, exponent, logarithm, hyperbolic and its inverse. Limits: 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. Laplace Transforms: Definition. Properties: linearity, first shift, and multiply with tn. Inverse Laplace Transforms: Definition and properties. Initial and boundary value problems.

References

- 1. Nurhana Binti Mohamad. (2018). Engineering Mathematics I (DAS 10303). Centre for Diploma Studies, UTHM Publisher.
- 2. Abd Wahid Md Raji. (2013). The first course of calculus for science and engineering students. UTM Publication. [QA303 .F57 2013]
- 3. Arif, Mohamed. (2013). Calculus. Oxford UK. [QA303.2 .A74 2013.
- 4. Zill, Dennis G. (2013). Differential equations with boundary-value problems. Bostan, MA: Brooks/Cole, Cengage Learning. [QA371. Z54 2013]
- 5. Steward, James. (2012). Calculus. BCengage Learning, Belmont, CA. [QA303.2 .S73 2012]

DAC 10303 Civil Engineering Materials

Synopsis

Students will be introduced to typical materials in Civil Engineering field such as cement, aggregates, concrete, brick and brickworks, timber, steel, and other construction materials.

References

- 1. Achmad Fauzi A. Wahab (2011). Civil Engineering Materials. Pahang: Penerbit Universiti Malaysia Pahang. (TA403.A23 2011)
- Day, Ken W. (2006). Concrete Mix Design, Quality Control and Specification 3rd Edition. London: Taylor & Francis. (TA439.D39 2006)
- 3. Hegger (2006). Construction Materials Manual. Switzerland: Birkhäuser. (TA402.5.G3.C66 2006)
- 4. Hegger, Manfred (2007). Basic Materials. Switzerland: Birkhäuser. (TA403.H43 2007)
- 5. Marotta, Theodore W. (2005). Basic Construction Materials, 7th Edition. USA: Prentice Hall. (TA403.M37 2005)

DAC 10403 Engineering Drawing

Synopsis

This course introduces technical drawing skills and apply the acquired knowledge and understanding in carrying out civil and structural engineering detail drawings as well as an initial technical drawing compentency prior to using computer assisted drawing. Topic include Introduction to Engineering Drawing are Introduction to Engineering Drawing, Basic Geometrical Construction; Orthographic Projection; Pictorial Projection, Computer Aided Design; Using CAD in Civil Engineering Drawing.

References

- 1. Adanan Othman (2011). Learning Module: DAC 10103 Engineering Drawing, 1st Edition. Batu Pahat, Johor: Penerbit UTHM. (T353.A26.2011a)
- 2. David A, Madsen and Terence M. Shumaker (2010), Civil Drafting Techology, 4rd Edition. New Jersey: Prentice Hall. (T353.M324 2010)
- 3. Grabowski. Ralph (2009). Using AutoCAD 2009. New York: Delmar Learning.(T385.G76 2009)

- 4. Mark W. Huth and Walter Wells (2005). Understanding Construction Drawings, 4rd Edition.London: Delmar Thomson Learning. (T355.H87 2005)
- British Standard Institution (1972). BS 308: Part 2: 1972 Engineering Drawing Practice Part 2: Dimensioning and Tolerance of Size. London: British Standard Institution. (BS 308: Part 2 1972)

DAC 10503 Statics and Dynamics

Synopsis

Introduction to statics, force and state of equilibrium, moment and couple, equilibrium of rigid body, centroid, moment of inertia, introduction to dynamics, kinematic of particle and projectile.

References

- 1. Beer, Ferdinand P. (2013). Vector Mechanics for Engineers: Statics and Dynamics. USA: McGraw-Hill. (TA350.V42 2013)
- 2. Costanzo, Francesco (2013). Engineering Mechanics: Statics and Dynamics. USA: McGraw-Hill. (TA350.C67 2013)
- 3. Hibbeler, R.C. (2007). Engineering Mechanics: Statics And Dynamics, 11th Edition. USA: Pearson. (TA350.H52 2007)
- 4. Hibbeler, R.C. (2014). Mechanics of Materials. USA: Pearson. (TA405.H54 2014)
- 5. Walker, Keith M. (2008). Applied Mechanics for Engineering Technology, 8th Edition. USA: Pearson. (TA350.W34 2008)

UHB 20302 Academic Communication

Kursus Prerequisite: 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. Richard Johnson-Sheehan (2005). Technical Communication Today. New York:Pearson. TK5105.S26
- 2. Fairbairn, Gavin J. (20 II). Reading, Writing and Reasoning; A Guidefor Studerzrs. Maidenhead: Open University Press, 2011. L82395 .F34 20II'
- Jordan, R. R. (2003). Academic writing Course; study skills in English (3rd ed.). Essex: Longman. PEI408 .J67 2003.
- 4. Langan, John. (2011). Cottege WritingSkilts (Sth ed.). New York: McGraw-Hill. PE1471.L36 2011.
- 5. Lewis, Jrll. Readingfor Academic Success : Reading and Strategies. Boston: Houghton Mifflin' LF.2395.3 .L48 2002.
- 6. Cheesebro.T, O'Connor, L. & Rios, F. (2007). Communication skills: preparing for career success (3rd ed.) Upper Saddle River, NJ: Pearson. HF5718.C53

Synopsis

This course focuses on the concept of two basic things which are holding religious beliefs and looking at different views in science. As a result of this, the existence of the relationships between them can be distinguished through discussions based on the holistic concept of knowledge.

References

- 1. Ghazali Darussalam, 2001, Tamadun Islam dan Tamadun Asia, Kuala Lumpur: Utusan Publication. DS36.86 .G52 2001 N1
- 2. Harun Din, 2003, Manusia dan Islam, Kuala Lumpur: Dewan bahasa dan Pustaka BP166.7 .H37 2003
- 3. Hussain Othman, Akidah ketuhanan dan Sains, 2007, Batu Pahat : Penerbit Universiti Tun Hussein Onn Malaysia BP166.2 .H87 2007
- 4. Maurice Bucaille, 2006, The Bible, The Quran and Science: The HolyScriptures examined in the light of modern knowledge, Gombak: A.S Noordeen BP190.5.S3 .B834 2006
- 5. Mir Aneesuddin, 2000, terj: Fatwa al-Quran Tentang Alam Semesta, cet.1, Jakarta:Serambi BP134.N3 .A53 2000
- Mohammed Ali Albar, 1993, terj: Rusli Haji Nordin, cet. 2, Perkembangan Manusia Menurut al-Quran, Kuala Lumpur: Crescent News KL, Sdn. Bhd BP190.5 .A53 1992 N1
- 7. Sulaiman Nordin (et. al.), 1995, Sains Menurut Perspektif Islam, Kuala Lumpur: Dewan Bahasa dan Pustaka BP134.S3 .S34 1995
- 8. Syed Muhammad Naquib Al-Attas, 1981, Islam dan Sekularisme, Bandung: Pustaka BP161.2 .A42 1981

UQ* 1***1 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.

References

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DAC 10603 Physics for Civil Engineering

Synopsis

This course introduces students to mechanic physics knowledge needed related to properties of materials, fluids, sound and waves, thermal properties, light and optics. The application involves the concept of density, pressure, Archimedes Principle, Pascal Law, buoyancy in fluid, thermal properties of materials, application of wave such as interference, diffraction and polarization. The course also discusses light and optics such as geometrical optics. The laboratory experiments are carried out on selected topics of the course.

References

1. Giambattista, A., Richardson, B. M., Richardson, R. C. (2007). College Physics 2nd Ed.New York: Mc Graw Hill.

- 2. Serway, R. A., Faughn, J. S., Moses, C. J. (2003). College Physics. 6th Ed. USA: Pacific Grove, CA: Thomson Learning.
- 3. Bueche, F. J., Hecht, E., Hademenos, G. J. (2000). College Physics: based on Schaum's Outline of college physics. New York: McGraw-Hill
- 4. Urone, P. P. (2001). College Physics. 2nd Ed. USA: Pacific Grove, CA: Brooks/Cole.

DAC 10702 Statistics

Synopsis

The course covers topics such as an introduction to statistics and probability statistics. In the introduction topic, students are introduced to the measure of central tendency, mean, median and mode while the measure of dispersion such as range, variance and standard deviation. The topic of probability contains independent event, conditional probability and Bayes theorem. Next, the course involves discrete and continuous variables, probability distribution functions and cumulative distribution function and also expectation and variance. Three new probability distributions introduced are Binomial, Poisson and normal distribution, and the approximation for; Binomial distribution to Poisson and normal approximation. Next, students learn the sampling distribution and estimation for single mean and the difference between the two mean. At the end of this course, students learn hypothesis testing for the mean and the difference between the two mean. And simple linear regression with graphical methods, method of least squares, the coefficients of determination and correlation coefficient.

References

- 1. Nafisah@Kamariah Md. Kamaruddin el. al. (2010). DAS 20502 Statistics. Pusat Pengajian Diploma, UTHM Publisher.
- 2. Wadpole Mayer (2007). Probability And Statistics For Engineers And Scientists. Prentice Hall. TA340 .W35 2007
- 3. Douglas C. Montgomery & George C. Runger (2011). Applied Statistics and Probability for Engineers. John Wiley. QA276.12 .M664 2011
- Allan G.Bluman (2007) Elementary Statistics, A step by Step Approach. MacGraw Hill International Edition. QA276.12 .B58 2007
- 5. Douglas C. Montgomery, George C. Runger & Norma Faris Hubele. (2004) EngineeringStatistics. John Wiley. QA276.12 .M66 2004

DAC 10802 Construction Engineering

Synopsis

Site preparation and construction process: introduction to construction, work planning, site preparation; Substructure: types of foundation, design and function; Superstructure: slab, column, walls, roof and beams; Formwork; Joints; Temporary works: Scaffolding and shore; Construction equipments: types of equipment and operational method; Infrastructure: Road and bridges, water reticulation, sewerage, earth works and retaining walls.

References

- 1. Jahiman bin Badron (2007). Teknologi Binaan Bangunan. Kuala Lumpur: IBS BUKU Sdn. Bhd. (TH213 .J33 2007)
- 2. Roy Chudley and Roger Greeno (2005). Construction Technology, 4th Edition. USA: Pearson Education Limited. (TH145 .C48 2005)

- 3. S.W. Nunnally (2011). Construction Methods and Management. USA: Pearson Education Limited. (TH145 .N86 2011)
- 4. Derek Osbourn and Roger Greeno (2007). Introduction to Building, 3rd Edition. USA: Pearson Education Limited. (TH145 .082 2007)

DAC 10903 Environmental Engineering

Synopsis

This course introduces students to basic concept of environmental engineering: Impact of human activities upon the environment and Environmental Quality Act(EQA, 1974)Malaysia. Water quality: Water characteristic, criteria, standards and methods of analysis.Natural purification process of water. Water supply: Water sources, methods of purification and distribution system. Wastewater: Source and characteristics and treatment methods.Introduction to solid waste management: Characteristics and types of solid waste, sources and solid waste management. Introduction to hazardous waste. Introduction to noise and air pollution. Environmental Impact Assessment (EIA and EMP).

References

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

DAC 11003 Mechanics of Material

Prerequisite: DAC 10303 Statics and Dynamics

Synopsis

Introduction to the mechanics of material, stress and strain with the use of Hooke's law, Poisson's ratio, Mohr's circle. Calculation on shear force and bending moment on beam and sketching the shear force and bending moment diagram. Moment, deflection and torsion for beam and the use of Euler's theory for member in compression with various end conditions.

References

- 1. Hibbeler R.C. (2014). Mechanics of Materials, 9th Edition. USA: Prentice Hall. (TA405 .H54 2014)
- 3. Gere, James M. (2013). Mechanics of Materials, 8th Edition; Canada: Cengage Learning. (TA405 .G47 2013)
- 4. De Silva, Clarence W. (2014). Mechanics of Materials. USA: CRC Press. (TA404.8 .D74 2014)

DAN 20103 Business and Entrepreneurship

Synopsis

This course gives students exposure of business and entrepreneurship knowledge. It will go through the business and economy environment, forms of rules and business support facilities, entrepreneurship, identifying method, studying and choosing business opportunities, business plan and small and medium sized business management, marketing plan, operational plan, financial plan and current issued in entrepreneurship.

References

- 1. UITM Entrepreneurship Study Group (2011). Engineering Entrepreneurship. Malaysia: Prentice Hall Pearson Malaysia Sdn. Bhd.
- 2. TM Entrepreneurship Study Group (2004). Fundamentals of Entrepreneurship. Malaysia: Prentice Hall Pearson Malaysia Sdn. Bhd.
- 3. Rosli Mahmood (2010). Prinsip-prinsip Keusahawanan. USA: Cernage Learning Asia Pte Ltd.
- 4. Norman M. Scarborough (2011). Essentials of Entrepreneurship and Small Business Management, Sixth Edition. USA: Pearson.

DAC 11102 Computer Programming

Synopsis

This course is intended to provide a study of programming concept through the use of a high level programming language such as C. Students will learn to design, code, debug, test and document well-structured programs based on technical and engineering problems. Topics covered; Software Development Method, programming language basics, data types, input and output operations, the use of arrays, string, pointers and structures, file processing handling and advance applications.

References

- 1. Chandra Babu, T. Joshva Devadas (2009). Programming with C++. Oxford: Alpha Science (QA76.73.C153 .B32 2009)
- 2. Deitel & Deitel (2010). C, How to Program, 6th Edition. USA: Pearson Education, Inc. (QA76.73.C15 .D45 2010)
- 3. Syamsul Halim Bin Wahab (2009). Asas Pengaturcaraan C Bagi Beginner. USA: Venton Publishing (QA76.73.C15 .S92 2009)

DAC 11202 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. MDC Publishers (2001). Occupational Safety and Health Act and Regulations. Malaysia: MDC Publishers Printer Sdn. Bhd. (KPG1390.M34 2001 rw N2)
- 2. MDC Publishers (2001). Factories and Machinery Act & Regulations. Malaysia: MDC Publishers Printer Sdn. Bhd. (KPG1390.A31967 .A4 2001 rw N1)
- 3. Ismail Bahari (2006). Pengurusan Keselamatan dan Kesihatan Pekerjaan. Edisi ke-2. Malaysia: McGraw Hill Education. (T55.I85 2006)
- 4. Davies, V. J. and Tomasin K. (2006). Construction Safety Handbook. 2nd ed. London: Thomas Telford. (TH443.R43 2006)
- 5. Anton, Thomas J. (2009). Occupational Safety and Health Management. New York: McGraw-Hill.

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 knowledge and 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, Jeffrey G. (2004). The Complete Q and A job interview book (ath ed.). Hoboken, NJ:John Wiley. HF5549.5.16 .A44 2004.
- 2. Badger, Ian. (2003). Everyday Business Writing. Essex: Pearson. PEI I 15 .8327 2003.
- 3. Corfield, Rebecca. (2003). Preparing the Perfect Job Application: Application Forms qnd Letters Made Easy.New Dethi: Kogan Page. HF5383 .C67 2008.
- 4. Freitag-Lawrence, Anne. (2003). Business presentations. England: Pearson. P81479.887 .F73 2003.
- 5. Mohammad Talha Mohamed Idris & Zulida Kadir (2009). Technical Communication II: Teaching Modul UMB 1122. Batu Pahat: UTHM.
- Zulida Abdul Kadir (2006). Technical Communication II: Teaching Modul UMB 1122. Batu Pahat: UTHM. T11.Z84 2006

DAC 20103 Engineering Mathematics II

Synopsis

First Order Linear Differential Equations: Separable, homogeneous, linear and exact. Application of first order differential equations: Population, Newton's Law Cooling. Second Order Linear Differential Equations: Undetermined coefficients. Variation of parameters. Laplace Transforms: Definition. Properties: linearity, first shift, and multiply with tn. Inverse Laplace Transforms: Definition and properties. Convolution theorem. Initial and boundary value problems.

References

- 1. Abd Wahid Md Raji (et al.). (2006). Calculus, UTM & PP Sains.
- 2. Anton, Bivens, I., Davis, S. Calculus. (7th ed). (2002). John Wiley & Sons, Inc,

USA.QA303 .A57 2002.

- 3. Douglas C. Montgomery, George C. Runger & Norma Faris Hubele. (2004) Engineering Statistics. John Wiley. QA276.12 .M66 2004
- 4. James, Glyn. Modern Engineering Mathematics third edition. (2001). Prentice Hall, Essex. TA330 .J352 2001
- Thomas, G. B., Finney, R.L. and Weir, M.D. (1996). Thomas' Calculus and analytic geometry 9th Edition, Addison Wesley Publishing, Boston. QA303 .T46 1996

DAC 20202 Contract and Estimation

Synopsis

Contract rules and procedure: General contract principles, formation of contract, parties' involved and standard contract for civil engineering and building. Contract document: Types and purpose, instruction to tenderer, specifications, tender forms, conditions of contract, list of quantity, technical drawings and letter of acceptance. Civil engineering contract: Main elements, types and processes. Contract conditions: Standard conditions of contract, variation order, addition and omission, measurement, evaluation and progress payment, delay and extension of time. Estimation: Cost elements and build up rate, methods of preparing an estimate and taking off quantity.

References

- 1. Murdoch, John (2008). Construction Contracts: Law and Management, 4th Edition. London, UK: Taylor & Francis.(KD1641 .M87 2008)
- 2. Pratt, David J. (2006). Estimating for Residential Construction. USA: Thomson Delmar Learning. (TH4815.8 .P72 2006)
- 3. Pratt, David J. (2011). Fundamentals of Construction Estimating, 3rd Edition. USA: Wadsworth Cengage Learning. (TH435 .P72 2011)
- 4. Brook, Martin (2008). Estimating and Tendering for Construction Work. USA: Elsevier. (TH435 .B76 2008)
- 5. Dagostino, Frank R. (2011). Estimating in Building Construction, 7th Edition. USA: Pearson Prentice Hall. (TH435 .D33 2011)

DAC 20302 Engineering Software Application

Synopsis

Students will use three types of software: Reinforced Concrete Structure Design: Esteem; Structure Design and Analysis Software: Staad Pro; Project Managemant Software.

References

- 1. Bill Mosley, John Bungey, Ray Hulse (2007). Reinforced concrete design to Eurocode 2. New York, USA: Palgrave MacMillan. (TA683.2 .M68 2007)
- 2. Kenneth M. Leet, Chia-Ming Uang and Anne M. Gilbert (2008). Fundamentals of structural analysis. Boston, USA: McGraw-Hill. (TA645 .L34 2008).
- 3. Jacques Heyman (2008). Basic Structural Theory. Cambridge, UK: Cambridge University Press. (TA645 .H49 2008)
- 4. George F. Limbrunner, Abi O. Aghayere (2007). Reinforced Concrete Design. USA: Pearson Prentice Hall. (TA444 .L55 2007)

DAC 20403 Geomatic Engineering

Synopsis

This course is an introduction to the science of survey: the definitions and basics of measurements, the measurement of distances and angles, working methods and procedures and data count. The survey of horizontal control that includes survey traverse, work methods, and data count. The survey of levels consist of sub topics vertical control surveying, heights datum and mean sea level, equipment and methods of leveling and contour lines survey. The field of particle survey includes tachometry, the basic of survey and work operation. The calculation of areas and volumes.

References

- 1. Abd. Shukor Sarif & Masiri Kaamin (2006). Modul Kejuruteraan Geomatik I & II. Johor: Penerbit UTHM. (TA549 .M37 2006)
- 2. Ghilani, Charles D. (2008). Elementary Surveying: An Introduction to Geomatics. USA: Prentice Hall. (TA545 .G44 2008)
- 3. Kavanagh, Barry F. (2009). Surveying: Principles and Applications,8th Edition. USA: Pearson/Prentice Hall. (TA545 .K37 2009)
- 4. Kavanagh, Barry F. (2010). Surveying withconstruction applications, 7th Edition. USA: Prentice Hall. (TA625 .K38 2010)
- 5. Watson, Paul (2008). Surveying and Engineering: Principles and Practice. USA: Blackwell. (TH438 .S97 2008)

DAC 20502 Hydrology

Synopsis

Basic concept of hydrology: Introduction to hydrology and its application in civil engineering; Hydrologic cycle and water balance equation; Meteorological data.Precipitations: Rainfall intensity calculation; Analysis of precipitation data. Evaporation and transpiration: Meteorological factors; Transpiration process; Methods of estimating evaporate-transpiration; Infiltration and seepage; Infiltration potentials of soil; Factors influencing infiltration rate; Infiltration Indexes. Surface run-off: Discharge measurement of river; Run-off estimation; The influence of catchment characteristics upon surface run-off. Analysis of hydrograph: Introduction to surface run-off components; Concept of unit hydrograph and its derivations. Groundwater: Basic principles of groundwater flow; One dimensional steady flow of groundwater; Hydraulic of well; Pumping test; Augmentation well; Frequency Analysis of flood: Gumbel Theory.

References

- 1. R.H. McCuen (2005). Hydrologic Analysis and Design. USA: Prentice Hall. (TC145 .M38 2005)
- 2. W. Brutsaert (2005). Hydrology: An introduction. Cambridge, England: Cambridge University Press. (GB661.2 .B78 2005)
- 3. Mays, Larry W. (2013). Ground and Surface Water Hydrology. USA: Wiley. (GB661.2 .M39 2012)
- 4. Ayob K., Zulkifli Y., Kawi B. (2007). Hidrologi Asas. USA: Pearson Prentice Hall.

DAC 20603 Structural Analysis

Prerequisite: DAC 20703 Mechanics of Material

Synopsis

Structural Analysis: Introduction to structure, determinate plane truss, deformation of

determinate truss, indeterminate truss, determinate space frame, analysis of indeterminate beam and rigid frame and plastic analysis.

References

- 1. Hibbeler, R.C. (2012). Structural Analysis, 8th Edition. USA: Prentice Hall. (TA645 .H52 2012)
- 2. Aslam Kassimali (2014). Structural Analysis, 15th Edition. USA: Cengage Learning. (TA645 .K37 2014)
- 3. Chia-Ming Uang and Anne Gilbert (2008). Fundamentals of Structural Analysis. USA: McGraw Hill Higher Education. (TA645 .L34 2008)
- 4. Williams, Alan (2009). Structural Analysis: In Theory and Practice. USA: Butterworth-Heinemann. (TA645 .W55 2009)
- 5. Megson, Thomas Henry Gordon (2014). Structural and Stress Analysis; USA: Butterworth-Heineman. (TA645 .M43 2014)

DAC 20701 Diploma in Civil Engineering Project I

Synopsis

The course aims to provide students with knowledge and training related to project implementation and production. The project should be from the draft proposal level to the project implementation plan. Project output is in the form of hardware construction, software development, and system analysis or data collection. This course focuses on initial planning, project selection, project proposal preparation, project proposal presentation and project expected result.

References

- 1. Related reference books.
- 2. Manual Guideline for implementation of Diploma Engineering Project, UTHM.

DAC 20803 Geotechnical Engineering

Synopsis

This course introduce to students about Formation and Classification of Soil; Soil Investigation Practices; Water in Soil; Consolidation and Shear Strength of Soil; Stress Distribution and Bearing Capacity of Soil; Design of Shallow and Deep Foundation; Lateral Earth Pressure and Slope Stability.

References

- Amir Khan Suwandi, Mohd Nazri Mohidin & Zaihasra Abu Talip: Modul Kejuruteraan Geoteknik, Penerbit UTHM, 2007., No. Panggilan :TA705.4.M3 .A44 2007.
- 2. Cheng Liu & Jack B. Evett,;Soils and Foundations, Prentice Hall; 2008., No. Panggilan: TA710 .L58 2008.
- 3. Braja, M D,: Principle of Geotechnical Engineering, McGrawHill,2010., No.Panggilan: (TA710 .D37 2010).
- 4. Braja, M D,: Principle of Foundation Engineering, McGrawHill,2011., No. Panggilan (TA775 .D37 2011)
- 5. Rodrigo Salgado :The Engineering of foundations, Mc Graw Hill, 2008. No. Panggilan (TA775 .S34 2008)

DAC 20903 Highway and Traffic Engineering

Synopsis

This course introduces students to knowledge of highway and traffic engineering at diploma level. Students are introduced to the definition of highway and traffic engineering. In Highway Engineering, students are taught on the topic of materials in pavement structure and their related testing. Basic concept on flexible and rigid pavements design are also introduced. An overview of road construction is also taught to provide understanding of the involved procedures. The road maintenance and drainage are also introduced to students for them to be aware of the advantages. While in Traffic Engineering, students are introduced to traffic parameters such as volume, speed and capacity and data collection procedures. The elements along the cross section of a road are also introduced as well as various sight distances calculation. While, there is also chapter where students learn to determine the controller setting time of a signalised intersection. Lastly, students are introduced to traffic management and basic knowledge of road safety. Beside theory, students are involved in laboratory works as part of practice-oriented elements in this course.

References

- 1. Garber N.J, Hoel L.A. (2015). Traffic and Highway Engineering, (5th Edition). USA: Cengage Learning. (TE145.G35 2015)
- 2. Currin, Thomas R. (2013). Introduction to Traffic Engineering: A Manual for Data Collection and Analysis. USA: Cengage Learning. (HE333 .C87 2013)
- 3. Mannering, Fred L. (2013). Principles of Highway Engineering and Traffic Analysis, (5th Edition). USA: John Wiley. (TE145 .M36 2013)
- 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)
- O'Flaherty, Coleman A. (2016). Highways: the location, design, construction and maintenance of road pavement. (5th Edition). London, ICE Publishing. (TE278.H53 2016)

DAC 21003 Hydraulic

Synopsis

Introduction to Hydraulics, Concept of Fluid Pressure and its Measurements, Concept of Hydrostatic Force and its Application, Concept Fluid Flow, Bernoulli Theorem, Flow in Pipes, Orifice Flow, Flow in Weirs and Notches, Uniform Flow in Open Channels.

References

- 1. Cengel, Y. A. and Cimbala, J. M. (2006). Fluid Mechanics: Fundamentals and Applications. USA: McGraw Hill. (TA357 .C46 2006)
- 2. White, Frank M. (2011). Fluid mechanics, 7th Editions. USA: McGraw Hill. (TA357 .W44 2011)
- 3. Kundu, Pijush K. Cohen, Ira M. Dowling, David R. (2012). Fluid Mechanics; 5th Editions. USA: Academic Press. (QA901 .K86 2012)
- 4. Crowe, C. T. Elger, D. F. Roberson, John A. (2014). Engineering Fluid Mechanics; 10th Editions. USA: John Wiley. (TA357 .E53 2014)

DAC 21102 Project Management

Synopsis

Concept of management – Philosophy and Management Theory Islam and West, Organizational Structure – Construction Management, Functions and Responsibilities of Managers, Handling and Project Implementation – Charts and Project Implementation Schedule, Optimal Time Management, Planning Resources – Bar Chart and Critical Path Method (CPM) and Histograms in Resource Management.

References

- 1. Peter Fewings (2012). Construction Project Management: An Integrated Approach, 2nd Edition. UK: Spon Press. (TH438 .F48 2012)
- 2. Robert K. Wysocki (2012). Effective Project Management: Traditional, Agile, Extreme, 6th Edition. USA: Wiley Publishing. (HD69.P75.W98 2012)
- 3. Omar Osman (2006). Pengurusan Pembinaan: Konsep, Strategi dan Aplikasi. Pulau Pinang, Malaysia: Penerbit USM. (HD9715 .042 2006)
- 4. Omar Osman (2010). Pengurusan Projek dan Kelestarian Titik Pertemuan. Pulau Pinang, Malaysia: Penerbit USM. (HD69.P75 .052 2010)

DAC 21203 Structural Design

Synopsis

Reinforced concrete structure: Design of simply supported beam, slab and short column. Steel structure: Design of restrained simply supported beam, simple column, roof trusses and connections. Timber structure: Timber properties, Design of timber members.

References

- Chanakya, Arya. (2009). Design of Structural Elements: Concrete, Steelwork, Masonry and Timber Design to British Standards and Eurocodes.UK: Spon Press. (TA658 .A79 2009)
- 2. McCormac, Jack C. (2012). Structural Steel Design. USA: Prentice Hall. (TA684 .M36 2012)
- Mosley, W. H. (2012).Reinforced Concrete Design to Eurocode 2. UK: Macmillan Press. (TA683 .M67 2012)
- British Standards Institution (2004). Eurocode 2: Design Of Concrete Structures -Part 1-1: General Rules and Rules for Buildings. UK: BSI. (BS EN 1992 - 1-1 : 2004)
- 5. SIRIM (2001). MS 544: Part 2: 2001- Code of Practice for Structural Use of Timber.Malaysia: SIRIM.
- British Standards Institution (2000). BS 5950: Part 1-Structural Use of Steelwork in Building: Code of Practice for Design in Simple and Continuous Construction-Hot Rolled Sections. UK: SCI

DAC 21303 Diploma in Civil Engineering Project II

Prerequisite: DAC 20701 Diploma in Civil Engineering Project I

Synopsis

Students are required to create and implement a project for one semester. This project essentially focuses on the identification, problem solving, method or approach to a system under study. The project is carried out based on the areas of specialization which include problem solving, project planning, innovative design, analysis and testing. The project, implemented a method to realize the understanding gained from theory using existing principles or concepts in practical application. Implementation of

this project will establish a proficient interactive students, using and selecting methods and advanced solutions in the relevant application. It also serves as an exercise in teamwork. Students are also required to present proposals and studies and reports on the development of the project in a seminar held at the end of the semester.

References

- 1. Jawatankuasa Projek Diploma PPD. Panduan Pelaksanaan Projek Akhir Diploma. PPD
- Osmond, Alex (2013). Academic Writing and Grammar for Students. USA: Sage Pub. (LB2369 .075 2013)
- 3. Chandra, Suresh (2013). Research Methodology. UK: Alpha Science Intl Ltd. (H62.C42 2013)

DAC 30109 Industrial Training

Synopsis

Students has to undergo an industrial training programme as a trainee assistant engineer in any civil engineering field at any organization listed by the Centre of Diploma Studies for 10 weeks duration. During the period, the industrial supervisor will assess the student performance and at least once by the appointed supervisor from the Centre of Diploma Studies. The students will be trained by the agency and organization in site supervision, planning, management, design, field investigation and assessment for a Civil Engineering project.

References

Industrial Training Guidebook, UTHM.

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 has 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 and Environmental Engineering 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





Legend:

- DAA Diploma in Civil Engineering
- DAB Diploma in Civil Engineering Technology
- DAE Diploma in Electrical Engineering
- DAR Diploma in Electrical Engineering Technology
- DAM Diploma in Mechanical Engineering
- DAJ Diploma in Mechanical Engineering Technology
- DAT Diploma in Information Technology
- DAK Diploma in Chemical Engineering Technology
- DAU Diploma in Apllied Sciences



MQF BASED ON QUALIFICATION LEVEL AND EDUCATIONAL PATHWAY

Further Education Pathway according to Malaysian Qualification Framework

NOF		Sectors		Sectors		Lifelana
Levels	Skills	Vocational and Technical	Higher Education	Learning		
8			Doctoral Degree			
			Masters Degree			
7			Postgraduate Certificate & Diploma	earning		
	_		Bachelors Degree	periential L		
6			Graduate Certificate & Diploma	on of Prior Ex (APEL		
5	Advanced Diploma	Advanced Diploma	Advanced Diploma	Accreditati		
4	Diploma	Diploma	Diploma			
3	Skills Certificate 3	Vocational and Technical Certificate	Certificate			
2	Skills Certificate 2					
1	Skills Certificate 1					

MALAYSIAN QUALIFICATIONS FRAMEWORK: QUALIFICATIONS AND LEVELS

Qualification and Levels according to Malaysian Qualification Framework



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